UNIVERSITY OF VENDA

THE NUTRITIONAL STATUS OF CHILDREN LESS THAN 5 YEARS RECEIVING CHILD SUPPORT GRANT IN MOGALAKWENA MUNICIPALITY, WATERBERG DISTRICT, LIMPOPO PROVINCE, SOUTH AFRICA

BY

KEKANA M.J

B. NUTR (UNIN)

STUDENT NUMBER: 11543155

This dissertation is submitted in fulfilment of the requirements for the degree of Master of Public Nutrition in the Department of Nutrition in the School of Health Science at the University of Venda, South Africa.

2017

SUPERVISOR: Prof XG Mbhenyane

Declaration

By submitting this thesis electronically, I Matipa Johannah Kekana, declare that the entirety of the work contained therein is my own original work, that I am the sole author thereof, that reproduction and publication thereof by University of Venda will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Signature:

Date:

Acknowledgements

I would like to thank:

- My Heavenly Father for the gift of life, the wisdom and perseverance to complete this dissertation.
- My late husband Mpho Selemela for the support he gave me when he was still around.
- My Children, Lesedi, Omphile, Reratilwe, your existence in my life gave me the courage to pull through even during difficult times.
- My dear parents, Daniel and Hellen Kekana and my lovely brother Itireleng, for always believing in me and the support and love you give me.
- My aunt Desia Mokonyane and helper Salome Maka for taking care of my kids.
- My supervisors, Prof Mbhenyane for the patience and the trust that "I can achieve this" despite the unfavourable circumstances I found myself in.
- My friend Solly Mabapa, thank you for your guidance, patience, courage and for believing in me.
- Department of Nutrition-Univen staff for always being there when I needed advice and guidance (Dr Mushapi, Vanessa, Nash)
- My classmates, colleagues and friends (Vivian Mamaregane, Tiny Motebejane) for co-travelling the long distance to Univen and for holding my hand when the going was getting tough.
- Mogalakwena municipality for allowing me the opportunity to conduct a study in your area.
- Mr and Mrs Maluleke for always offering me with accommodation in Thohoyandou.
- Department of Health for granting me permission to go ahead with the study
- Last but least all my participants in Mogalakwena municipality for allowing me access to your households and sharing private information with me.
- Caregivers and their children from the four villages.
- Dr Lutz for Editing my Dissertation.

LIST OF ABBREVIATIONS

BAZ	Body mass index for age
BMI	Body Mass Index
CSG	Child Support Grant
DEPT	Department of Health
HAZ	Height for age
HHFS	Household Food Security
HHFI	Household Food Inventory
NFCS	National Food Consumption Survey
MDG	Millennium Development Goal
PCG	Primary Care Giver
PSLS	Project for Statistics on Living Standards and Development
RTHC	Road to Health Card
SANNSS	South African National Nutrition Survey
SANHANES	South African National Health and Nutrition Examination Survey
SAVACG	South African Vitamin A Consultative Group
SPSS	Statistical package for Social Sciences
UN	United Nations
UNICEF	United Children's Fund
RTHC	Road to Health Card
WAZ	Weight for age

DEFINITION OF TERMS

Malnutrition	Poor or incorrect feeding, it is due to either excess or deficiency of one or more food constituents.
Under-nutrition	It is due to inadequate quality and quantity of food resulting in underweight and micronutrient deficiencies.
Child Support Grant	A cash transfer from Government for 0-18 year old children to support poor families in providing for children's basic needs.
Household food security	Sustainable access to safe food of sufficient quality and quantity, including energy, to ensure an adequate intake and healthy life for all.
Caregiver	Any person who takes primary responsibility for the daily care of a child and may or may not be related to the child.

LIST OF TABLES

LIST OF FIGURES

List of Appendices

Table of Contents

ABSTRACT

Objectives: The study objectives were to determine demographic and environmental factors that can affect nutritional status of children receiving CSG, to assess the nutritional knowledge of caregivers, to determine the proportion of CSG spent on food and to determine the nutritional quality of food bought from CSG.

Design: Cross-sectional descriptive with an analytical component

Subjects: PCG of children under the age of 5 receiving CSG in Mogalakwena Municipality. 189 caregiver-child pairs were interviewed, in their households.

Methods: Data collected by the interviewer included demographic data, Use of CSG, nutritional knowledge and the HHFI and anthropometric measurements were done by a 3rd year Nutrition student.

Results: About 36.5% of participants were in the age 26-35 years, 75.7% were unmarried, 84.1% were unemployed and 72% had no matric. Mean age for children studied was 2.84±1.33, 77.8% of participants stayed in a household of more than 5 people. In terms of types of housing, 56% had formal houses, 55% had access to pit latrines and 52.9% used communal taps to access water, 41.3% used electricity for energy while 23.3% used wood to stretch the availability of electricity. Mean CSG received was R386.22 ±R208.75. Majority of participants (56.1%) indicated that CSG supports the whole family and 64.6% of the families depended solely on CSG for survival, while 27% of families had elderly people receiving pension grant which was supplementing the CSG. The CSG was used for different items, majority of families used 94.2% of the money for food at a mean of R171.55±159.25, followed by toiletry (71.6%) at a mean R61.89±69.24, then clothing (68.9%) at a mean of R70.77±97.14. Stokvel was also mentioned as one of the items contributed for by CSG, 32.3% of participants used more than R50.00 for stokvel. Different food items were purchased using CSG, 80.5 % of the money was used to purchase starchy food, mealie meal being the highest commodity at 43.7%. Offal (35.8%) was the highest protein source purchased followed by poultry at 26.4% and soya soup at 20%. Potatoes (19.6%) were mentioned as the most purchased vegetable, followed by cabbage (14.8%). There was a 53.5% of prevalence of stunting, of this 19.6% of children were severely

stunted, 5.3% underweight, and 32.3% of wasting. There were 22.1 % of PCG who were overweight and 12.1% were obese. The PCG BMI was negatively associated with WAZ (r= -0.48, p=0.515). There was a positive association between PCG BMI and HAZ (r=0.103, p=0.158), however when caregivers BMI was correlated to BAZ the association was strongly negatively significant (r=0.206, p=0.004). Most PCG received nutrition education from relatives, 71.1% were never educated on nutrition, 57.9% of children were fed 3X/ day.

Conclusion: It is apparent from the study that malnutrition, precisely stunting is still a problem in South Africa, however this does not disregard the impact that CSG has on the lives of the poor. It affords the families to access basic needs in the household such as food, toiletry, electricity and even stokvel. The role of nutritionists/ dieticians is paramount in helping mothers to choose healthier economic food for the children in order to curb the burden of malnutrition.

CHAPTER ONE

INTRODUCTION

1.1 Background and motivation

The United Nations (UN) reported 1.2 billion people living in extreme poverty in 2010 (MDG, 2013). Although this number is high, in terms of proportions poverty rates have been halved between 1990 and 2010. Whilst this paints a positive picture globally suggesting that numbers of people living in extreme poverty may be declining, Sub-Saharan Africa is the only region in which the number of people living in extreme poverty continues to rise, from 290 million people in 1990 to 414 million in 2010 (MDG, 2013).

Nearly 20 years into democracy, South Africa is still battling with issues of poverty, inequality, unemployment and hunger. This is a situation not necessarily unique to South Africa. It has, however, defining features that are driven by a history and political economy which is unique to South Africa and as a result, shapes South Africa's response to this challenge (SA report on MDG, 2013).

Globally, about 60 million children experience moderate acute malnutrition, and a further 13 million, severe acute malnutrition. Moreover, about a third of the 6 million preventable deaths of young children occurring in poor and middle-income countries each year have been ascribed to under-nutrition (Black *et al*., 2008). Of those who survive, an estimated 200 million children under 5 years fail to reach their potential in cognitive development because of poverty, poor health and nutrition and deficient care (Grantham-McGregor *et al*., 2007). The *General Household Survey* indicates that in 2007, 10.6% and 12.2% of adults and children, respectively, were sometimes or always hungry. In contrast, the National Food Consumption Survey of 2005 found that 52% of all households experience hunger (Labadarios *et al*., 2005); it further reports that another 33% of households are at risk of hunger, which means that the food inflation and the loss of income might push them into hunger (Labadarios et al., 2005). More recently, the South African National Health and Nutrition Examination Survey (SANHANES-1) reported only 45.6% of the South African population to be food secure (Shisana *et al*., 2014). The largest percentage of the participants who experienced food insecurity was found in urban informal (32.4%) and rural formal

(37.0%) localities. The Eastern Cape and Limpopo had a hunger prevalence higher than 30%.

Targeted social wage has an impact on the triple challenge of poverty, unemployment and inequality. Social wages in SA are packaged in different target forms being free primary health care, no fee paying schools, social grants (such as old age pension and child support grant). Government intervention can take many forms, one of which is the direct provision of cash. While cash transfers have long been a standard part of the welfare systems of advanced industrial countries, they have been less commonly found in lower and middle income countries (Case *et al*., 2003).

The Child Support Grant (CSG) was initiated in 1998, with a cash value of R100 per child per month, paid to the primary giver. The cash value has kept pace with inflation over the years standing at R190 per child per month in April 2006 (Hall & Monson, 2006) and is now R380 in 2017. It is publicly funded and means-tested, meaning that the criteria to be accepted into the program are based on the financial status of the caregiver. There has been a very good uptake of the CSG nationally, and it is generally acknowledged that the grant is well targeted, with an excellent reach of poor children (Vorster & de Waal, 2008). Of the 14.6 million South Africans, who receive a monthly cash grant from the state, over 10.1 million are recipients of the CSG (South African Social Security Agency, 2011). Ninety six percent of recipients are women (Vorster & de Waal, 2008). The majority of these caregivers are biological caregivers, however CSG was conceived as a gender neutral, child centred cash transfer programme, but it has been feminised because of the fact that in the South African society, the overwhelming expectation is that women should provide primary care for children (Patel & Hochfeld, 2011)

1.2. Problem statement

Despite the priority given to reducing poverty and inequality by successive governments since the end of the apartheid era in 1994, most studies continue to confirm that the incidence of income poverty has continued to increase in South Africa between 1993 and 2000, and has declined marginally since 2000 (Leibbrandt *et al*., 2005).

Research in KwaZulu-Natal has demonstrated that stunted children do less well in their first few years at school than children who are an appropriate height for age (Yamauchi, 2008). It has also been shown that the reductions in household poverty that resulted from the introduction of the CSG produced substantial reduction in stunting of young children that are highly likely to produce, in turn, substantial increases in those children's productivity and wages once they grow up (Aguero *et al*., 2009). Aguero et al. (2006) report an improved nutritional intake and better school attendance due to intervention of CSG (Samson *et al*., 2008).

Improving our understanding of the changes in the nutritional status of children can potentially assist to better identification of policy intervention seeking to bring about a sustainable reduction of poverty in South Africa (May, 2014).

Overall, research seems to suggest that CSG households are more vulnerable to poverty than non-CSG households because they are larger, have less access to services, consist predominantly of black South Africans, have lower levels of education, and have less access to employment or income generation (Delany *et al*., 2008). Having mentioned this, it becomes imperative for the researcher to determine if CSG was making any positive impact on the nutritional status of the recipients and also on whether the money is used for the purpose it was intended for, as there were lots of unofficial reports on how primary caregivers were squandering money for their own pleasure and not for the children as expected.

1.3. Research questions

The following research questions will be answered:

1. Does child support grant improve household food security?

2. Does child support grant have an influence on the nutritional status of children?

1.4. Aim of the study

The main aim of the study is to describe and explore the nutritional status of children who are receiving child support grant.

1.5. Objectives

The objectives are set out are as follows:

- To determine demographic and environmental factors that can affect the nutritional status of children.
- To assess the nutritional status of children receiving CSG.
- To assess the nutritional knowledge of caregivers.
- To determine the proportion of child support grant spent on food.
- To determine the nutritional quality of food bought from the CSG.

1.6. Expected outcomes of the study

The following were expected outcomes of the study:

- Demographic and environmental factors affecting the nutritional status of children receiving CSG.
- Nutritional status of children receiving CSG
- Nutritional knowledge of primary caregivers
- The proportion of CSG spent on food
- Nutritional value or quality of food purchased

1.7. Significance of the study

The study will assist the government (Department of Social Development and Health) to evaluate the effect of CSG on the nutritional status of children; this way they will be able to assess the effectiveness of the programme.

1.8 Structure of the dissertation

Chapter 1 introduces the South African state of food security, poverty, the nutritional status of children, and the introduction of CSG. It also presents the aim, objectives, problem statement and the significance of the study conducted.

Chapter 2 reviews the literature which is available on food security, poverty, hunger, nutritional status of children and various methods of social security assistance.

Chapter 3 describes the methods used to answer the research questions.

Chapter 4 reports the findings of the study, which include demographic data, anthropometric measurements, information on CSG, nutritional knowledge,

environmental factors and household food inventory (HHFI). Results are presented using tables, percentages.

Chapter 5 discusses the findings of the study. Observed findings are compared to known literature.

Chapter 6 concludes the study and offers some recommendations.

Appendices and reference used are listed at the end of the dissertation in the order of use.

CHAPTER 2

LITERATURE REVIEW

2.1. Overview

South Africa ranks among the countries with the highest rate of income inequality in the world. Compared to other middle income countries, it has extremely high levels of absolute poverty. The South African government has committed to halving poverty between 2004 and 2014 (Altman *et al*., 2009). Dominant international institutions have committed themselves to addressing poverty e.g. World Bank through its Poverty Reduction strategies and the United Nations through the Millennium Development Goals (Case *et al*., 2003).

Three quarters of the children in South Africa live in poverty (Solanges & Guthrie, 2002). It was estimated that in 2002 approximately 11 million children under 18 years in South Africa live on less than R200/month and hence in desperate need of financial support (Solanges & Guthrie, 2002). The *Project for Statistics on Living Standards and Development* (PSLS) shows that poverty is racially distributed (95% of the poor are Africans), is spatially distributed (75% of the poor live in rural areas) and has gender dimension (many of the poorest households are headed by women) (Reconstruction and Development, 1995). Although there has been a marked decline in poverty since 2000, it is estimated that 55% of all children live below the ultra-poverty line. Dominant international institutions have committed themselves in addressing poverty, notably the World Bank through its poverty alleviation strategies and the United Nations through its Millennium Development Goals (Mc Gee & Norton, 2000).

When poverty strikes a family, the youngest members become its immediate victims (“Young lives”, 2007), since they are growing rapidly and the growth must be supported by increased nutrition for proper development. Child hunger is devastating since it can lead to a lifetime of health problems, poor performance at school and hamper development of children into full participants of society (Legislative Action Centre, 2001). A child’s early years are critical for development. The first four years of life are a period of rapid physical, mental, emotional, social and moral growth and development. This is a time where young children acquire concepts, skills and attitudes that lay the foundation for lifelong learning (“Young lives”, 2007). It has

been shown that children in the families in the bottom wealth quintile of the population are more than twice as likely to die before the age of five and that the infant and child mortality rate is significantly higher where environmental conditions are below standard (UNICEF, 2004). According to the South African Child Gauge by Monson et al. (2006), 55% of children belong to households living under the ultra-poverty line of R800 or less a month; Limpopo and Eastern Cape present the most poverty stricken profiles, with close to three quarters of the children living under the ultra-poverty line.

The end of apartheid in South Africa brought with it the need to change some of the social assistance policies, since in the old regime a State Maintenance Grant had been awarded by the government to help caregivers without partners to support their families. This program originally excluded African women and, later, when it was opened to Africans living in some parts of the country, it continued largely to exclude those living in urban areas (Case *et al*., 2003). In 1996 the new South African government moved to reconfigure this form of support, and in April 1998 started phasing out the State Maintenance Grant, replacing it with Child Support Grant (Case *et al*., 2003).

2.2. Nutritional status of children

A healthy baby grows at a faster rate during the first few months after birth. Under-nutrition is the most common form of malnutrition among poor families. Under-nutrition is due to inadequate quality and/or quantity of complementary feeding (Savage, 1992). Under-nutrition lowers immune-competence and increases the risk and severity of infections (Allen & Gillespie, 2001).

Faber *et al*. (2001) did a study in the Ndunakazi Village - a low socio-economic community in Kwa-Zulu Natal - where they wanted to determine the nutritional status regarding Vitamin A, iron and anthropometric indices and dietary intakes of children aged 2-5 years and their caregivers. They reported that 50% of all preschool children had 50% low Vitamin A status (serum retinal < 20mg/dl), 54% were anaemic (Hb < 11mg/dl), 33% had depleted iron stores (serum ferritin levels < 10mg/l) and 21% stunted (z-score for height for age < -2SD). Thirty percent of the caregivers had a low Vitamin A status (serum retinal < 30mg/dl), 44% were anaemic (Hb < 11mg/dl), 19% had depleted iron stores (serum ferritin levels < 12mg/l), 40% and 20% were

overweight (BMI ≥ 24) and obese (BMI ≥ 30) respectively. These results show the presence of hidden hunger in that area.

In the Alexandra Township, it was found that 5.5 % of the children in the age range of 12-23 months are below the 3rd percentile of weight for age (17.7% of the boys and 9.3% of the girls). In respect of height for age 44.3% of the boys and 44.1% of the girls were below the 3rd percentile. This indicates a high proportion of stunting, but not malnutrition (Coetzee & Ferrinho, 1994). Setswe (1994) has also assessed the nutritional status of children under 5 years in Mafikeng and found that 25% of them were below the 3rd percentile of weight for age. In age groups of less than 2 years, 28.6% are underweight for age; among those above 2 years, 71.4% were also underweight. This indicates that as children grow they receive less care from their caregivers and again their complementary foods are of poor quality. In most cases children younger than 2 years are still breastfeeding and this is the reason why the rate of malnutrition is less in this age group. Girls are more likely to be underweight and stunted than boys (78.6% vs. 21.4% and 72.7% vs. 27.3%, respectively). Weight for height measurements show that 16.7% of the children suffer from malnutrition. This shows that, when it comes to food, boys are receiving preferential treatment as compared to girls (Setswe, 1994).

2.2.1. Determinants of nutritional status

In the Eastern Cape a study on determinants of children's nutritional status in a rural district was done for 1646 children where anthropometric measures were taken. 3% of the children were wasted while 11% were underweight for age. Unemployed caregivers had 10% wasted children and 9% underweight for age. Caregivers who had less than 5 years of education had 17% of underweight for age children (Puoane *et al.*, 2000). A similar study was done in the Chobe District in Botswana and it was found that 16.7% of all children were underweight for age and households that were headed by women had more underweight children (20%) than those headed by males (14%). There was 23% prevalence of underweight for children in households headed by a person with no education as compared to 15% and 12% of children from households headed by persons with some primary and secondary school education, respectively (Gabotswang, 1998). Education is said to be associated with a higher socio-economic status.

A study was done by Bégin *et al.* (1999) to identify caregiver characteristics that influence child nutritional status in rural Chad. The sample of the study included 64 households with 98 children aged 12-71 months. Caregivers were interviewed on the number of pregnancies, child feeding practices, satisfaction with life, social support, decision making, and use of income. It was found that child survival, growth and development depend not only on food intake and health but also on care behaviour. Care depends on resources such as education, knowledge and beliefs, physical health, nutritional status and self-confidence.

Gabotswang (1998) also found that households with pit latrines had 25% underweight for age while those without pit latrines had 28%. Similar results were found by Puoane *et al.* (2000), who report 8% underweight in households with pit latrines as compared to 14% in those without pit latrines. Sanitation is, therefore, an important determinant. The more the caregiver knows about health and nutrition the better is the overall quality of her children's diet (James *et al.*, 1997).

Setswe (1994) found that most contributors to malnutrition in Mafikeng are illegitimacy, single caregivers, unemployment of caregivers and migrant workers fathering children and abandoning them and their caregivers when they return to their homelands. He also associated malnutrition with caregiver's consumption of alcohol and lack of resources such as water and inappropriate staple diets. The education and income of the caregiver had a significant and inverse association with infant mortality but major mortality was among children with no social security (Napoles-Rodriques *et al*., 1991).

The caregivers' nutritional knowledge affects the way they feed their children, and consequently affects the nutritional status of the children. According to UNICEF (1990), poor nutritional knowledge plays a role in most of the multisectoral factors, such as inadequate food intake and unhygienic dietary practices involved in the development of malnutrition. Lack of awareness and knowledge about feeding amount, frequency, type of food and balanced diet contribute significantly to a poor nutritional status of children younger than five years of age, even in families where adults meet their daily requirements (Jones *et al.*, 2005; Kiraru *et al*., 2005; Manu & Khetarpaul, 2006; Levitt *et al*., 2009).

Inadequate health services and an unhealthy environment are underlying causes of malnutrition in children, while poor food quality, insufficient food intake and severe or repeated infections also contribute to malnutrition (UNICEF, 2004).

2.2.2 Consequences of undernutrition in children

Economic consequences

Besides the fact that improving child nutrition has political and social motives, most importantly it has economic implications. There is a sufficient body of evidence that the level of child nutrition has got a significant impact on lifetime human capital accumulation. Undernourished children tend to start school later (Alderman *et al.,* 1995, Glewwe *et al*., 2001, Yamauchi, 2008), attain a lower level of schooling (Maluccio, 2009; Victoria *et al*., 2008; Yamauchi, 2008; Luzi, 2010), are more likely to repeat grades and perform worse academically, with inferior levels of cognitive development (Maluccio, 2009; Glewwe, 2001; Laus, 2011).

Early nutrition is a predictor of a child's future health (Victoria *et al.*, 2008). In the same breath, under-nutrition can place long term indirect strain on the public health system through its tendency to yield a higher proportion of unhealthy adolescents and adults. This leads to unhealthy workers with low productivity levels due to high rate of absenteeism caused by frequent illness.

The impact of a child's nutritional status on the overall economic status of the country motivates the government to implement policies, which will look at enhancing the lives of its citizens. The government should aim at improving household income; however doing so does not guarantee that nutritious food will be bought; instead, better tasting food is purchased with the money (Banerjee & Duflo, 2011).

Social consequences

The first 1000 days of life are the most crucial time of development for children that any insult that happens during this period tend to have detrimental effects on the children's development. Undernourished babies have got a weaker immune system which then makes them prone to frequent infection. Long term effects of poor nutrition and frequent infections can lead to stunting, and the effects of this, a delayed motor and cognitive development, are irreversible. In case of extreme food shortages, common childhood diseases like diarrhoea and pneumonia can lead to

acute malnutrition and wasting, which can easily lead to death if not given early attention.

Studies indicate that child stunting affects the brain development and also impairs motor skills which affect performance at school. According to UNICEF stunting is linked to 0.7-grade loss in schooling, a 7-month delay in starting school and between 22 and 45 percent reduction in lifetime earnings.

2.2.3 Causes of malnutrition

There are three underlying causes of malnutrition.

1. Inadequate availability of nutrients from food, either due to too little food, or available food containing insufficient nutrients. Not only the quantity is important, also the quality of food and the balance of the diet available to a child (de Pee *et al.*, 2010).
2. The health of the child (which is determined by the environment and access to health care). Once the food is ingested, it needs to be retained and absorbed by the body. Health status becomes critical in this regard. Diarrhea and intestinal worms are in most cases culprits in robbing the body of important nutrients that could have been absorbed (Banerjee & Duflo, 2011).
3. The quality of care the child receives. The mother's nutritional knowledge plays an important role on what the child will eat, and how to mix food that would yield good quality nutrition including good hygiene practices.

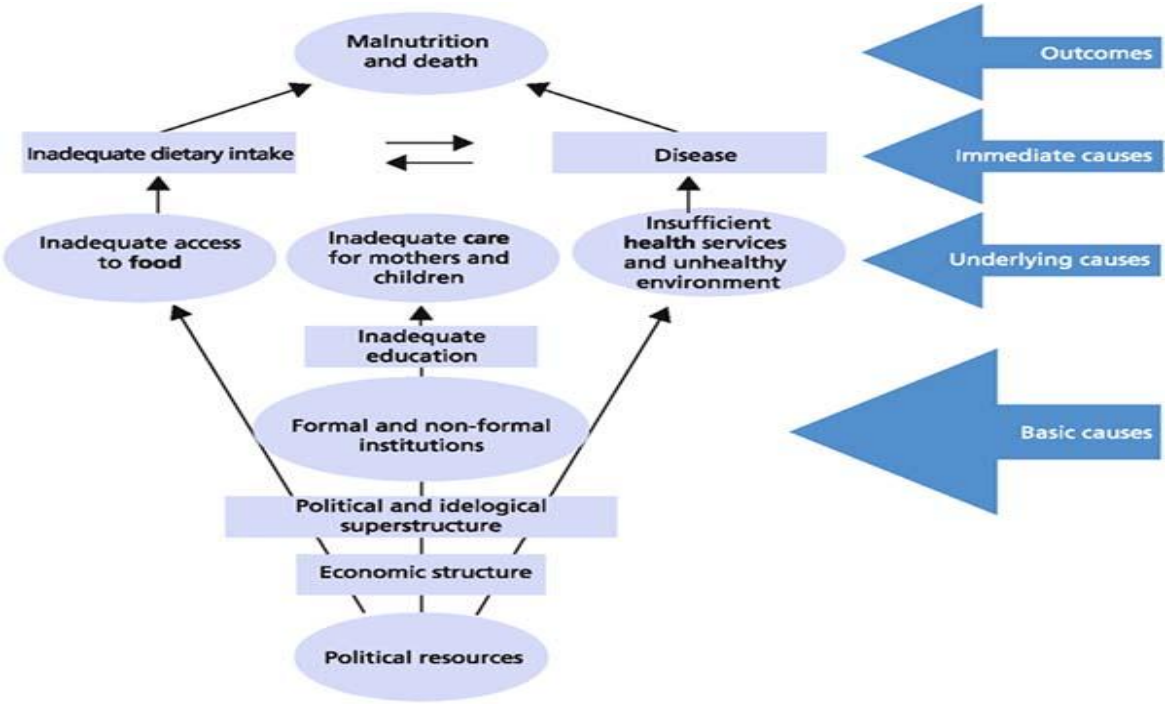


Fig 1: Conceptual Framework of Malnutrition (Adopted from UNICEF, 1990)

2.3. Social security

Social security covers a wide variety of public measures that provide cash or in-kind benefits or both, in the event of an individual's earning power permanently ceasing, being interrupted or never developing and such a person being unable to avoid poverty and in order to maintain children (White Paper for Social Welfare, 1997). Social assistance is a vital element in providing food and general security.

The constitution of South Africa (1996) gives children "the right to basic nutrition, shelter, basic health care services and social services". In addition to the constitutional obligation, there are international human rights documents that South Africa has ratified which commit South Africa to meet its obligation to children (Solanges & Guthrie, 2002).

There are many mechanisms by which the government addresses poverty. These include providing employment, access to basic services, free basic education, access to good health services, family support measures, grants and direct benefits, such as feeding schemes (Solanges & Guthrie, 2002).

2.3.1 Social grants

South Africa's social welfare system has come to play an important role in the government's strategy of reducing poverty (Samson *et al.*, 2007). Despite its role in poverty reduction, the public, policymakers and academics often view the social protection system with a degree of scepticism. The main concern is around encouragement of welfare dependency (which will encourage laziness, lack of interest in seeking for employment) and the basically social support which is a short term solution (Samson *et al.*, 2007).

Grants are provided in support of the mission, which is to empower the poor and to secure a better life for those in need. There are currently six grants available in South Africa, and all are subject to means test. This involves a formula that is used to help to ensure that the poorest people benefit from the money that is available to assist South African citizens (Department of Social Development, 2003). South Africa's social welfare system has come to play an important role in the government's poverty reduction strategy. When a person applies for social assistance, his or her financial assets are assessed to see if that person really deserves a government grant. Some well-known conditional cash transfer programs are Oportunidades (formerly PROGRESA) in Mexico and Bolsa Escola in Brazil; both these programs allocate monthly transfers to poor families who have children based on house related health behaviours. The Mexican program has shown promising results, measured against the yardsticks of child anthropometrics and childhood morbidity (Gertler & Boyce, 2001).

The types of grants in South Africa are as follows:

- Old age grant: paid to adults who are 60 years and above (men used to be paid from 65 years old or above, but has now changed to 60).
- Disability grant: paid to people who are 18 years and older, who are disabled for six months or more, or who cannot support themselves due to nature of their disability.
- War veterans grant: paid to people who are 60 years and above who once served in South African army during certain wars.
- Grant in aid: can be applied for by a person who already receives a grant but needs full time care from someone else.

- Foster care grant: this is for children who are placed in the care of a person who is not their parent.
- Care dependency grant: for children who are severely disabled who need special care.
- Social relief grant: temporary material assistance issued to people who are unable to meet their family's most elementary needs.
- Child support grant: cash transfer from the government for 0-14 year old children to provide them with basic needs (Department of Social Development, 2003). This has been recently extended to 18 years.

2.3.1.2 Child Support Grant

The South African Grant was first introduced in 1998 (McEwen *et al*., 2009). Prior to this, the government provided a limited State Maintenance Grant (SMG) (ibid). Applicants for SMG needed to prove that they were the sole providers and caregiver for a child under 17. Parents, who were widowed, divorced, deserted by spouses or with spouses in jail were eligible to receive it (Kruger, 1998). A household survey done in 1990 analysed the impact of the SMG and found that only 0.2% of African children received it, while 1.5% of White, 4% of Indian and 4.8% of the Coloured children were recipients. Ease of receipt was dependent on location; children living in rural areas were often excluded, due to a lack of knowledge regarding the grant, the inability to travel to application sites and other logistical challenges. So the household survey had to recommend an alternate strategy, which would be equally accessed by all. According to these recommendations CSG replaced SMG in 1998. This modification made the grant more accessible to caregivers and children and enabled the programme to substantially increase in participation (STATS SA, 2012).

CSG is a cash transfer from the government for 0-18 year old children to support poor families in providing for children's basic needs (Eastern Cape Provincial Government, 2003). When CSG was introduced, it was paid to the primary caregiver of the child at R100 per month in 1998 (ibid). A means test was used in order to qualify to get the grant. Families living in rural areas earning a household income below R800 p.m. and families living in urban areas with an income of R1100 were eligible to receive it (ibid). Families needed to bring along proof of income, and if the caregiver was not the biological parent, proof was also needed on efforts to secure

finance from the parents which were unsuccessful. All these procedures made the uptake to be very low; hence the means test modification was introduced in 1999 (ibid). The applicant would qualify to get a grant if he/she earned an annual salary below R13 200, if he or she lived in an urban area and R9600 or below, if he or she lived in a rural area (Department of Social Development, 2003). There are documents that are needed when applying for a grant. The child must have an identity document or a birth certificate bearing the 13 digits identity number. The applicant should be a primary caregiver of the child and must also provide his/her identity document. In cases where the children are not the caregiver's biological or legally adopted children, he or she shall be entitled to the grant up to a maximum of six children. Proof of income must also be provided (Report of the Lund Committee, 1996). The primary caregiver is any person who takes primary responsibility for the daily needs of the child and may or may not be related to the child (Department of Social Development, 2003).

In October 2002 the government proposed an increase in age limit for CSG from 7 years up to 14 years (Solanges & Guthrie, 2002). The constitution defines a child as any child below the age of 18 years (The Constitution of the Republic of South Africa, 1996), this means that children between the age of 14 and 18 years were excluded from receiving CSG. Child support has been increased to R170 per child in 2002, which means that R5.40 was spent per day per child then, but it now stands at R380, which is R12.60 per day per child. Furthermore, it now also covers children under 18 years, as defined in the constitution.

Some conditions associated with receiving CSG were eliminated. For example, primary caregivers were previously expected to participate in development programmes and to have their children immunised; the purpose was to encourage parents to take part in activities that would improve their families' standard of living and to ensure the safety of their children. However these conditions negatively affected the uptake into the grant (Woolard & Murray, 2010). A study done in 2001 by the Economic Policy Research Institute found that 95% of the most vulnerable children were excluded from the grant, as they did not have money to access clinics and to participate in development programmes; the elimination of these requirements increased the uptake (Samson *et a*l., 2007).

Solanges and Guthrie (2002) feel that for the CSG to be effective in alleviating hunger, the benefit should be increased and the means test be cancelled as it creates obstacles for poor families. They further suggested that the grant should be provided up to age of 18 years. Currently a child is eligible to receive CSG until their eighteenth birthday (The South African Child Support Grant, 2012).

The Child Support Grant is an important instrument of social protection in SA. It is both the largest of SA's social cash transfer programmes and one of the government's most successful social protection interventions (Samson *et al*., 2008). There are a number of studies which show the success of the CSG in terms of reducing poverty and promoting human capital development (Aguero *et al.*, 2009). Payment of cash to poor households will reduce poverty gap and also reduce inequality measures because they are typically funded from progressive taxation (Samson *et al*., 2004). Cash grants, therefore, directly improve the living standards of the poor and increase consumption levels of the poor relative to those in higher income groups, directly reducing poverty and inequality (Rawlings & Rubio, 2005).

2.4. Other food security programs

In the US, there are several nutrition programs that are aimed at alleviating hunger and they are the school breakfast and lunch and summer food service programs. These have been reported to be successful and cost effective. Besides the fact that they reduce hunger they also reduce obesity, raise quality of childcare for the low-income families, get young children ready for school and improve school achievement (Legislative Action Centre, 2001). In New Orleans, a study was done to evaluate the impact of food stamp programs on child nutrition. It was discovered that children who were receiving food parcels improved in anthropometry but the nutritional value of the food they were receiving was low (Johnson *et al*., 1999). In South Africa, NGO's and churches have food parcel programmes, soup kitchens and food donation for selected groups or areas. The government also introduced the National School Nutrition program in 1994 and its main integrated components are school feeding, sustainable food production and nutrition education.

2.5. Conclusion of literature review

Poverty is still a societal concern in South Africa and this increases the rate of malnutrition. According to the *National Survey on the Nutritional Status of Preschool children in South Africa* done by South African Vitamin A Consultative Group (1994), one in four children was stunted and one in ten was underweight. SANNSS (1995) indicates that among the 2-6 years old children, the non-urban, African ones, had low energy and micronutrient intake which resulted in high prevalence of stunting. Shisana *et al.* (2014) show that stunting, wasting and a growing number of instances of excessive weight are a health concern in children, along with micronutrient deficiencies and poor breastfeeding practices, while obesity continues to increase more markedly in women. Poverty and hunger impacts negatively on children's cognitive, physical and mental development.

Since poverty is associated with a lack of education and with unemployment, the government has come up with the Child Support Grant whose main aim is to reduce poverty and hunger in children less than 18 years of age. This type of grant is not a long term solution for eradicating hunger in South Africa, and whether this grant increases household food security is still questionable. This provision of R350 in 2016 (now R380 in 2017) to children by the government is better than nothing, but caregivers need to be educated on nutrition, so that with the little they are getting they will be able to purchase nutritionally dense food that will help their children to grow healthy. With unemployment levels at 25% nationally and over 15 million people receiving social grants, people do not have money to buy food. Employed people and those who have casual jobs indicate that they only have food in the first week of receiving their wages, from there they spent three weeks of the month with minimal food in the house. Social grants provide a crucial safety-net to many (www.oxfam.org/grow, accessed 2016.07.16).

CHAPTER THREE

METHODOLOGY

3.1 Study design

The study design was a cross-sectional descriptive with an analytical component conducted in the Mogalakwena Municipality of the Waterberg District in the Limpopo Province. A cross-sectional study implies the collection of data on exposure and outcome at one point in time (Polit and Beck, 2014). In this study the phenomenon is the nutritional status of children aged five years or less receiving Child Support Grant. The cross-sectional data were also used in analytical data analysis to explore the relationship of independent variables with outcome response variables. The aim of this descriptive study was to describe the nutritional status of children and to explore to what extent it is influenced by the CSG. A quantitative research methodology was used. According to Polit and Hungler (2014), a quantitative study tends to be a highly structured investigation that yields numerical information amenable to statistical analysis.

This study was descriptive and quantitative since the children's anthropometric parameters were measured to determine their nutritional status; other variables (e.g. nutritional knowledge of the caregiver; level of education of the caregiver etc.) were also measured.

3.2 Study population

Population and sampling techniques that were used are described in the sections below.

3.2.1 Target population

The target population consisted of primary caregivers and their children under the age of five years receiving Child Support Grant in the Mogalakwena Municipality. The reason for choosing children under the age of 5 years was that this was the vulnerable group in terms of susceptibility to malnutrition; if they are identified to be malnourished at this age, it is still possible to correct the nutritional status.

Mogalakwena is one of the five municipalities of the Waterberg District at the time of the study. The Waterberg District consists of six municipalities, namely Mogalakwena, Thabazimbi, Mookgophong, Lephalale, Modimolle and Bela-bela (see

Figure 1). The district is geographically located on the Western part of the Limpopo Province and shares five border control points with Botswana, namely Groblersburg, Stockpoort, Derdepoort, Zanzibar and Platjan. The Mogalakwena Municipality has an estimated population of 285 275 people, of these less than 10 000 are adults (and children less than 18 years of age) who have got tertiary education and about 94 272 are not economically active; not more than 8 000 people in this municipality earn a salary of above R4 000 (Stats SA, 2011).

Figure 2: Map of the Waterberg district and the six municipalities (prior to 2016 local elections)

3.2.2 Sampling

Mogalakwena was clustered into four units (i.e. four clusters). According to Polit and Hungler (2014), clustering sampling proceeds through a series of different sampling units. One begins with the largest, most inclusive unit, moving on to less inclusive unit, and then down to the most basic unit or element of population. This approach is

often called multi-stage sampling. A simple random sampling was used to select villages. The researcher requested a list of villages found in the Mogalakwena Municipality. The villages were assigned numbers, which were written on small papers. These were then folded and put in a container and the researcher picked one paper at a time from the container until four villages were picked. Villages which were represented by the papers were used as a sampling frame for the study. The intention initially was to select 50 households per village using a snowballing sampling method. However, the desired population size of 200 children and their caregivers could not be reached due to participants being reluctant to give consent to participate in the study. A total of 189 caregivers and 189 children participated in the study.

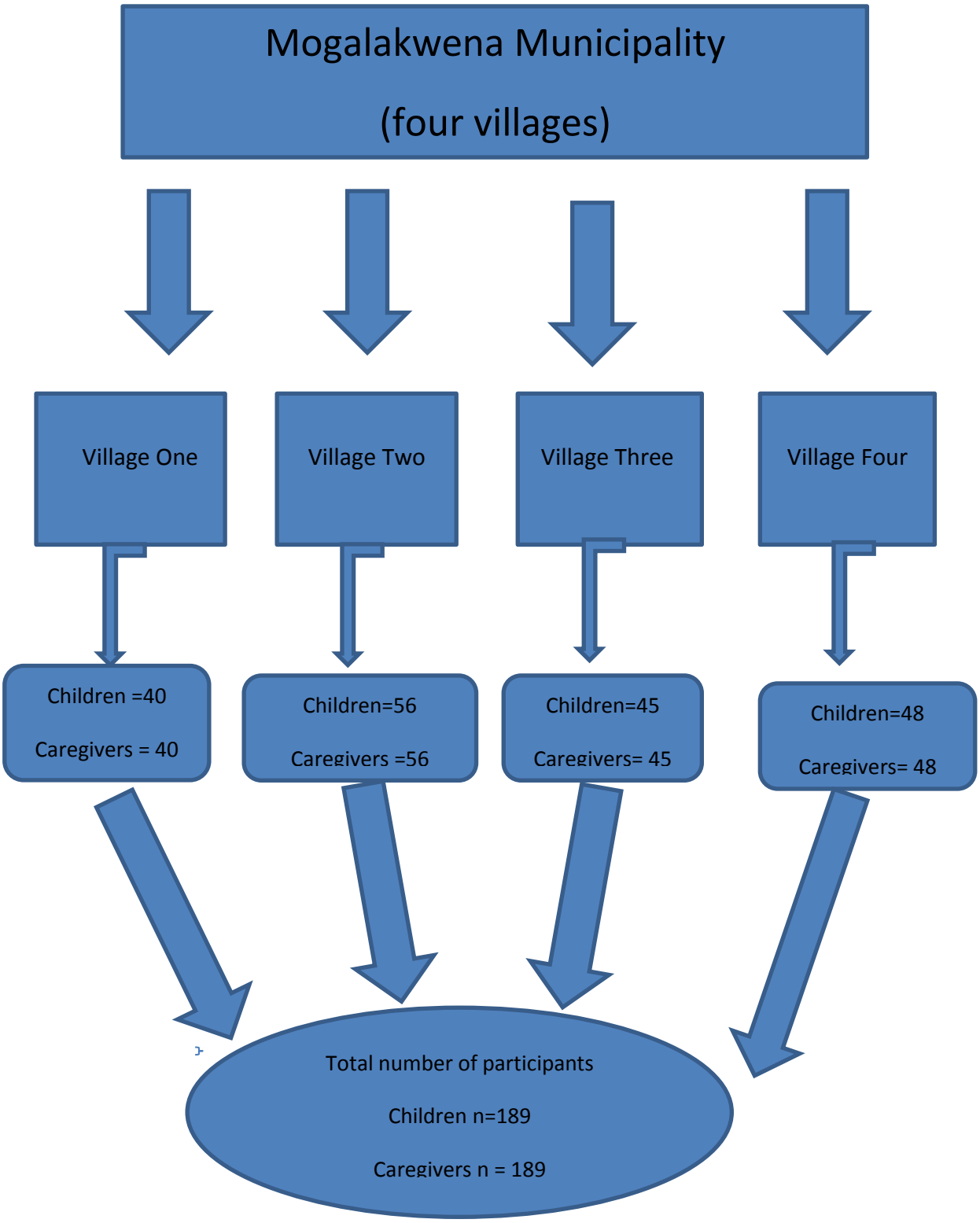


Figure 3: Sampling process employed in the study

3.2.3 Inclusion Criteria

The study included consenting primary caregivers who were residing in the Tshamahansi, Moshate, Sekgakgapeng and Mahwelereng villages and children under five years of age staying in the same household as the primary caregiver.

3.2.4 Exclusion criteria

The primary caregivers and children under the age of five years who were visiting the four villages mentioned in section 3.2.3 were excluded from the study. Primary caregivers with mental health problems were also excluded from the study.

3.2.5 Setting of the research

The research was conducted in households of the selected four villages found in the Mogalakwena Municipality. The villages were about 15km from each other. A questionnaire was used to collect socio-demographic information and dietary intake. In addition, anthropometric measurements, such as weight and heights were taken from both the primary caregivers and children under five years of age staying in the same household as primary caregivers.

3.2.6 Participant recruitment

Visit one

The researcher visited the Provincial Department of Health to ask for permission to use people in the Mogalakwena Municipality as subjects of the study. Once the permission was granted, a list of villages found in Mogalakwena was obtained from the district office.

Visit two

During the second visit the researcher visited the Mogalakwena Municipality to be granted written permission to conduct the study in its area; the researcher also visited the ward counsellors of the selected four villages to seek permission to conduct the study, which was done verbally. The researcher also explained the research procedure and the objectives to the counsellors. The counsellors were responsible for informing the villagers of the intention to visit their households. Traditional Authorities in the villages were also visited and gave their blessings to the project.

Visit three

The last visit was used to recruit primary caregivers and children and also distribute consent forms, at their respective homes. The researcher used the snowballing method to identify study participants. The research procedure and objectives were explained to the participants before they participated in the study. The data were collected once participants gave verbal assent and consented in writing. Verbal assent and written consent were obtained from the primary caregivers of participating children. Ethical considerations are addressed in the section below and attached in Appendix B.

3.3 Measurements

3.3.1 Anthropometric measures

Anthropometric measurements were used to determine the nutritional status of the children and the caregivers. These were recorded on the form in Appendix A.

Weight

The children were weighed without shoes and wearing light clothes. The subject stood still in the middle of the platform of the scale without touching anything and with weight equally distributed on both feet. The weights were taken by a 3rd year student of Nutrition, using a Seca electronic scale (model 0213). The scale was continuously calibrated against an electronic scale. The weight was recorded to the nearest 0.1 kg (Lee and Nieman, 2007). A solar scale was used because of the anticipation that some households would not have electricity. The weight was taken twice, and an average was taken as the final weight, this was done to increase accuracy.

Height

Height was taken using a stadiometer. The subjects were barefooted and heels close together, arms to the side, legs straight and knees straight, looking straight ahead and wearing light clothes. The subjects were standing with shoulders relaxed looking straight ahead. Heels, buttocks, scapular (shoulder blade) and the back of the head were against the vertical surface in a Frankfurt position (Lee and Nieman, 2007). The height was recorded in centimetres and to the nearest 0.1 cm (Lee and Nieman, 2007). The height was taken twice, and an average of the two was taken as the final height, this was done to increase accuracy.

Caregivers weight

The fieldworker used a calibrated SECA Solar Scale. Weight was taken twice and the average of the two weights was taken as the final weight. The caregivers were asked to take off their shoes and had to have light clothing on. The fieldworker was the only one taking measurements, to ensure validity and reduce errors.

Caregivers height

The fieldworker used a stadiometer to take their heights; the height was taken twice and an average was taken as the final height. This was done to increase accuracy. The caregiver was asked to stand close to the wall on a levelled surface inside the house, with both feet close together against a wall. A hardboard was used to mark the height.

3.3.2 Demographic and household data

A validated questionnaire (Appendix A) on demographic data, nutritional knowledge, CSG and environmental status was used to gather information. The researcher asked the caregivers questions and recorded the answers all by herself; she did this in order to ensure reliability and she also wanted to avoid partial completion of the questionnaire. A Household Food Frequency Questionnaire was also used to determine the children's food patterns. The questionnaire had both open and close ended questions. The local language *Sesotho sa Leboa* was used when asking the questions and answers were recorded in English by the researcher.

3.4 Data collection procedure

3.4.1 Physical arrangement

A separate room in the house of the participants was requested to be used to ensure privacy. Two stations in the house were arranged, the first station was taking anthropometric measurements and demographic information such as age and gender.

In the second station the researcher interviewed primary caregivers using the developed and validated questionnaire. Participants were asked general questions on socio-demographic and environmental matters, on the Child Support Grant and its use and on nutritional knowledge.

3.4.2 Tools and specific procedure

The data were recorded using a questionnaire which was developed by the researcher. The researcher developed the questionnaire following the objectives of the study and the literature on the same field was reviewed to gather information on how other researchers conducted their studies using the same procedures as in the current study. The developed questionnaire was pre-tested and pilot-tested to assess the completeness and appropriateness of questions with the focus on the participants' understanding of questions.

3.4.3 Fieldworker

A third year nutrition student of the University of Venda was recruited as a fieldworker. She was trained by the researcher and methods of data collection were standardized. The fieldworker was responsible for taking anthropometric measurements. The decision to choose a 3rd year Nutrition student was based on the training that she had undergone on how to take measurements. The student was also a research assistant in one of the supervisor's projects. In addition, she was competent in Sesotho sa Leboa.

3.5. Institutional approval

The research proposal was submitted to the Higher Degree and Ethics Committee of the University of Venda before a data collection and ethical clearance certificate was issued (Appendix C). A letter, together with the ethical clearance certificate and the research proposal, was submitted to the Department of Health, Provincial Office, to seek permission to conduct the study (see Appendix D). Once permission had been granted by DOH (Appendix E), the permission letter was submitted to the Mogalakwena Municipality to conduct a study in the area and permission was granted (Appendix G). The village traditional authorities were also consulted to give permission for using community members, which was by verbal assent.

3.6. Ethical considerations

No subjects were enrolled in the study until the protocol subjects' information sheet and recruitment material had been approved in writing by the Higher Degree and Ethics Committee of the University of Venda. The study was conducted according to the principles of the declaration of Helsinki (2008). No subjects entered the study without signed informed consent after a full oral and written explanation of the study

had been provided by the researcher (see Appendix B). The primary caregivers also gave consent for children who formed part of the study. Subjects had the right to withdraw from the study at any time. If, at any time of the study, a subject was seen to be having nutrition related conditions, the subject was informed and referred to the nearest health institution. The data generated from the study were stored in a computer database, in a manner that maintained subject confidentiality. For data verification and quality control purposes, regulatory authorities and/or members of the Higher Degree Ethics Committee of University of Venda might be allowed access to subject data under conditions of strict confidentiality. The anonymity of subjects was ensured by using codes instead of names.

3.7. Measures of validity and reliability

Validity is the extent to which the instrument measures what it is supposed to measure (Leedy & Ormrod, 2005). Internal validity is attained in a study when the findings can be shown to result only from the effect of the independent variable of interest and cannot be interpreted as reflecting the effects of extraneous variable (Polit and Hungler, 2014). External validity is attained when the results can confidently be generalised to situations outside of the specific research setting. Content validity was ensured by checking of instruments by the supervisors, one who was a social scientist.

Reliability is the degree of consistency or dependability, with which an instrument yields a certain result when the entity being measured has not changed. The researcher was the one filling in the questionnaires, using the language that is used by the community and the fieldworker was only taking anthropometry; these measures increased the reliability of the data.

3.8. Pilot study

A pilot study was conducted at the Mosesetjane Village at the same municipality. It was chosen because it has the same characteristics with regard to its socio-economic status, its lifestyle and cultural beliefs as the sample villages. The questionnaire was tested in five households. The questionnaire had the following changes after the pilot study: gender of children, history of diseases and the last date of receiving CSG were included and the sampling method was changed from convenience to snowballing.

3.9. Statistical analysis

The data were captured by the researcher on excel spreadsheets. Open-ended questions were analysed using thematic analysis and categorised. Then coding was applied and entered in the same spreadsheet. The data was cleaned and checked by the supervisor before sending them to a statistician.

Nutritional status-Techniques

Weight for age, height for age and weight for height were analysed using Z-scores. The Z-scores system expressed the anthropometric values as a number of standard or Z-scores below or above the reference mean or median value (http://www.who.into/nutgrowthdb/about/introduction/en/index5.html accessed online). Z-scores, which were gender and age independent, thus permitting the evaluation of children's growth status, were determined for weight for age (WAZ), height for age (HAZ) and weight for height (WHZ). The Z-scores classification indicated in Table 1 below was used for interpretation.

Table 1: Z-scores Classification to determine nutritional status of children (WHO, 2009)

Z-scores classification	**WAZ**	**WHZ**	**HAZ**	**BAZ**
<-3SD	Severely underweight	Severely wasted	Severely stunted	Severely wasted
-3SD to < -2SD	Underweight	Wasted	Stunted	Wasted
-2SD to < -1SD	Mild underweight	Mildly wasted	Mild Stunted	Normal
-1SD to +1SD	Normal WAZ	Normal WHZ	Normal height	Normal weight
>+1SD to ≤+2SD	Possible growth problem	Possible risk of overweight	Normal height	Possible risk of overweight
>+2SD to ≤ + 3SD	Possible growth problem	Overweight	Normal height	Overweight
>+3SD	Possible growth problem	Obese	Above normal	Obese

For the purpose of establishing whether the observation of the nutritional status are of public health importance, the classification used for assessing the severity of Malnutrition by prevalence range is indicated in Table 2.

Table 2: Severity of Malnutrition by prevalence ranges.

Indicator	Severity of Malnutrition			
	Low	Medium	High	Very High
Stunting	<20	20-29	30-39	>40
Underweight	<10	10-19	20-29	>10
Wasting	<5	5-9	10-14	>15

(http://www.who.into/nutgrowthdb/about/introduction/en/index5.html, accessed 22 March 2013)

Weight and height of primary caregivers were interpreted using the Body Mass Index (BMI). For the purpose of establishing whether the observations of nutritional status are of public health importance, the following classification of BMI was used.

Table3: Classification of BMI for adults

BMI Classification (kg/m²)	Interpretation
<18.5	Underweight
18.5-24.9	Normal
25-29.9	Overweight
30-34.9	Class I-Obese
35-39.9	ClassII-Obese
≥40	ClassIII-Obese

(WHO, 2000)

Data on demographics, nutrition knowledge and environmental factors and nutritional status, were analysed using SPSS, mean and r–correlations, t-test or chi-square with a significance level of p=0.05.

3.10 Problems encountered during data collection

- Most of the participants were reluctant to participate in the study as they had a perception that the reason the researcher was in their community, was to monitor if CSG was being used responsibly. Some community members demanded to see the approval letter from the municipality.
- The participants expected the researcher to take further steps such as reporting those who were perceived to be using the CSG for purposes that were not benefiting the children e.g. playing cards, buying cell phones with the money etc, to higher authorities.
- Some of the primary caregivers would refuse to participate saying that the biological parent was not around to give approval for them to participate.
- The data collection was done over two years, due to reluctance of subjects and also the household visits in the villages which were time consuming

CHAPTER FOUR

RESULTS

The results presented herein include socio-demographic data, anthropometric measurements, nutritional knowledge and household food inventory. The results are presented in the form of tables, percentages and p-values.

4.1 Demographic data

The data were collected from four areas in the town of Mokopane within a radius of 5-20 km from each other. Area 2 had the highest number of participants and the lowest was area 1 with 21.2%. Table 4.1 indicates distribution by areas. The total sample was 189 caregivers-child pairs.

TABLE 4 Distribution of participants by area

Area	No. of children (n=189)	No. of caregivers (n=189)	Percentage (%)
Village one	40	40	21.2
Village two	56	56	29.6
Village three	45	45	23.8
Village four	48	48	25.4

4.1.1 Demographic data of caregivers

The study was carried out on 189 caregivers and their babies receiving CSG. 36.5% of the participants fell within the age range 26-35 years. Only 0.5 % of the participants were less than 18 years of age and a parent consented on her behalf. Table 4 summarises the demographic data of caregivers.

TABLE 5 Demographic data of caregivers

Demographic parameters of Caregivers	Frequency (n=189)	Percentage (%)
Age of primary care taker		
Less than 18 years	1	0.5
18-25 years	68	36.0
26-35 years	69	36.5
36-40 years	25	13.2
Above 40 years	26	13.8
Educational level		
Never gone to school	11	5.8
Grade 1-7	27	14.3
Grade 8-12	137	72.5
ABET	3	1.6
Post matric/tertiary	11	5.8
Marital status		
Married	40	21.2
Single	143	75.7
Divorced	3	1.6
Widowed	3	1.6
Employment status of caregiver		
Unemployed	160	84.7
Self employed	14	7.4
Employed	8	4.2
Pensioner	4	2.1
Piece jobs	3	1.6
Salary scale of the caregiver		
R100 - R500	11	5.8
R600 - R1 000	13	6.9
R1 100 - R3 000	2	1.1
> R4 000	1	0.5
N/A	160	84.7
Not sure	2	1.1
Employment status of the caregiver's spouse		
Unemployed	18	9.5
Employed	11	5.8
Self employed	8	4.2
Temporary job	3	1.6
No spouses	149	78.8
Salary scale of the caregiver's spouse		
R100 - R500	4	2.1
R500 - R1 000	8	4.2
R1 000 - R3 000	8	4.2
> R4 000	2	1.1
Did not have spouses	149	78.8
Not sure	7	3.7
Unemployed	11	5.8

Most (75.7%) of the caregivers were single and only 21.2% were married. The majority (84.1%) of the caregivers was unemployed, only 4.2% were employed and only 6.9% earned what could be marked an average salary of R600- R1 000. Only 0.5% of caregivers earned a salary of above R4 000. When caregivers were asked about the employment status of their spouses, 78.8% did not have spouses and those who had, indicated that 5.8% were employed and 1.6% had temporary jobs. Only 1.1% had an income of R4 000 or more and 4.2% were earning in the salary bracket of R500- R1 000.

4.1.2 Demographic data of children

31.2% of the children were 2 years of age and only 0.5% were less than 12 months old; the age mean was 2.48±1.33. With regard to gender, 52.4% were male and the remaining percentage was female. Furthermore, 3.7% of the children suffered from common colds and flu at the time of research, 1.1% had diarrhoea, 0.5% suffered from both common cold and flu and diarrhoea. The majority (91.5%) did not suffer from any of the disease in the past days or weeks prior data collection. Table 5 summarises age and gender distribution of children.

Table 6 Demographic data of children

Demographic parameter	Frequency (n=189)	Percentage (%)
Age distribution of children		
Less than 1 year	1	0.5
1 year	31	16.4
2 years	59	31.2
3 years	35	18.5
4 years	41	21.7
Mean age 2.84 ± 1.33		
Gender of the Child		
Boy	99	52.4
Girl	90	47.6
History of disease of children (past few weeks)		
Common Colds Flu	7	3.7
Diarrheal	2	1.1
Pulmonary Tuberculosis	2	1.1
Flu & Diarrheal	1	0.5
Oral thrush	1	0.5
Retroviral disease	1	0.5
Poor appetite	1	0.5
Never felt sick	173	91.5

4.1.3 Household environmental parameters

Most (77.8%) indicated that they were staying with more than five family members. 10.1% of the participants had three family members and only 0.5% stayed with two family members. The minimum number of household members was two while maximum was 5. Table 6 indicates the number of people in the household. When caregivers were asked to estimate the total household income, 30.1% were not able to give an estimation, 24.9% reported that R1 000- R1 500 was the total income and 7.4% indicated R2 000- R7 500.

56.1% of the households were staying in formal houses built from bricks while 7.9% stayed in informal houses (shacks) and 2.6% stayed in traditional house (huts). With regard to sanitation, 55% of the caregivers indicated that they have pit latrines toilets, 3.7% used their neighbour's toilets, and 2.6% did not have ablution facilities. When participants were asked about their source of water, 52.9% reported that they get water from communal taps, 2.6% indicated that they get water from the neighbours who have running water in their households. Sources of fuel are any materials used as a form of energy. 41.3% of the households use electricity and others use a combination of electricity and wood (23.3%) while only 1.1% used gas as a source of energy.

Caregivers bought groceries at various stores. These places ranged from spaza shops to retail supermarkets. 43.9% of the participants bought groceries from spaza shops and retail supermarkets, 3.2% bought groceries in local general dealers while 4.3% bought from spaza shops only. See Table 6a and 6b below for household parameters.

Table 7a Household environmental parameters

Parameter	Frequency (n=189)	Percentage (%)
Number of family members in the household		
2	1	0.5
3	19	10.1
4	22	11.6
>5	147	77.8
Total income of the household		
R200 - R600	31	16.4
R610 - R1 000	27	14.3
>R1 000 - R1 500	47	24.9
>R1 500 - R2 000	13	6.9
>R2 000 - R7 500	14	7.4
Not sure	57	30.2
Type of housing		
Formal	106	56.1
Low cost RDP	29	15.3
Informal	15	7.9
Traditional	5	2.6
RDP extended	31	16.4
Formal and Traditional	3	1.6
Type of ablution facility		
Flush toilets	51	27.0
Ventilated improved latrine	22	11.6
Unimproved pit toilets	104	55.0
No facility	5	2.6
Neighbour's toilet	7	3.7

Table 7b Household environmental parameters

Parameter	Frequency (n=189)	Percentage (%)
Source of water		
Public tap	100	52.9
Internal tap water	70	37.0
Borehole	14	7.4
Neighbour	5	2.6
Type of energy used in the household		
Electricity	78	41.3
Electricity and wood	44	23.3
Wood	25	13.2
Electricity Paraffin	16	8.5
Electricity, Paraffin, wood	11	5.8
Paraffin and Wood	7	3.7
Paraffin	5	2.6
Gas	2	1.1
Electricity and Primus stove	1	0.5
Description of places they purchase groceries		
Spaza and retail	83	43.9
General dealer and retail	72	38.1
Retail	11	5.8
Spaza shop	8	4.3
Spaza, general dealer and retail	7	3.7
General dealer	6	3.2
Spaza and general dealer	1	0.5
Own spaza	1	0.5

4.2 Anthropometric measurements

Anthropometry provides the single most inexpensive and non-invasive means of assessing growth, a critical determinant of child health.

Figures 4, 5 and 6 show the results and interpretations of anthropometric measurements of children.

According to Figure 4, 55.6% of children were of normal weight, and only 5.3% were severely underweight. Only 1.6% were obese while wasting prevalence was 32.3%, which is very high according to WHO standards.

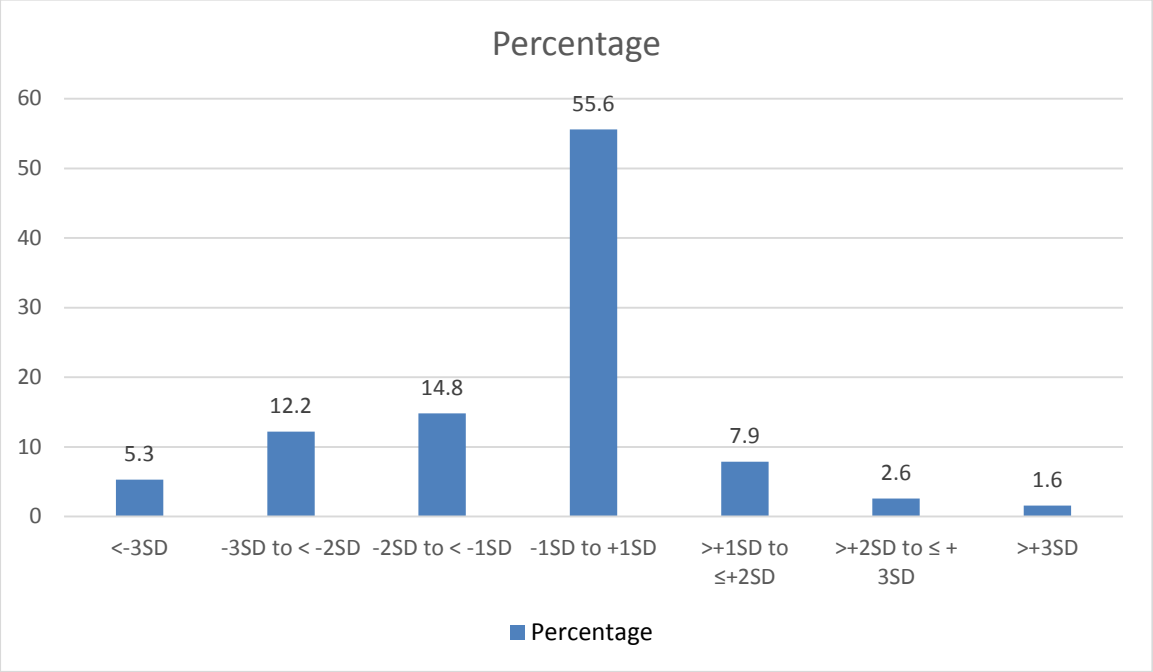


Figure 4 Weight for age of children (underweight)

Figure 4 shows that 34.4% of the children were of normal height, while 19.6% were severely stunted, only 4.2% grew very tall for their age. Prevalence of stunting is 53.5%, this is also very high according to WHO standards and of public health concern.

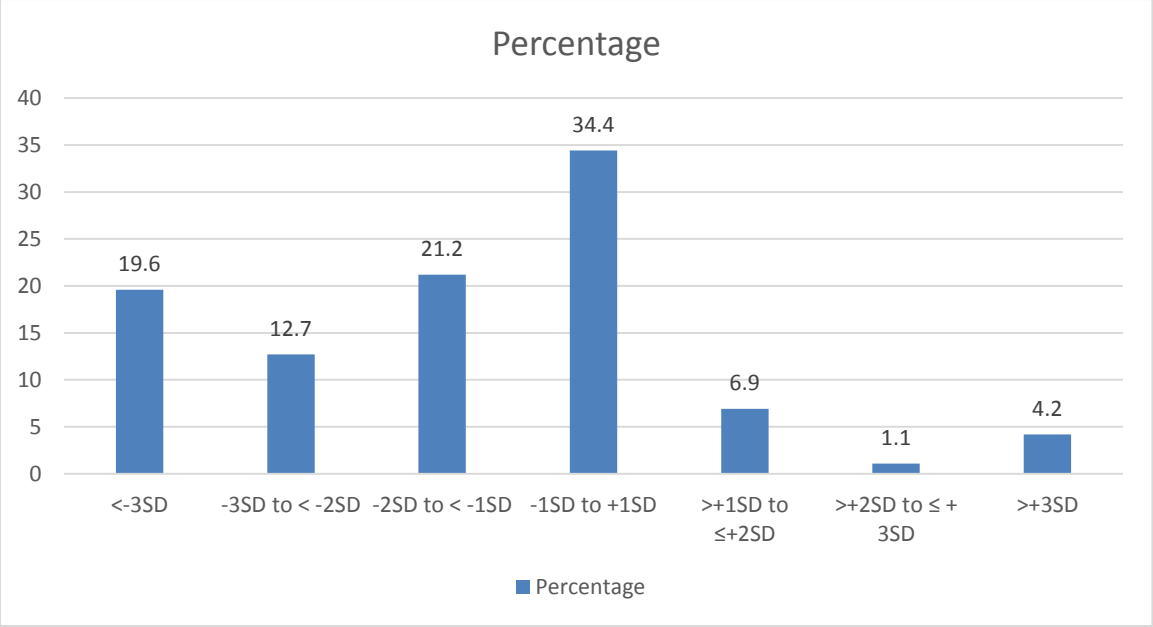


Figure 5 Height for Age (Stunting)

Figure 5 shows the children's BMI where 48.1% of the children had normal BMI (-1 to 1) while 22.2% were at possible risk of being overweight. Only 2.1% were severely wasted and 4.2% were obese.

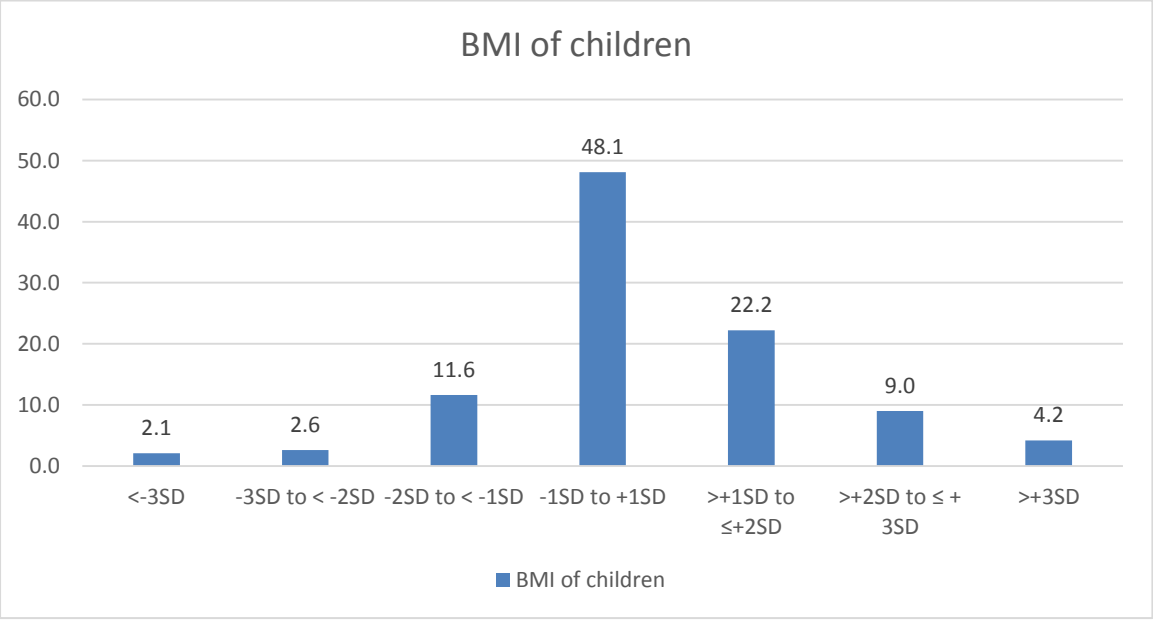


Figure 6 BMI of Children

Table 7 shows that based on BMI 13.7% of the caregivers were underweight, 51.8% had normal weight, 22.2 % were overweight and 12.1% were obese. Table 7 illustrates the BMI of caregivers.

Table 8 BMI of Caregivers

BMI (kg/m^2)	Interpretation	Frequency (n = 189)	Percentage (%)
< 18.5	Under-weight	26	13.7
18.5 - 24.9	Normal weight	98	51.8
25 - 30	Overweight	42	22.2
> 30	Obese	23	12.1

The caregivers BMI was negatively associated with WAZ (r=-0.48; p=0.515). There was a positive association between caregivers BMI and HAZ (r=0.103; p=0.158) however when caregivers BMI was correlated to BAZ the association was strongly negatively significant (r=-0.206; p=0.004). See table 8 below.

Table 9 Correlation of caregivers BMI to Children's Z scores

Caregivers BMI	WAZ	HAZ	BAZ
	r = 0.048 p = 0.515	r = 0.103 p = 0.158	r = -0.206 p = 0.004

Correlations below were for caregivers, where n=168, the missing values was because some primary caregivers were not willing to disclose their employment status. There is no significant difference between the caregiver's employment status in relation to WAZ, HAZ and BAZ of the children (p- value 0.700, 0.553 and 0.728 respectively). See Table 9 below.

Table 10 Correlation of employment status of caregivers and Z scores

Employment status of caregivers		Frequency (n=168)	mean± STD deviation	p-Values
WAZ	Employed	9	-0.653 ± 1.619	0.700
	Unemployed	159	-0.434 ± 1.439	
HAZ	Employed	9	-1.630 ± 2.301	0.553
	Unemployed	159	-1.144 ± 2.234	
BAZ	Employed	9	0.595 ± 1.117	0.728
	Unemployed	159	0.455 ± 1.581	

4.3 Nutritional knowledge and feeding practices

Caregivers were asked questions on feeding practices and nutrition knowledge. Most caregivers (71.1%) never got the opportunity of being given nutrition education on children's feeding. Nurses (18.9%) are mostly the sources of nutrition education for caregivers, followed equally by dieticians and mothers of the caregivers.

Very few children (15.3%) were given meals 5x or more per day. The majority of the children ate on average three times per day and 23.8% ate four times per day. Some caregivers (28.6%) knew that if a child is not adequately fed they would get sick; 23.3% indicated that unhealthy skin is a sign of poor nutrition, followed by kwashiorkor (19.6%) while 18.5% did not know the signs of poor nutrition. Caregivers gave multiple answers when answering the question on "what would happen if a child is not properly fed" this is the reason why (n) is more than 189. Table 10 outlines the nutritional knowledge of caregivers and feeding practices of their children.

Table 11 Nutrition knowledge of caregivers

	Frequency n=189	Percentage (%)
Have you been taught about feeding		
Yes	55	28.6
No	135	71.4
Who taught you how to feed		
Nurse	36	19.0
Dietician/Nutritionist	6	3.2
Caregiver	6	3.2
Grand caregiver	1	0.5
How many meals do you give to the child		
2 meals	5	2.6
3 meals	110	58.2
4 meals	45	23.8
5 meals	12	6.3
>5 meals	17	9.0
What happens when child is not properly fed (n=189)		
Illness	54	28.6
Unhealthy skin	44	23.3
Kwashiorkor	37	19.6
Don’t know	35	18.5
Swollen body	33	17.5
Weight loss	30	15.9
Weak	29	15.3
Underweight	13	6.9
Diarrheal	9	4.8

4.4 Use of Child Support Grant

Participants were asked questions to establish how they used the CSG. The caregivers reported to be involved in stokvels and 32.3% contributed more than R50 towards the stokvel, 1.1% contributed R10 and 36.5% did not have any stokvel. Stokvels are invitation-only clubs of twelve or more people for savings, as rotating credit unions or as a saving scheme in South Africa, where members contribute fixed sums of money to a central fund on a monthly basis (Stokvel sector. Online). All children were receiving an amount ranging from R190 to R240. The reason for the difference is that data was collected over a period of three years, and CSG is increased annually. In 2007 it was R190, but it increased to R210 in 2008 and during the last year of data collection it was R240. The total amount of CSG in the household varied according to the number of children receiving CSG in the household. 32.8% had a total ranging from R420-R700, 57.7% had a total amount ranging from R190 to R400. The mean CSG received was R386.22 ± R208.75.

The number of children receiving CSG in the household ranged from 1-5 in the study. 41.3% of the caregivers indicated that they have only one child receiving CSG, 34.9% had two children whereas 3.7% had four recipients of CSG. Caregivers were asked if the CSG is used for supporting the whole family. 56.1% indicated that the CSG supports the whole family while the remaining 43.9% said it does not.

Caregivers reported that they were receiving various types of grants. These include grants for older persons, Disability grant, Foster Care grant and a combination of Disability Grant and Pension. 27.0 % of the participants had other family members who received Pension grants, 2.1% received a combination of Disability Grant and Pension Grant whereas 64.6% did not receive any grant than the CSG.

See table 12 for data on social grants.

Table 12 Data on social grants

Parameter	Frequency (n=189)	Percentage
Amount contributed to stokvel per month		
R10	2	1.1
R20	9	4.8
R30	26	13.8
R40	7	3.7
R50	15	7.9
>R50	61	32.3
Did not use money on stokvel	69	36.5
Amount of CSG received per child		
R190	69	36.5
R210	69	36.5
R240	47	24.9
Don't Know	4	2.1
Total CSG for all children per household		
R190 - R400	109	57.7
R420 - R700	62	32.8
R720 - R950	14	7.4
R960 - R1 200	4	2.1
Number of children receiving CSG per caregiver		
1	78	41.3
2	66	34.9
3	29	15.3
4	7	3.7
5	9	4.8
Other forms of grant received		
Pension	51	27.0
Disability	11	5.8
Disability grant and Pension	4	2.1
Foster	1	0.5
No other forms of grant	122	64.6

Child Support Grant was intended to contribute to the wellbeing of a child; however, it is used for different purposes in different households, and the majority (94.2%) uses it to buy food with, 71.4% for toiletry, 68.8% for clothing, 37.0% for stokvel, and 31.7% for electricity. 26.9% of the participants spent it on school fees. Table 12 summarises the use of CSG.

Table 13 Uses of CSG by caregivers

Description of use of CSG	No of households	Percentage (%)	Amount in Rand Mean ± SD
Food	178	94.2	R171.55 ± 159.25
Clothing	130	68.8	R70.77 ± 97.14
Toiletry	135	71.4	R61.89 ± 69.24
Stokvel	70	37.0	R30.52 ± 51.98
Electricity	60	31.7	R18.77 ± 46.54
Fees	50	26.9	R14.04 ± 40.70
Nappies	13	6.9	R10.59 ± 35.53
Doctor	8	4.2	R2.18 ± 15.71
Paraffin	7	3.7	R1.8 ± 10.76

In order to establish whether CSG was used to buy nutritionally dense food that would promote proper growth and development, it was important to ask caregivers about the types of food they were purchasing with the money.

A total of 81.0% is spent on starches, where mealie meal is the most commonly bought commodity (43.9%), followed by cereals (Baby cereals and or breakfast cereals) at 21.1%. A percentage of 13.8% goes to meat and meat products. Offal was the most purchased protein sources followed by poultry.

The majority of caregivers (88.5%) spend some of their money on milk and milk products, and this is shown in Table 9 that caregivers used the money mostly to buy

yoghurt (45.0%). The use of “Danone” cuts across all ages as a snack and this is followed by Nespray at 24.9%.

The CSG money was also spent on fruits, the highest percentage was on bananas followed by apples. These two types of fruit are accessible throughout the year compared to pear and orange which were the least purchased. Moreover banana has a smooth texture therefore can be easily eaten by babies as early as 6 months. Vegetables were also part of the food expenditure. Interestingly, the starchy vegetable (potatoes) is the highest most bought vegetable, as reported by the caregivers.

Very few caregivers spend money on cold beverages. Cordials are mostly used at an insignificant percentage of 8.9. Table 14a and 14b gives a breakdown of food bought with CSG money.

Table 14a Food bought with CSG money

Parameter	Frequency (n=189)	Percentage (%)
Purchasing patterns by food group		
Starches	153	81.0
Meat and Meat products	26	13.8
Milk and Milk products	168	88.9
Fruits	76	40.2
Vegetables	113	59.8
Cold Beverages	19	10.1
Types of starches purchased		
Mealie meal	83	43.9
Cereals	40	21.1
Macaroni	22	11.6
Rice	10	5.3
Bread	8	4.2
Samp	3	1.6

Types of meat and meat products purchased		
Offal	68	36.0
Poultry	50	26.5
Soya soup	38	20.1
Tin Fish	32	16.9
Beef	29	15.3
Processed meat	16	8.5
Beans	15	7.9
Eggs	12	6.3
Peanut butter	4	2.1
Fish	2	1.1

Table 14b Food bought with CSG money

Parameter	Frequency (n=189)	Percentage (%)
Types of milks and milk products purchased		
Yoghurt	85	45.0
Nespray	47	24.9
Fresh milk	26	13.8
Baby Formula	22	11.6
Inkomazi	10	5.3
Types of fruits purchased		
Banana	35	18.5
Apple	30	15.9
Pear	7	3.7
Orange	4	2.1
Types of vegetables purchased		
Potatoes	37	19.6
Cabbage	28	14.8
Onion	24	12.7

Spinach	9	4.8
Butternut	7	3.7
Beetroot	4	2.1
Carrots	4	2.1
Cold beverages and drinks		
Cordials	17	9.0
Fruit juice	2	1.1

The study seeks to find out what proportion of money was spent on household items. The mean value for money spent on food is R171 ± 159.25, for clothing is R70.77 ± 97.14, toiletry is R61.89 ± 69.24 and stokvel account for R30.52 ± 51.98

Table 15 Amount of CSG spent on different household items

Items	Mean amount spent in Rand & SD	Don't know	Did not buy
Food	R171.55 ± 159.25	17%	5.8%
Clothing	R70.77 ± 97.14	9.5%	40.3%
Toiletry	R61.89 ± 69.24	11.1%	28.6%
Stokvel	R30.52 ± 51.98	0.0%	61.4%
Electricity	R18.77 ± 46.54	0.0%	68.8%
Fees	R14.04 ± 40.70	1.1%	85.7%
Nappies	R10.59 ± 35.53	0.0%	91.0%
Doctor	R2.18 ± 15.71	0.5%	96.8%
Paraffin	R1.80 ± 10.79	0.0%	97.4%

The proportion of total CSG spent on food is less than 50%. However, food is the highest item that caregivers use the CSG on. The proportion of money spent on food using a mean CSG of R386.22 ± R208.75 is calculated and tabulated in table 16 below.

Table 16 Proportion of CSG spent on goods per item

Item	Proportion of CSG (%)
Food	44
Clothing	18
Toiletry	16
Stokvel	8
Electricity	5
Fees	4
Nappies	3
Doctor	0.6
Paraffin	0.5

4.5 Summary of results

All caregivers and their children were from low socio-economic households. The prevalence of wasting and stunting in children was very high accompanied by a high prevalence of overweight and obesity in caregivers. This confirms the co-existence of under-nutrition and over-nutrition, double burden in the same household. The proportion of CSG spent on food was less than 50%, with most foods bought being of low nutritional quality, mostly starchy foods. Almost all caregivers were not taught on child feeding.

The quantities of foods bought and the quantities fed to the children were not determined as part of this study.

CHAPTER FIVE

DISCUSSION

This chapter discusses the results of the study under the subheadings: Socio-demographic and environmental information; nutritional status of children and their caregivers; nutrition knowledge and feeding practices of caregivers; and the use of CSG.

5.1. Socio-demographic and environmental information

The majority of study participants were from poor socio-economic background, and this could be due to high rate of unemployment of caregivers. The unemployment rate among the caregivers (84.7%) is almost four times higher than the national unemployment rate of 25% and in the Waterberg District it is 28.10% (www.localgov.co.za, 2014.05.30). High unemployment rate among caregivers in this study may be caused by many factors, including the low number of people with post-matric education: only 5.8% had tertiary education. Most households in this study depend on CSG for survival. In the current study, most recipients of CSG were women aged 18-40 years. Leatt (2004) arrives at a similar conclusion where it is indicated that more than 98% of the CSG recipients were women under the age of 35 years. The majority of the caregivers were single, and that made them eligible to be recipients of CSG as stipulated by Kruger (1998).

In this study, 77.8% of the households had five household members or more. It was interesting to see that 56.1% of households had formal houses while 15.3% were staying in RDP houses of which, 16.4% were extended RDP houses. This is in line with the Census results (2011) which show a decline of 0.8% in informal settlement from 2007. Limpopo seems to be the province with the lowest number of informal settlements and this has been consistent since 2007 to 2011 (Statssa, 2012). The majority (55%) of the households in this study use pit latrines, like in a study that was done in Northern Uganda where 60.1% of households had their own pit latrines (Mokori *et al.*, 2013), while in the study that was done in KZN by Faber and Benade (2007) access to toilet facility in households was even higher at 90% and only 2.6% did not have a toilet facility. This is different from another KZN study where 39% had

no toilet facility (Case *et al*., 2003) and different from the Northern Uganda where a significant number of households (35%) had no toilet facility (Mokori *et al*., 2013). This study was conducted in four villages, which do not have municipal sanitation facilities. Households build their own septic tanks in order to have flush toilets. Those who had municipal toilets had chemical pit types. Very few households (3.7%) used the toilets of the neighbours similar to Mokori *et al*. (2013) where 3.3% used neighbours latrines. Poor sanitation has been shown to be associated with underweight (Puoane *et al.*, 2000; Gabotswang, 1998). The children in this study were severely underweight and stunted.

With regard to access to water, 50.8% accessed their water from the public tap, but 37.0% of the households had their own private taps in their yards. This is in contrast to KZN, where 8% of households had piped water in their dwellings (Case, 2004), However, another study by Faber and Benade (2007), that was done in KZN, showed that the majority (90%) of households had access to tap water. Labadarios et al., (2005) in the National Food Consumption Survey of South Africa had similar results, wherein 60% of the households obtained water from own taps, and 25% from communal taps; only 9% had boreholes in their yards. The source of water in South Africa is depended on where people live; however, villages near big towns often have tap water inside the own yard/house. Safe, clean water is essential for a healthy nutritional status.

According to the results of the Census 2011, there is an increase in the proportion of households using electricity for heating in eight of the nine provinces over the period 1996-2011. Limpopo moved from 36.8% to 45.0% from 2007 to 2011 (Stats SA, 2012). The type of energy used was electricity (41.3%) similar to a KZN study where 50% of the households had grid electricity. Few households (23.3%) supplemented electricity with wood, and only 13.2% used wood as the only source of fuel. The source of energy is one of the determinants of children's nutritional status.

5.2. Nutritional status of children and caregivers

The future of a child depends a lot on the nutrition during the first 1 000 days of their life; if good nutrition is provided from conception, this lays a solid foundation for the physical and cognitive development (Paxson & Case, 2008). This results in better performance at school (Alderman *et al.*, 2001), which then translates to better

chances of finding good, well-paying employment, therefore better income (Handa *et al.*, 2014).

The Z-score measurements are a way of examining the impact of CSG on the nutritional status of children receiving it (KIDS, http://sds.ukzn.ac.za. Accessed 2014.03.20). The nutritional status of children under five is one of the indicators of household well-being and one of the determinants of child survival (Thomas *et al*., 1990).

Most children in the current study were of normal weight at 55.6%. This is similar to the study done in India by Chatterjee & Saha (2007), where they found that children under 5 years were of normal weight. On the contrary, the prevalence of wasting was high at 32.3% in this study. Similar results were shown by the Brazilian study where they found a negative effect on weight, but this was contributed to by the erroneous perception that the programme benefits would be discontinued if a child grew well (Morris *et al.*, 2004). This study is in contrast with the SANHANES-1 because it was reported that undernutrition in children younger than 10 years has decreased since 2005, this indicates that undernutrition is not that much of a problem since it indicates short-term deprivation of food and can easily be corrected. It is possible in this area that it was so, but trends analysis was not done for this study area. Stunting being an indication of long-term starvation and chronic food insecurity is a cause for concern and is persistent in most studies done. In the current study, it is shown that 21.2% of the children were stunted and 19.5% severely stunted, a very high prevalence of more than 40% and of public health concern. This concurs with Koornhof (2014) where stunting was 31.6%, similarly in SANHANES-1 with boys and girls being stunted at 26.9% and 25.9%, respectively. The purchasing power of the caregivers was poor, and the proportion of CSG spent on food was low. The food purchased was of poor quality, mainly energy dense and poor in micronutrient content. Zere and McIntyre (2003) have shown consistency with the results that stunting was found to be the most prevalent form of malnutrition in South Africa, and it is mostly observed in poverty stricken provinces such as the Eastern Cape and Limpopo. Malnutrition may adversely affect the child's intellectual development and consequently health and productivity in later life (WHO, 1995), and stunting is regarded as an indicator for long standing dietary deprivation and is associated with poor socio-economic conditions. WHO recommends stunting as a reliable measure

of overall social deprivation (WHO, 1986). This study did not determine the food quantities consumed by the children. Thus, nutrient intakes were not determined. However, the quality of food bought does show inadequate variety of protein and other micronutrient sources. It is also possible that the energy intake was inadequate given the large number of family members in most households.

Obesity is one of the pandemics that South Africa is faced with and this threatens the health of the citizens as it predisposes them to non-communicable diseases such as Diabetes and Hypertension. Half of the caregivers in the study were of normal BMI, however 22.1% were overweight and 12.1 % were obese, contrary to the Demographic and Health study by Puoane *et al.* (2000) where 56.6% of women were overweigh/obese and 42% had abdominal obesity (WHR of more than 1). This again shows that caregivers have children that are undernourished, while it would seem that they have more than adequate food to eat. Inadequate food distribution practices may be responsible for the co-existence of under-nutrition and over-nutrition in the same households. Adults, in society, are expected to feed children first, but the real practice is different. Lack of knowledge influences nutritional status (Levitt *et al.*, 2009).

In this study, 91.5% of the children did not have a history of illnesses in the past month, this is in agreement with South African Child Support Grant Impact Assessment (2012), where they showed that three quarters of all children were free from illness over the period of assessment. In this study, common colds and flu were mostly reported similar to the SA CSG Impact Assessment (2012).

5.3. Nutrition knowledge and feeding practices

Every-time a child suffers the curse of malnutrition, the caregiver takes the responsibility due to her lack of nutritional knowledge (Chatterjee & Saha, 2007). Nutrition education is essential for promoting knowledge of nutrition as well as nutritional practices which have the potential to result in a better nutritional status of the targeted population (Nnakwe, 2009). A large body of empirical international evidence exists pointing to a causal effect of education on health knowledge (Conti *et al.*, 2010; Khattak et al., 2007; Liaqat et al., 2006).

In this study 71.1% of caregivers were never taught about child nutrition, this is in contrast to a study by Faber & Benade (2007) that was done in rural KZN where only 22% of caregivers indicated that they never received nutrition education. Those who received education amounted to 28.9% in the present study. Those who were taught cited nurses (19.0%) while a few were taught by either a dietician (3.2%) or their mothers/parents (3.2%); this correlates with Faber & Benade (2007) where the majority of caregivers received nutrition education from health facilities. Most caregivers (58.2%) reported that a child has to be given three meals per day similar to a study done in Northern Uganda where a mean number of meals given to a child is 2.2 ± 1 time/day (Mokori *et al.*, 2013). Although nutrition knowledge alone, may not be adequate as a determinant of maintaining a healthy diet, knowledge can positively influence beliefs and facilitate healthier food intake practice (O'Brien & Davies, 2007).

Only 18.5% indicated that they were not aware of the symptoms or effects of malnutrition, while the majority was able to mention the symptoms with most mentioning that the baby will be sick (28.6%), kwashiorkor (19.6%), swollen body (17.5%), and weight loss (15.9%).

The relationship between poverty, income and household food security is a bit complex. While South Africa is generally food secure as a country, a large number of households are food insecure (Altman et al., 2009). According to Van der Berg (2006) social grants seem to be a positive contributor to improving food insecurity. Poor households spend an average R8 485/annum on food which translates to R707 per month and it amounts to 34% of the total income as compared to the non-poor households which spend R14 020 (R1 168 per month, which is 7% of their total income) as reported by *Poverty Trends in South Africa* (2014) on Household Income and Expenditure Patterns in SA. The household expenditures observed in this study are far below the norm of R707 per month. Van Aart (2008) interprets this to say poor households are left with little money for other expenditure items such as education, health and savings. The definition of poor household is one which has an income ranging between R0 - R54 000 p.a. (Stats SA, 2011). Total household income in this study was much less than R7 500 per month for most households,

indicating poverty. The current study shows that 23.3%, spend around R105 - R200 on food, compared with what Stats SA (2011) reported. The participants spend far less than the general population of poor households in SA. This indicates that it would not be expected of the households in the current study to be purchasing food of high nutritive value with so little money per month. This then explains the high prevalence of wasting and stunting in the children. Stunting is an indication of chronic malnutrition and persistent household food insecurity.

Stats SA (2011) indicates that 35% of poor households spend most of their money on starch (mostly mealie), while non-poor households spend 20% of their money in the same category. While a higher percentage of money goes to the starches in the poor households, only 22% is spent on meat, fish and poultry while the non-poor spent almost 30% of the same category and the latter has variety of meat sources to choose from like boerewors, lamb and beef. Similarly in the current study 81.0% of the money spent on food goes to starches, the highest percentage of which is spent on mealie meal followed by baby cereals. Lack of nutrition knowledge is apparent here, if caregivers were aware or taught on how to make homemade porridge, nutritionally dense with food that is accessible and affordable at home, they would avoid buying baby cereals and instead spare the money for variety of healthy protein dishes that would nourish their children.

As indicated in the Stats SA of 2011, the poor have little money to spend on meat sources compared to the non-poor; the current study shows that the highest proportion of money spent on meat sources goes to offal, which tends to be affordable in price but is of low nutritive value, which even predisposes them to NCDs as they are high in saturated fat and cholesterol, aggravating the burden of malnutrition in SA. The types of meat sources that participants afforded under this category were giblets, gizzards, chicken neck etc., because they are purchased in bulk and are affordable and last longer during the month. According to Stats SA (2011) the poor and the non-poor spend same amounts of money on fruits and vegetables which is 12.3%. However it turns out that the poor families spent a lot on potatoes at 3.1%. In contrast to the current study, vegetables (59.8%) are purchased more than fruits (40.2%) and similar results on potatoes at 19.6% being the most purchased vegetable item. Potatoes were mentioned under vegetables as they are regarded as such in the community, although it is known that potatoes are

abundantly starchy in nutritive content. This is worrying given the poor nutritional status of the children.

Poor households spend only 3.1% of their money on non-alcoholic drinks, compared to non-poor families which spend 5.3% on variety of non-alcoholic beverages. The most common non-alcoholic beverage purchased was cold-drink at 8.1%. A higher percentage of expenditure (8.9%) is reported by the current study; however, the it is used only on cordials as opposed to reports by others who showed that most used money for cold drinks. A poor diet leads to chronic malnutrition such as stunting (Caulifield *et al*., 2006). Stunting has detrimental effects on children since it affects cognitive development of children, which then translates to late schooling and poor performance. A stunted child is likely to drop out early from school. This means they will get a low paying salary, and will not even be strong enough to carry out some tasks at the workplace meaning that there will be decreased productivity (Behrman *et al.,* 2004). Short stature is associated with high risk of non-communicable diseases later in life (Lancet, 2008).

5.4 The use of CSG

Kola *et al.* (2000) indicated that in Limpopo the CSG accounted for an average of 51% of household income. According to a study that was done in three provinces (Limpopo, Eastern Cape and Western Cape) on hunger and malnutrition, all participants indicated that they depend a lot on social grants with the Child Support Grant and the Old Age Pension being the most common forms of grants (www.oxfam.org/grow, 2016.07.15).

Since CSG is aimed at reducing the poverty level and the standard of living, caregivers used it for different purposes. In this study, the majority of families at 94.2% used it for food, followed by toiletries (71.4%) then clothing (68.8%), all basic needs. This is in line with the survey that was done in the Sekhukhune District where they showed that money was spent on items of five categories, namely food (54%), water and electricity (9%) and soap and other household items (8%). Although for Sekhukhune the difference was the huge gap between food expenditure and other items, showing that food takes up more than double of other expenditures (Food Insecurity and Vulnerability Information Management System, 2007). It was interesting to see that stokvel appeared on the top list as one of the items that

money was used for. This is also seen in the SA CSG Impact assessment report (2012) where they reported that there was a 91% saving to stokvel schemes, indicative of the importance of social involvement and social capital in such saving groups. The main form of the stokvel in this study was for funeral purposes, ensuring that at the time of death the family can obtain money to bury their loved ones.

Most households in this study had five or more family members, and 41.3% of them had just one child receiving CSG. In rural areas of Limpopo the CSG accounts for an average of 51% of the household income (Guthrie, 2002), the same percentage was reported by Kola *et al*. (2000) in Limpopo. This is similar to the observation in the current study, where 56.1% depended fully on CSG, while some households had financial assistance from husbands (37.0%) and other caregivers (22.2%). However, a smaller percentage of participants who depended fully on CSG was reported in a Cape Town study (Guthrie, 2002), which also revealed that the average monthly income was R837. However the total income of R1 000-R1 500 in the present study was slightly higher than the income found in the Cape Town study. The current study showed that 41.3% of caregivers received CSG for one child and 27.0% of the households had additional grant of pension grant. This is similar to the study by Guthrie (2002) where 36% had other forms of grant. The majority of participants in the Cape Town study indicated that CSG has made their lives better because it improved their ability to care for their children, specifically mentioning that they are able to purchase food for their households.

The caregivers in this study were suspicious of the research team. They were weary of the practices by some caregivers of playing cards and betting using CSG. They thought the team were spies for Department of Social Department.

Women are the decision makers in terms of the usage of CSG where more than 70% of them indicated that they use it for children's clothes, food and groceries and medical costs (Patel & Hochfeld, 2006). The current study indicates that the bulk of the money (94%) is spent on food, followed by toiletry (71%), clothing (69%) and electricity (27%). The Cape Town study by Guthrie (2002) reported the same findings of 95% participants who indicated that the biggest portion of the CSG goes to food and groceries, followed by electricity and school fees. A Soweto study by Patel and Hochfeld (2006) found similar results though with a smaller percentage of

(54%) spent on food. The Soweto study further showed that the money is spent on school fees, which is different from the current study where an insignificant number of participants use it for school fees. It could be due to the fact that most schools in the area are non-fee schools.

5.5 Summary of discussions

Since the inception of the CSG in 1998, the government targeted those families with poor socio-economic status. The profile of caregivers in this study revealed that they were mostly unmarried, and the highest grade passed was barely matric. Most households had formal houses in line with previous reports by Stats SA that Limpopo has few informal settlements. Most households depended on CSG with few having an additional grant of pension. Household occupancy was more than 5 people on average. This is not surprising as there is high rate of unemployment in South Africa. Most households were electrified; however, some also used wood to cut down on the electricity cost.

Similar to the *National Consumption Survey of South Africa* (Labadarios *et al*., 2005), stunting and wasting was observed in the study, with the social and economic consequences that come with undernutrition. It becomes apparent that the vicious circle of malnutrition is not about to end. The consequence is poor cognitive development of a child losing an opportunity to study until tertiary level. Although some form of malnutrition was observed, it was heart-warming to observe that half of the children were of normal weight, proving that CSG is meeting its objective of enhancing the livelihoods of some recipients. Just as many studies would show that obesity in adults is increasing at an alarming rate, in this study most women were overweight/obese. This could be due to the vicious circle of malnutrition that if a child grows being underweight they are predisposed to obesity and diseases of lifestyle in their adult life. However, it is popularly known that adults serve themselves portions that are extremely big and mostly the plate will consist of energy dense food like mealie pap whilst at the same time activity levels will be low. Adults also eat all the meat and give children the gravy. This could be a contributory factor to what is observed in the current study.

The malnutrition observed in this study has a direct association with the caregivers' nutritional knowledge as it was observed that most caregivers did not receive

nutrition education, and if they ever did, it was from non-health workers e.g. mother, mother in law etc. This also has got an effect on food choices that they would buy with the money, where mostly energy dense food like mealie meal and potatoes are purchased. When it comes to relishes or protein sources that would go with the mealie pap, they chose food with low nutritive value such as chicken feet and offal. Most of the caregivers fed their children three times a day; this would contribute to the stunting that was observed, as feeding three times is not adequate for the child's small stomach capacity in relation to their rapid rate of growth.

From the implementation phase of CSG, it was meant not just for foods but to cover the needs of a child holistically. This is proven in the current study that the money was used for food, toiletry, electricity, clothing for the children and even stokvel. It was not surprising to see that stokvel formed part of the items CSG is used for, as they are considered important in black communities. It is always expected that one should always prepare oneself for when death strikes in the family. Therefore stokvel always makes it in the list of highest priorities of a household.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Malnutrition in children remains a health burden in South Africa, hence the researcher deemed it necessary to target the tender age of 0-5 years. This is a fragile age where there is a 'window of opportunity" to build strong foundation for the future of the children through nutrition and the age where - if malnutrition is identified early - there is still an opportunity to correct it.

This study's main objective was to describe the nutritional status of children (0-5 years) receiving Child Support Grant, through determinants such as demographic, environmental, children's and caregiver's anthropometric measurements, caregivers nutritional knowledge and the use of CSG in households. The main objective of the government, when it came up with CSG strategy, was to improve the livelihood or the standard of living for the poor. From the study, it became apparent that CSG has contributed to improving the standard of living in many households, because the majority indicated that they used the money for food, toiletry, clothing for the children, electricity and stokvel. Most households had access to clean, safe water from mainly communal and limited own private taps and limited access to pit latrines. These are considered basic resources in a household.

South Africa is experiencing high unemployment rate; therefore most households depend on CSG only for survival; only very few households have got financial assistance from other sources or by other members of the family like spouses and relatives.

The caregiver is the principal provider of the primary care that their child needs; the type of care they would give depends largely on the level of education and knowledge they possesses. Several studies have shown that caregivers' education plays a crucial role in their children's survival. This is proven by Abdalla *et al*., (2009) who stated that low a level of education of the mother results in various degrees of malnutrition; however, this does not mean that mothers with high education levels had healthier children (Liaqat *et al*., 2006). This study showed a high proportion of single parenting, and low level of education and at the same time high levels of

wasting and stunting. In addition, a high percentage of obesity was observed in the caregivers. There are many reasons why children could be malnourished and their caregivers be overweight. The food portions for adults at home are always very big, and they eat mainly starchy food with relishes of high fat content. The children in this study were fed mainly three times per day and the types of food were of low nutritive quality.

6.2 Recommendations

Food came up as the number one commodity that is bought with the money. It was observed in the study that the caregiver would do better had they been educated on nutrition when it came to food choices made when buying food. Most of them had received advice from relatives, very few from health care professional, especially from experts in the nutrition field (Dieticians/ Nutritionist). This study recommends the involvement of nutrition experts in assisting caregivers in compiling a list of economical and nutrition dense meals that can be bought with the money, to give guidelines on infant nutrition, looking at frequency of meals, emphasising the importance of exclusive breastfeeding as a solution to providing the best nutrition early in life, that does not just nourish but give the best immune protection from early in life. Furthermore, education on introducing a variety of foods when giving complementary foods, dispelling most cultural beliefs and practices that contribute malnutrition, e.g. delaying introduction of meat sources, fruits and vegetables until the child is over one year old. Nutrition expects should assist in educating about growing own vegetables so as to save the little money for other needs and also teach about cooking methods that will ensure retention of micronutrients thus preventing micronutrient deficiency. In order to ascertain that proper nutrition education is given throughout the country, it would be necessary for the Departments of Health and Social Development to come up with a plan of placing Dieticians / Nutritionist in many different clinics or district health offices, so as to advocate for proper nutrition in the first 1000 days of life, working in communities with caregivers. This way the babies would have the best start in life, nutritionally.

REFERENCES

Abdalla, M.A., Sulieman, S.A., EL-Tinay, A.H & Khattab, A.G.H. 2009. Socio-economic aspects influencing food consumption patterns among children under age 5 in rural area of Sudan. *Pak.J.Nutr*.8:653-659

Aguero, J.M, Carter, M.R. & Woodlard, I. 2006. The Impact of Unconditional Cash Transfer on Nutrition: The South African Child Support Grant. Cape Town: Southern Africa Labour and Development Research Unit. University of Cape Town.

Aguero, J.M., Carter, M.R. & Woodlard, I. 2009. The Impact of Unconditional Cash Transfers on Nutrition: The South African Child support Grant Working paper. International policy centre for inclusive growth.

Alderman, H., Behrman, J, Levy, V. & Menson, R. 2001. Child Health Enrolment: A Longitudinal Analysis. *The Journal of Human Resources*. 36(1): 185-205

Alderman, H., Chiappori, P.A., Haddad, L., Hoddinott, J. & Kanbur, R. 1995. Unitary versus collective models of the households: Is it time to shift the burden of the poor? *The World Bank Research Observer*. 10(1).P1

Allen, L. & Gillespie, S. 2001. What works? A review of the efficacy and effectiveness of nutrition interventions. Nutrition Policy Paper No 19 ADB Nutrition and Development Series No. 50: ACC/SCN.

Altman, M., Hart, T. & Jacobs, P. 2009. Household Food Security Status in South Africa. *Agrekon*/ Vol 48, No4. December.

Banerjee, A. & Duflo, E. 2011. Poor Economics: A radical rethinking of the way to fight global poverty. Public Affairs. USA.

Behrman, J., Alderman, H. & Hoddinott, J. 2004. Hunger and malnutrition. Copenhagen. Copenhagen Consensus.

Bégin, F., Frongillo, E.A. jr. & Delisle, H. 1999. Caregiver behaviours and resources influence child height for age in rural Chad. J. Nutr. MG.129 (3):680-6

Black, R.E., Lindsay, A.H., Bhutta, A.Z., Caulfield, E.L., de Onis, M., Ezzati, M., Mathers, M. & Rivera, J. 2008. Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences. Maternal and Child Undernutrition Study Group. School of Public Health. Baltimore. USA.

Caulifield, L.E., Richard, S.A., Rivera, J.A., Musgrove, P. & Black, R.E. 2006. Stunting, wasting and micronutrient deficiency disorders disease control priorities in developing countries. 2nd Edition.

Case, A., Hosegood, V. & Lund, F. 2003. The reach of the South African Child Support Grant: Evidence from KwaZulu-Natal (Durban) Center for Social Development studies. Working paper 38: 1-22.

Case, A. 2004. "Does money protect health status? Evidence from South African Pensions, in "Perspectives on the Economics of Ageing". University of Chicago Press. 237-312.

Chatterjee, S. & Saha, S. 2007. A study on knowledge and practice of caregivers regarding infant feeding and nutritional status of under five children attending immunisation clinic of a medical college. *The Internet Journal of Nutrition and Wellness*. Vol 5(1).

Conti, G, Heckman, J. & Urzua S. 2010. The education health gradient. *American Economic Review.* Vol 100(2)

Delany, A., Ismail, Z., Graham, L., & Ramkisson, Y. 2008. Review of the Child Support Grant. Johannesburg: Department of social Development, CASE, SASSA and UNICEF.

Department of Social Development, 2003. Procedural Manual. South Africa. Version 1.0: 1-7.

de Pee, S., Brinkman, H.J., Webb, P., Godfrey, S., Darnton-Hill, I., Alderman, H., Semba, R.D., Piwoz, E. & Bloem, M.W. 2010. How to ensure nutrition security in the global economic crisis to protect and enhance development of young children and our common future. *The Journal of Nutrition.* 145(1). pp1385-1423.

Eastern Cape Provincial Government, 2003. (http://ecprov.gov.za). Accessed 2005.06.20.

Faber, M. & Benade, A.J.S. 2007. Breastfeeding, complementary feeding and nutritional status of 6-12 months old infants in rural KwaZulu Natal. SAJCN. Vol 20. No1.

Faber, M., Jogessar, V.B. & Benade A.J. 2001. Nutritional status and dietary intakes of children aged 2-5 years and their caregivers in a rural South African Community. *International Journal of Food Science and Nutrition*. 52 (5):401-11.

Food Insecurity & Vulnerability Information Management Information System. Poor households often sacrifice other needs to buy food. Food security information Brief 15.t

Gabotswang, K. 1998. Determinants of the nutritional status of children in rural African setting: the case of Chobe District; Botswana: 1-7.

Gertler, P. & Boyce, P.S. 2001. The impact of PROGRESA on health in Mexico. An experiment in incentive- based welfare.

Glewwe, P., Jacoby, H.G. & King, E.M. 2001. Early Childhood nutrition and academic achievement. A longitudinal analysis. *Journal of Economics*. 81(3), pp 345-368.

Grantham-McGregor, S., Cheung, Y.B., Cueto, S., Glewwe, P., Richter, L., Strupp, B. & the International Children Development steering Group. 2007. Developmental potential in the first five years for children in developing countries. *Lancet*. 369:60-70.

Guthrie, T. 2002. Assessing the impact of the Child Support Grant on the well-being of children in South Africa. A summary of available evidence. United States. Department of Agriculture Food Assistance and Nutrition Research report No.1.

Hall, K. & Monson, J. 2006. “Does the means justify the end? Targeting the Child Support Grant”, *South African Child Gauge*.39-44.

Handa, S., Seidenfeld, D., Davis, B., Tembo, G. & The Zambian cash transfer evaluation. 2014. Are cash transfers a silver bullet? Evidence from Zambian Child Support Grant. Office of research working paper. WP-2014. No.08. UNICEF

James, W.P.T., Nelson, M., Ralph, A. & Leather, S. 1997. Socioeconomic determinants of health. The contribution to inequalities in health. BMJ.314:1545-9.

Jones, K.M., Specio, S.E., Shrestha, P., Brown, K.H., & Allen, L.H. 2005. Nutrition knowledge & practices & consumption of Vitamin A- rich plants by rural Nepali participants & non-participants in a kitchen garden program. *Food and Nutrition Bulletin*, 26 (2):198-208

KIDS: http://sds.ukzn.ac.za.accessed 2014.03.20

Khattak A.M., Gul S, Muntaha, S.T. & Jamalludin, S. 2007. Evaluation of Nutritional knowledge of caregivers about their children. Department of Pathology & Medicine. Gomal Medical College. Pakistan. Vol 5 (1)

Kiraru, A., Griffiths, G.L., Ganapathy, S. & Ghosh, S. 2005. Community based nutrition education for improving infant growth in rural Karnatuka. Indian Pediatrics. 42:435-43.

Kola, S., Brachmer, S., Kanyane, M., Morake, R. & Kimmie, Z. 2000. Phasing in the Child Support Grant: A Social Impact Study. Community Agency for Social Equity, Johannesburg.

Koornhof, H.E. 2014. A profile of children in the Avian Park & Zweletemba settlements in the Breede Valley Local Municipality of Western Cape, South Africa. University of Stellenbosch. Faculty of Medicine and Health Sciences. Dissertation, pp 129.

Kruger, J. 1998. From single parents to poor children, refocusing South Africa's transfers to poor household with children in ISSAs 2nd International Research conference on social services.

Labadarios, D., Van Middelkoop (Eds). The South African Vitamin A Consultative Group (SAVACG). Children aged 6-71 months in South Africa; 1994: Their anthropometric, vitamin A; iron and immunisation coverage status. Isando.

Labadarios, D., Swart, R., Maunder, E.M.W., Kruger, H.S., Gericke, G.J., Kuzwayo, P.M.N., Ntsie, P.R., Steyn, N.P., Schloss, J., Dhansay, M.A., Jooste, P.L., Dannhauser, A., Nel, J.H. & Molefe, D.H. 2005. The executive summary of the National Food Consumption survey and Fortification baseline in South Africa. *South African Clinical Journal of South Africa.*

Lancet. 2008. "Maternal and Child undernutrition". Special Series. Vol 371.

Laus, M.F., Vales, L.D.M.F., Costa, T.M.B. & Almeida, S.S. 2011. Early postnatal protein calorie malnutrition and cognition. A Review of Human Capital and animal Studies. *International Journal of Environmental Research and Public Health*. 8:590-612.doi:1033901Ijerph8020590

Leatt, A. 2004. Granting assistance: an analysis of the Child Support Grant and its extention to 7-8 years old. Children's Insitute Working Paper. Cape Town. University of Cape Town.

Lee, R.D. & Nieman, D.C. 2007. Nutritional assessment. 4th edition. New York. Mcgraw- Hill companies.

Leedy, P.D. & Ormrod, J.E. 2005. Practical Research, Planning & Design. 8th edition. Canada: Pearson Education Ltd.

Legislative Action Centre. 2001. Urge congress to support improvements to child nutrition program: 1- 4.

Leibbrandt, M., Levinsohn, J.A. & Mc Crary, J. 2005. Income in South Africa since the fall of Apartheid. NBER Working Paper 11384. National Bureau for Economic Research. Cambridge.

Levitt, E.J., Pelletier, D.L. & Pell, A.N. 2009. Revisiting the UNICEF malnutrition framework to foster agriculture and health sector collaboration to reduce malnutrition: A comparison of stakeholder priorities for action in Afghanistan. *Food policy*, 34; 156-165.

Liaqat, P., Rizvi, M.A., Qayyum, A., Ahmed, H. & Ishtiag, N. 2006. Maternal education and complementary feeding. *Pak. J. Nutr.* 5:563-568

Luzi, L. 2010. Causal relationship between basic education, child education, child health and nutrition for children in Sub Saharan African countries: The case of Tanzania

Maluccio, J.A. & Flores, R. 2005. Impact evaluation of a Conditional Cash Transfer Programme: *The Nicaraguan Red de Proteccion Social*. Washington, DC. International Food Policy Research Institute.

Manu and Khetarpaul, N. 2006. Food consumption pattern of Indian rural preschool children (4-5 years). *British Food Journal.*108(2): 127-140.

May, J. 2014. Inequities in under five child nutritional status in South Africa. What progress has been made?

McEwen, H., Kannemeyer, C., & Woodlard, I. 2009. Social Assistance Grants: Analysis of the NIDS wave 1 Dataset. Discussion paper no 10.

McGee, R. & Norton, A. 2008. Participation in poverty reduction strategy. A synthesis of experience with participatory approaches to policy design, implementation and monitoring. IDS working paper 109. Institute of Development Studies.

MDG report. 2013. Executive summary of Millennium Development Goals. Assessing Progress in South Africa towards the Millennium Development Goals.

Mokori A., Hendriks, S.I., Oriskushaba, P. & Oelofse, A. 2013. Changes in complementary feeding practices and nutrition status in returnee children aged 6-23 month in Northern Uganda, South Africa. *Journal of Clinical Nutrition*.

Morris, S., Olinto, P, Flores, R., Nilson, E.A.F. & Figuero, A.C. 2004. Conditional cash transfers are associated with a small reduction in the rate of weight gain of preschool children in North East Brazil. *The American Society for Nutritional Sciences*.

Monson, J., Hall, K, Smith, C. & Shung-King, M. 2006. South African Child Gauge. Children's Institute. University of Cape Town

Napoles-Rodriques, F., Vasquez-Geribuy, E.M. & Romero-Verlarde, E. 1991. Mortality in children under 5 years of age in families of marginal settlements in Gadalajara. *Bol Med Hosp Infant Mex*. Sep, 48(9): 637-42

Nnakwe, N.E. 2009. Community Nutrition: Planning health promotion and disease prevention. USA: Jones and Barlett Publisher.

O'Brien, G. & Davies, M. 2007. Nutrition knowledge and body mass index. *Health Education Research*. 22 (4): 571-575

Patel, L. & Hochfeld, T. 2011. Poverty, Gender & Social Protection. Child Support Grant in Soweto, South Africa. *Gender & Development*, Vol 19, Issue 2.

Paxson, C. & Case, A. 2008. Stature & Status: Height, Ability and Labour market Outcomes. *Journal of Political Economy*.116 (3): 499-532.

Pollit, D.F. & Beck, C.T. 2014. Essentials of Nursing Research: Appraising Evidence for Nursing Practice. 8th edition. Lippiriott Williams & Wilkins. Philadelphia. 201-202.

Puoane, T.R., Zulu, B., Chopra, M., Sander, D. & Lombard, C. 2000. Determinants of children's nutritional status in rural District of the Eastern Cape: Planning community based nutrition: 1.

Rawlings, L.B., & Rubio, G.M. 2005. Evaluating the Impact of Conditional Cash Transfer Programs. World Bank Research Observer.

Reconstruction and Development Programme. 1995. Key indicators of poverty in South Africa. Pretoria. Ministry in the Office of the President.

Report of the Lund committee on child and family support, 1996. www.gov.za/documents/report-lund-committee-child-family-support. South African Government. Accessed 2005.09.20

Samson, M., Lee, U., Ndlebe, A., MacQuene, K. Van Niekerk, I., Ghandi, V., Harigya, T. & Abrahams, C. 2004. The Social and Economic Impact of South Africa and Social Security System. Commissioned by the Directorate: Finance and Economics for the Department of Social Development.

Samson, M., Renaud, B., Miller, E., McTague, E., de Neubourg, E., Deonauth, T., *et al*. 2007. Accessed 02-08-2014. Feasibility study on the universal provision of the Child Support Grant in South Africa. Economic Policy Research Institute. United Nations Children's Fund, South Africa.

Samson, M., Heinrich, C., Williams, M., Kaniki, S., Muzondo, T., MacQuene, K., *et al*. 2008. Quantitative Analysis of the Impact of the Child Support Grant. South Africa: Department of Social Development, the South African Social Security Agency and the United Nations Children's Fund.

Savage K.F. 1992. Helping caregivers to breastfeed. Kenya: AMREF. Revised edition: 177.

Setswe, G. 1994. Prevalence and risk factors for malnutrition among children aged 5 years and less in the Lefaragatla village of Bophuthatswana. *Curationis* 17(3): 33-5.

Shisana, O., Labadarios, D., Ruhle, T., Simbayi, L., Zuma, K., Dhansay, A. et al. South African National Health and Nutrition Examination Survey (SANHANES-1): 2014 Edition. Cape Town: HSRC Press.

Solanges, R. & Guthrie, T. 2002. Extending the Child Support Grant to all children under 18 years. Alliance for children's entitlement to social security: 1-5.

South African Social Security Agency. 2011. Statistical Report on Social Grants. Pretoria: Department: Monitoring and Evaluation, SASSA.

STATS SA. 2012. South African Child Support Grant Impact Assessment. Evidence from a survey of children, adolescents and their households.

STATS SA. http://www.gov/za/?page_id=3892. Census 2001. Accessed 2005-08-19

STATS SA. 2012. Census 2011. Accessed 2012.12.13.

STATS SA. 2017. Mortality and causes of death in South Africa, 2015: Findings from death notification. STATISTICAL RELEASE P0309.3. February 2017.

Stokvel sector: Opportunities and challenges. Wits business school. Accesssed online

The Constitution of the Republic of South Africa.1996.

Thomas D., Strauss, J. & Henriques, M.H. 1990. Child survival, height for age and household characteristics in Brazil. *Journal of Development Economics*, 33 (2), pp. 197-234.

UNICEF.1990. Strategy for improved nutrition of children and women in developing countries. A UNICEF policy review.

UNICEF. 2004. The state of the world's children. Girl's education and development. New York. UNICEF.

Van der Berg, S. 2006. Public spending and the poor since the transition to democracy. In *State of the Nation* edited by Bhulungu, S. et al. Pretoria. HSRC Press. pp201-231.

Victoria, C.G., Adair, L., Fall, C., Hallal, P.C., Martorell, R. & Richter, L. 2008. Maternal and child undernutrition: Consequences for adult health and human capital. *The Lancet.* 371(9609).pp 340-357

Vorster, J., & de Waal, L. 2008. Beneficiaries of the Child Support Grant: Findings from a National Survey. *The Social Worker Practitioner-Researcher*, 20(2), 233-248.

White Paper for Social Welfare, 1997. Principles; guidelines; recommendations; proposed policies and programme for development of Social Welfare in South Africa: Chapter 14.

WHO Working Group Use & Interpretation of anthropometric indicators on nutritional status.1986. Bulletin of the WHO. 64:929-941.

Woolard, I. & Murray, L. 2010. The evolution of impact of unconditional cash transfer in South Africa. Working Paper. University of Cape Town. Southern African Labour and Development Research Unit.

World Health Organization Physical Status. 1995. The use and interpretation of anthropometric. *Technical report series*. No 854.GENEVA

World Health Organization, 2000. Obesity: Preventing and managing the global epidemic: Report on WHO consultation technical report. Series no.894

http://www.localgov.co.za. Accessed 2014.06.04

http://www.oxfam.org/grow. accessed 2016.07.16

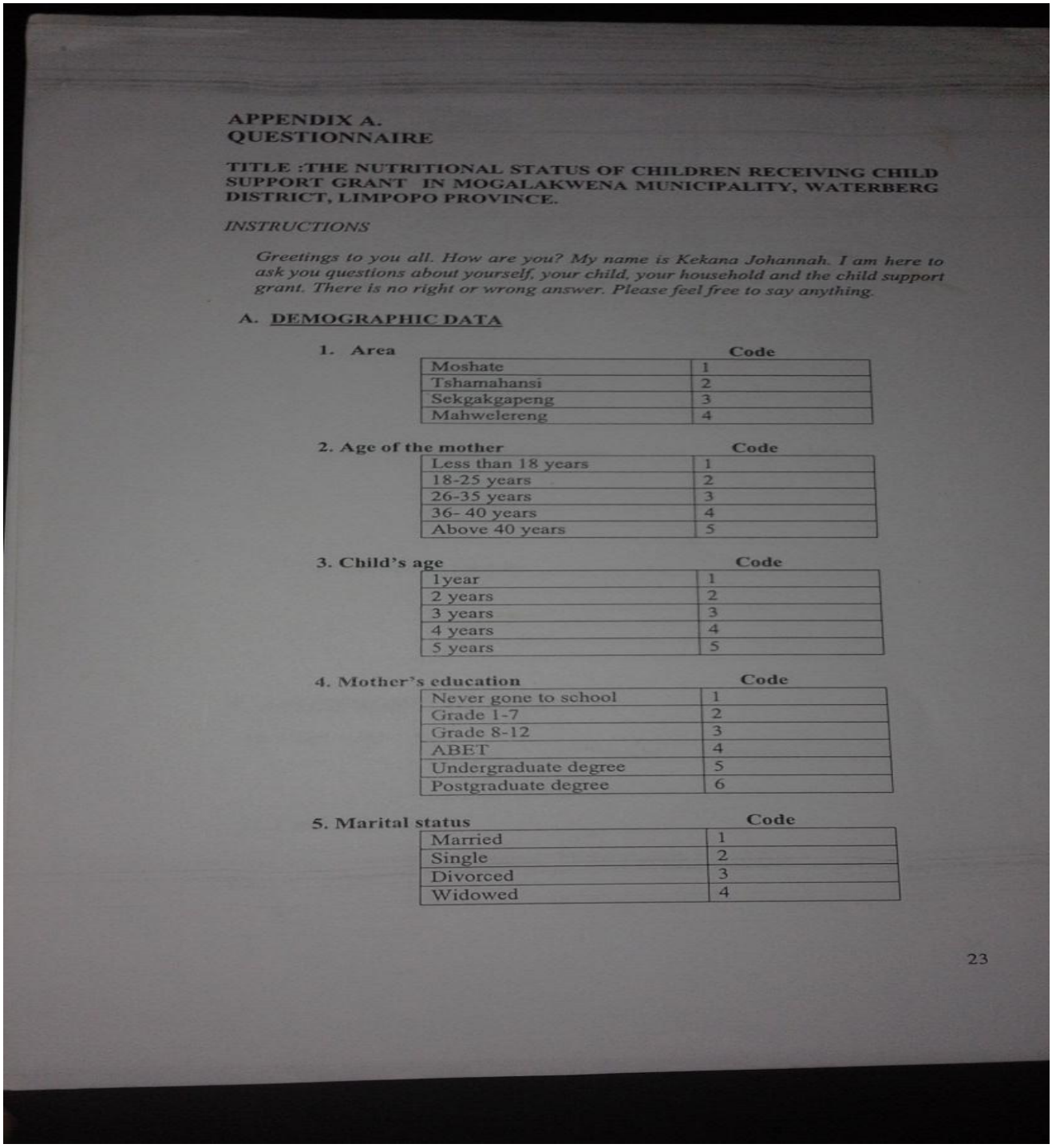
http:www.who.int/nutgrowthdb/about/introduction/en/index5.html

Yamauchi, F. 2008. Early childhood nutrition, schooling and sibling inequality in a dynamic context: Evidence from South African Economic Development and cultural change. 56(3).pp 657-682.

Young lives. 2007. Statistical Data on the status of children aged 0-4 in South Africa. UNICEF.

Zere, E. & McIntyre, D. 2003. Inequities in under-five child malnutrition in South Africa. *International Journal of Equity in Health*.2:7

Appendix A



APPENDIX A.
QUESTIONNAIRE

TITLE :THE NUTRITIONAL STATUS OF CHILDREN RECEIVING CHILD SUPPORT GRANT IN MOGALAKWENA MUNICIPALITY, WATERBERG DISTRICT, LIMPOPO PROVINCE.

INSTRUCTIONS

Greetings to you all. How are you? My name is Kekana Johannah. I am here to ask you questions about yourself, your child, your household and the child support grant. There is no right or wrong answer. Please feel free to say anything.

A. DEMOGRAPHIC DATA

1. Area

	Code
Moshate	1
Tshamahansi	2
Sekgakgapeng	3
Mahwelereng	4

2. Age of the mother

	Code
Less than 18 years	1
18-25 years	2
26-35 years	3
36- 40 years	4
Above 40 years	5

3. Child's age

	Code
1year	1
2 years	2
3 years	3
4 years	4
5 years	5

4. Mother's education

	Code
Never gone to school	1
Grade 1-7	2
Grade 8-12	3
ABET	4
Undergraduate degree	5
Postgraduate degree	6

5. Marital status

	Code
Married	1
Single	2
Divorced	3
Widowed	4

23

6. Employment status of the mother

	Code
Employed	1
Unemployed	2
Self employed	3

7. Salary scale of the mother

	Code
R100.00- R500.00	1
R600.00 – R1000.00	2
R1100 – R3000.00	3
>R4000.00	4

8. Employment status of the spouse

	Code
Employed	1
Unemployed	2
Self employed	3

9. Salary scale of the spouse

	Code
R100.00 – R500.00	1
R600.00- R1000.00	2
R1100.00 – R3000.00	3
>R4000.00	4

10. Combined household income

	Code
Mother	1
Father	2
Granny	3
Other	4
Total	

11. Household capacity

1	1
2	2
3	3
4	4
>5	5

B. ANTHROPOMETRIC DATA

12. Child weight (Kg)

1st weight	2nd weight	Average

13. Child height (cm)

1st height/length	2nd height/length	Average

24

14. Mother weight (Kg)

1st weight	2nd weight	Average

15. Mother height (cm)

1st height/length	2nd height/length	Average

16. BMI of the mother

Below 20kg/m2	1
20-25kg/m2	2
26-30kg/m2	3
>30kg/m2	4

C. INFORMATION ON CHILD SUPPORT GRANT (CSG) CODE

17. How much is the C S G?

17.1. Per child ----------

17.2. All children ----------

18. How many children receive the CSG?
    a. 1
    b. 2
    c. 3
    d. 4
    e. >5

19. Does the money support the whole family?
    a. Yes
    b. No

---

20. What do you use the money for?

---

21. How much do you use for each of the above mentioned?

---

22. Which Food do you buy?

---

23. How long does the food last you

---

24. Are there other forms of grant received? If yes, which ones and how much for each?

D. NUTRITIONAL KNOWLEDGE

25. Have you ever been taught about feeding your child?

	Code
Yes	1
No	2

26. Who taught you how to feed your child?

	Code
Dietician/Nutritionist	1
Professional Nurse	2
Mother	3
Mother in law/Grandmother	4
Other	5

27. Tell me how you feed your child presently?

26

How many meals do you give your child in a day?

	Code
2	1
3	2
4	3
5	4
>5	5

28. List the food that you feed your child all the time

---

29. Tell me about proper feeding of a baby from birth until 5 years

---

---

30. What happens if a child is not properly fed?

E. ENVIRONMENTAL FACTORS/ SOCIO-ECONOMIC SITUATION

32. Type of house

	Code
Formal	1
Low-cost (RDP)	2
Informal	3
Traditional	4

33. Type of sanitation/ Type of toilet

	Code
Flush toilet	1
Ventilated improved latrine	2
Unimproved pit	3
Bucket	4
No facility	5
Other, specify	6

27

34. Type of fuel used

	Code
Electricity	1
Gas	2
Solar	3
Paraffin	4
Woods	5
Other, specify	6

35. Availability of water

	Code
Internal tap in household	1
Public tap	2
Well, dam, river	3
Bore-hole	4
Other, specify	5

36. Where do you buy your food

	Code
Spaza shop	1
General dealer	2
Retail market	3
Other, specify	4

37. How much money do you contribute to "stockvels"?

	Code
R10	1
R20	2
R30	3
R40	4
R50	5
>R50	6

38. How many children do you support financially?

	Code
1	1
2	2
3	3
4	4
5	5
>5	6

38. Who else contributes money to the family?

	Code
Husband	1
Mother	2
Mother-in law	3
Grandmother	4
Grandfather	5
Other	6

39. What is the total income available per month from all sources?

---

40. How much money of the total is spent on food?

---

41. Do you always have enough food supplies?

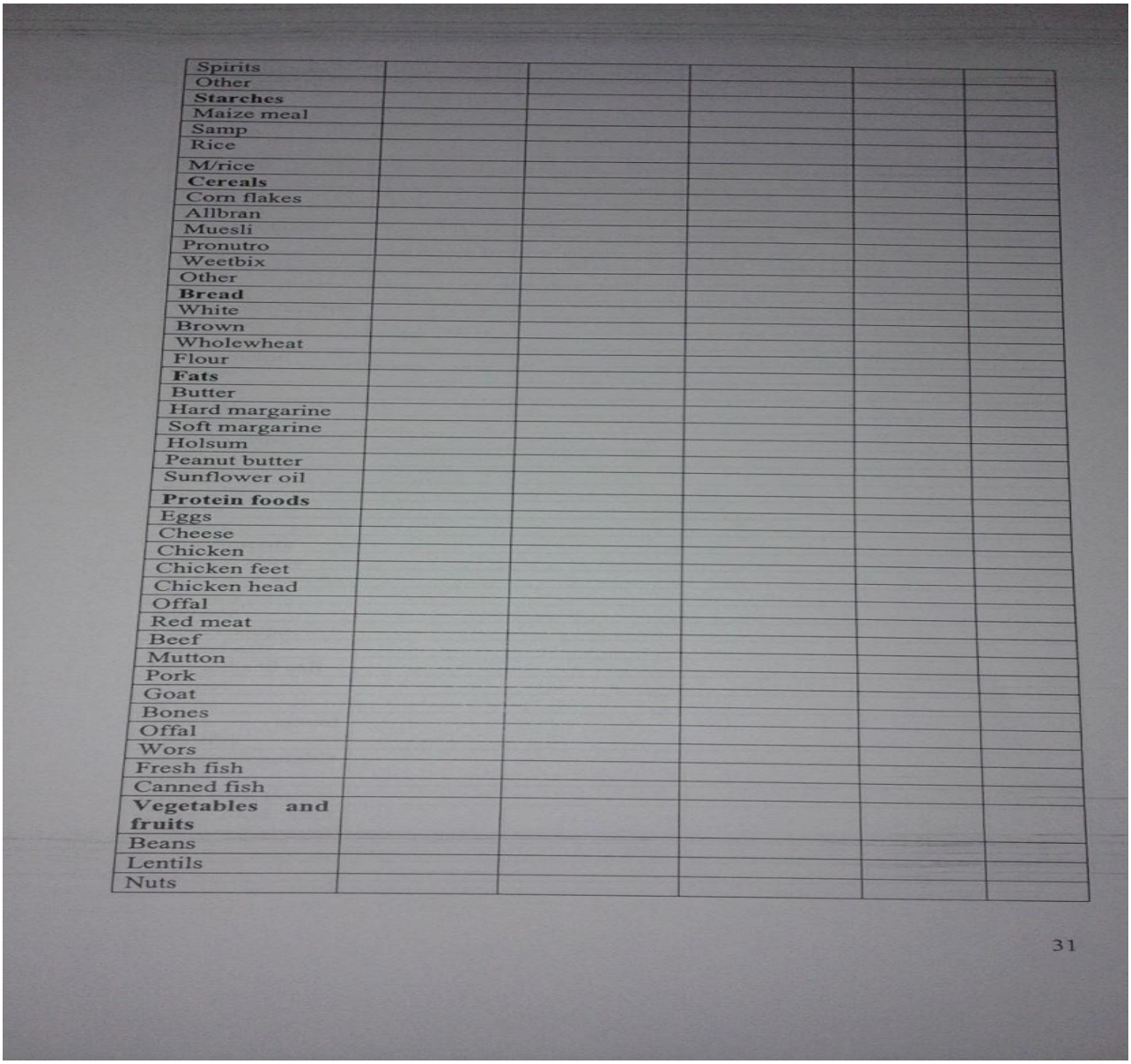
---

42. What happens when food runs out in the household?

F. HOUSEHOLD FOOD INVENTORY AND EXPENDITURE

Food item	Brand name	Unit purchased	Frequency of food purchase	Cost	Code
Tea					
Rooibosch					
Five roses					
Joko					
Other					
Sugar					
White					
Brown					
Sweetener					
Milk					
Condensed					
Full cream milk powder					
Skimmed milk powfer					
Freshmilk 2%low fat					
Freshmilk full cream					
Freshmilk fat free					
Sourmilk					
Yoghurt					
Juice					
Fruit squash					
SweetO, SixO					
Oros/Lecol with sugar					
Artificial sweetener					
Kool Aid					
Other					
100% Fruit juice					
Sweetened Diluted juice					
Dairy fruit juice					
Diet Carbonated drink					
Carbonated drink					
Alcoholic beverage					
Sorghum beer					
Commercial beer					
Wine					

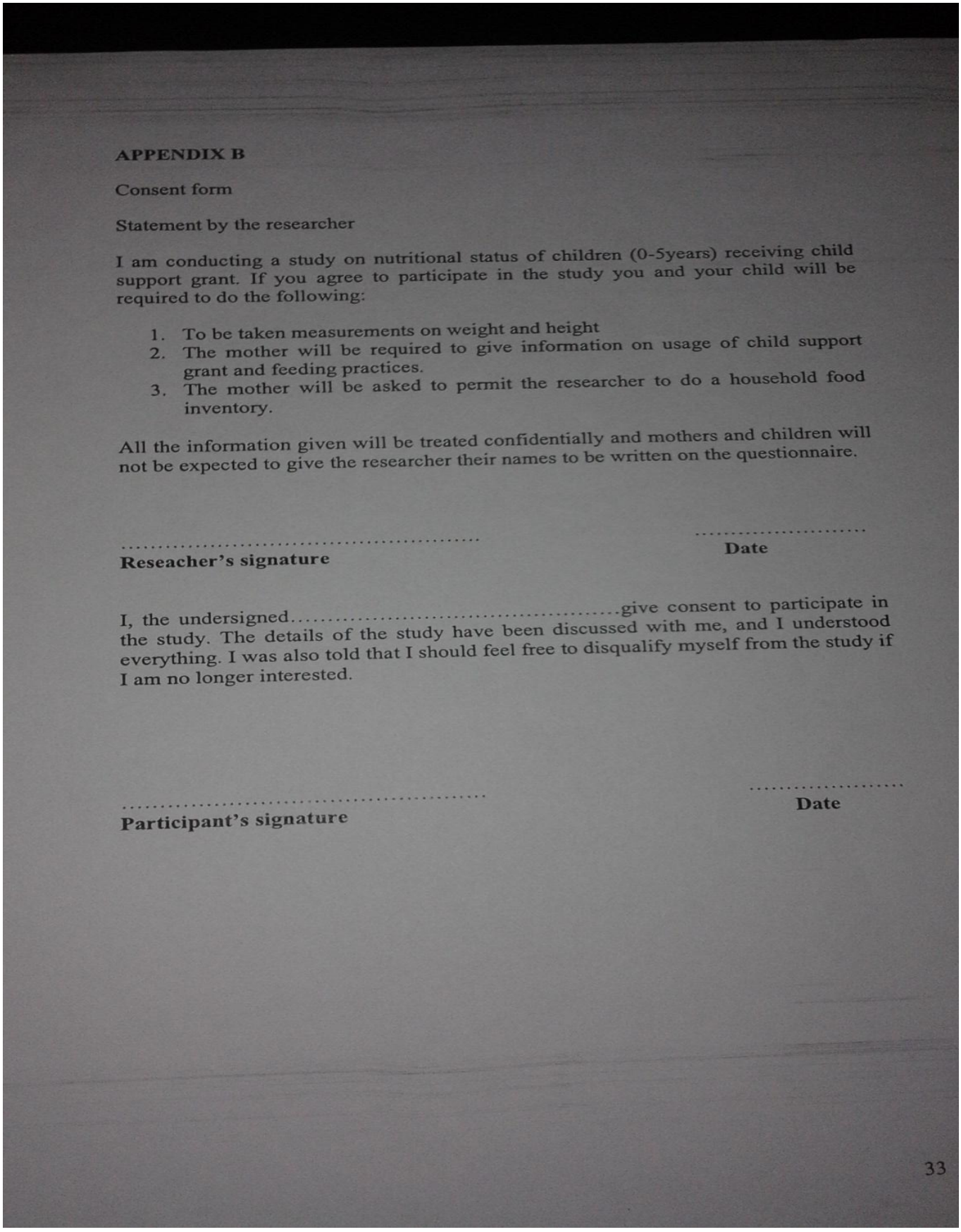
30



Spirits					
Other					
Starches					
Maize meal					
Samp					
Rice					
M/rice					
Cereals					
Corn flakes					
Allbran					
Muesli					
Pronutro					
Weetbix					
Other					
Bread					
White					
Brown					
Wholewheat					
Flour					
Fats					
Butter					
Hard margarine					
Soft margarine					
Holsum					
Peanut butter					
Sunflower oil					
Protein foods					
Eggs					
Cheese					
Chicken					
Chicken feet					
Chicken head					
Offal					
Red meat					
Beef					
Mutton					
Pork					
Goat					
Bones					
Offal					
Wors					
Fresh fish					
Canned fish					
Vegetables and fruits					
Beans					
Lentils					
Nuts					

31

Appendix B



APPENDIX B

Consent form

Statement by the researcher

I am conducting a study on nutritional status of children (0-5years) receiving child support grant. If you agree to participate in the study you and your child will be required to do the following:

1. To be taken measurements on weight and height
2. The mother will be required to give information on usage of child support grant and feeding practices.
3. The mother will be asked to permit the researcher to do a household food inventory.

All the information given will be treated confidentially and mothers and children will not be expected to give the researcher their names to be written on the questionnaire.

....

Reseacher's signature **Date**

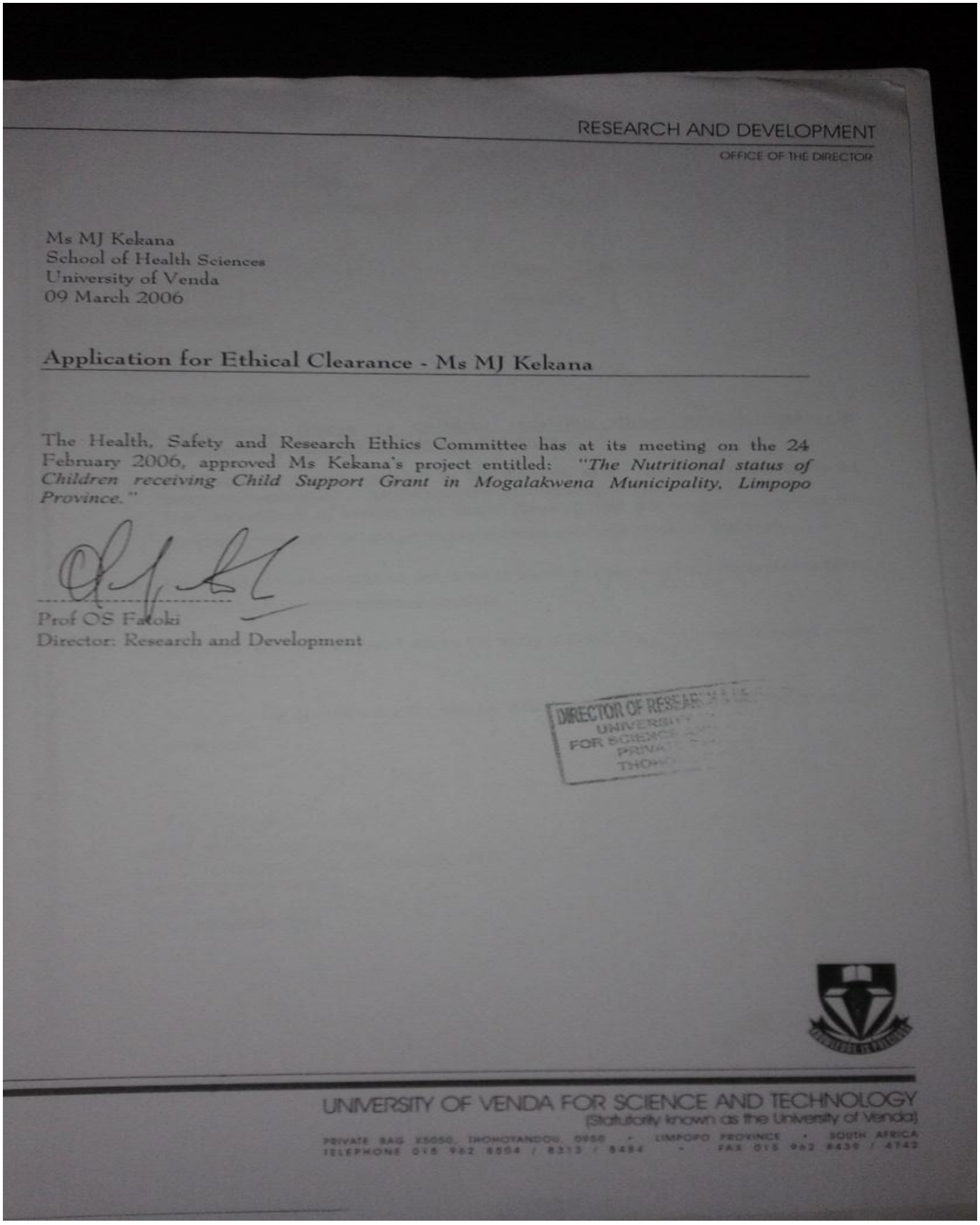
I, the undersigned.....give consent to participate in the study. The details of the study have been discussed with me, and I understood everything. I was also told that I should feel free to disqualify myself from the study if I am no longer interested.

....

Participant's signature **Date**

33

Appendix C



RESEARCH AND DEVELOPMENT
OFFICE OF THE DIRECTOR

Ms MJ Kekana
School of Health Sciences
University of Venda
09 March 2006

Application for Ethical Clearance - Ms MJ Kekana

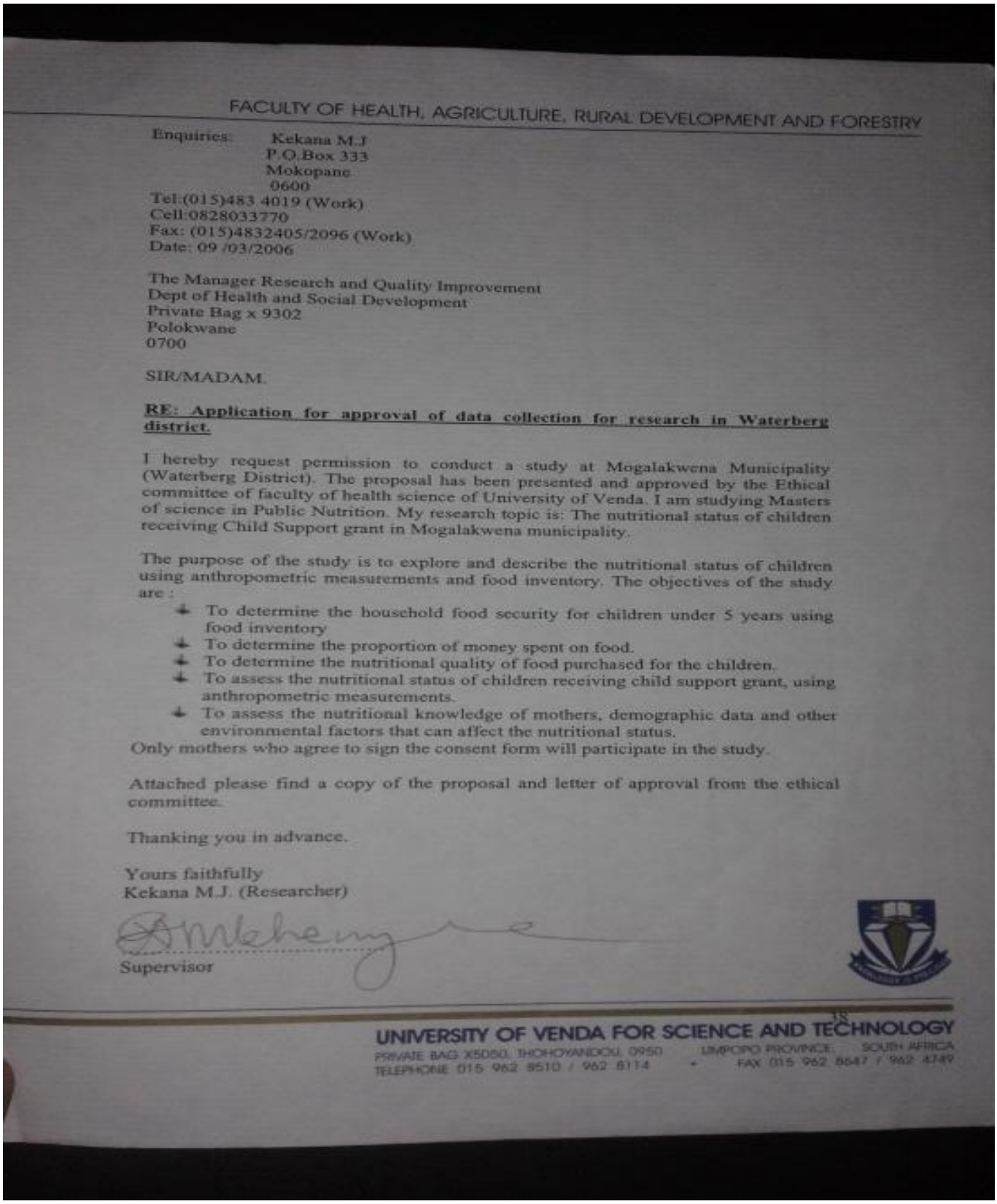
The Health, Safety and Research Ethics Committee has at its meeting on the 24 February 2006, approved Ms Kekana's project entitled: *"The Nutritional status of Children receiving Child Support Grant in Mogalakwena Municipality, Limpopo Province."*

Prof OS Fatoki
Director: Research and Development

DIRECTOR OF RESEARCH
UNIVERSITY
FOR SCIENCE
PRIVATE
THOHO

UNIVERSITY OF VENDA FOR SCIENCE AND TECHNOLOGY
(Statutorily known as the University of Venda)
PRIVATE BAG X5050, THOHOYANDOU, 0950 • LIMPOPO PROVINCE • SOUTH AFRICA
TELEPHONE 015 962 8504 / 8213 / 8494 • FAX 015 962 8430 / 4742

Appendix D



FACULTY OF HEALTH, AGRICULTURE, RURAL DEVELOPMENT AND FORESTRY

Enquiries: Kekana M.J
P.O.Box 333
Mokopane
0600
Tel:(015)483 4019 (Work)
Cell:0828033770
Fax: (015)4832405/2096 (Work)
Date: 09 /03/2006

The Manager Research and Quality Improvement
Dept of Health and Social Development
Private Bag x 9302
Polokwane
0700

SIR/MADAM.

RE: Application for approval of data collection for research in Waterberg district.

I hereby request permission to conduct a study at Mogalakwena Municipality (Waterberg District). The proposal has been presented and approved by the Ethical committee of faculty of health science of University of Venda. I am studying Masters of science in Public Nutrition. My research topic is: The nutritional status of children receiving Child Support grant in Mogalakwena municipality.

The purpose of the study is to explore and describe the nutritional status of children using anthropometric measurements and food inventory. The objectives of the study are :

- To determine the household food security for children under 5 years using food inventory
- To determine the proportion of money spent on food.
- To determine the nutritional quality of food purchased for the children.
- To assess the nutritional status of children receiving child support grant, using anthropometric measurements.
- To assess the nutritional knowledge of mothers, demographic data and other environmental factors that can affect the nutritional status.

Only mothers who agree to sign the consent form will participate in the study.

Attached please find a copy of the proposal and letter of approval from the ethical committee.

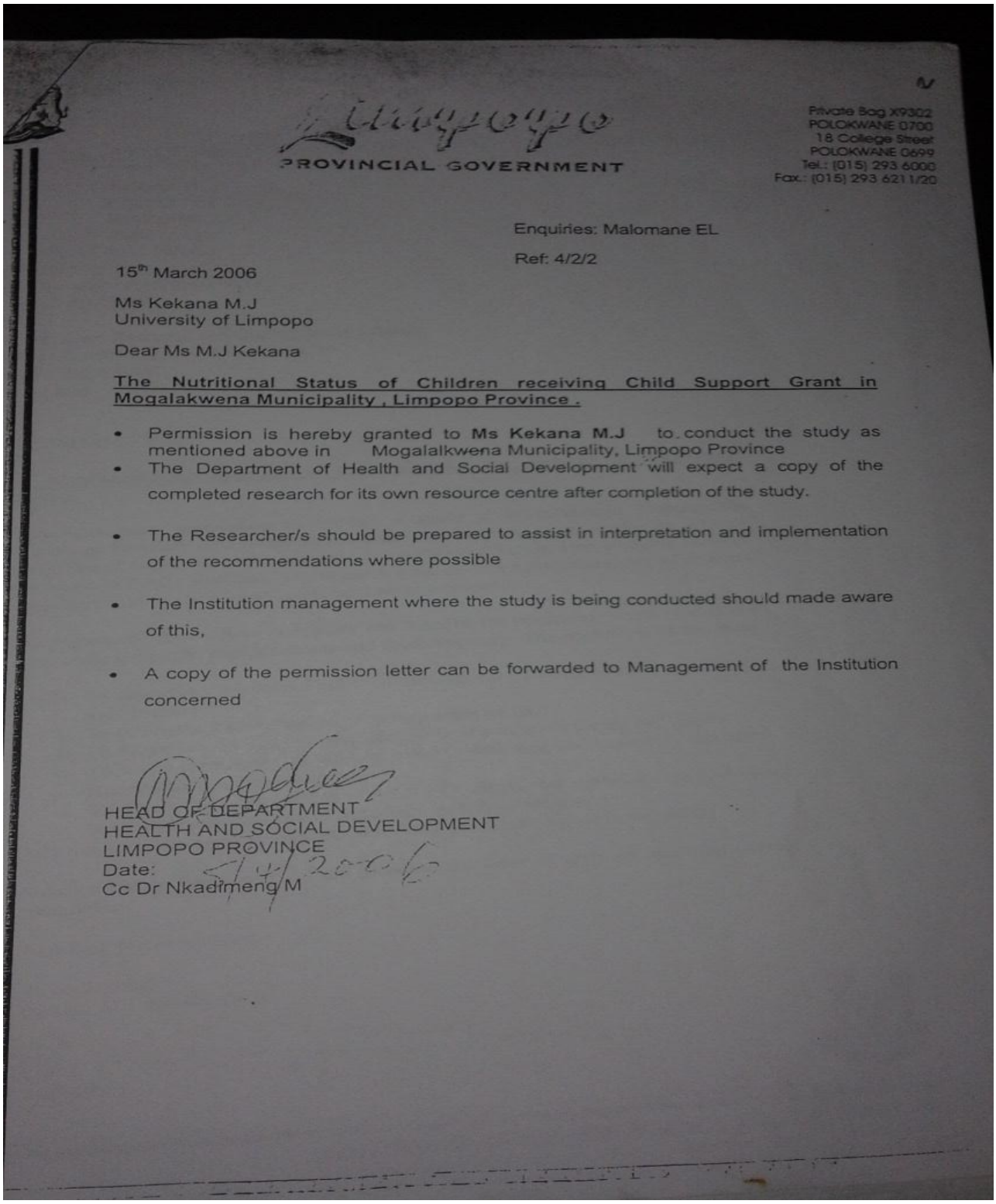
Thanking you in advance.

Yours faithfully
Kekana M.J. (Researcher)

Supervisor

UNIVERSITY OF VENDA FOR SCIENCE AND TECHNOLOGY
PRIVATE BAG X5050, THOHOYANDOU, 0950 LIMPOPO PROVINCE SOUTH AFRICA
TELEPHONE 015 962 8510 / 962 8114 FAX 015 962 8647 / 962 4749

Appendix E



Limpopo
PROVINCIAL GOVERNMENT

Private Bag X9302
POLOKWANE 0700
18 College Street
POLOKWANE 0699
Tel.: (015) 293 6000
Fax.: (015) 293 6211/20

Enquiries: Malomane EL

Ref: 4/2/2

15th March 2006

Ms Kekana M.J
University of Limpopo

Dear Ms M.J Kekana

The Nutritional Status of Children receiving Child Support Grant in Mogalakwena Municipality , Limpopo Province .

- Permission is hereby granted to **Ms Kekana M.J** to conduct the study as mentioned above in Mogalalkwena Municipality, Limpopo Province
- The Department of Health and Social Development will expect a copy of the completed research for its own resource centre after completion of the study.
- The Researcher/s should be prepared to assist in interpretation and implementation of the recommendations where possible
- The Institution management where the study is being conducted should made aware of this,
- A copy of the permission letter can be forwarded to Management of the Institution concerned

HEAD OF DEPARTMENT
HEALTH AND SOCIAL DEVELOPMENT
LIMPOPO PROVINCE
Date: 4/4/2006
Cc Dr Nkadimeng M

Appendix F

Revd. Dr. Lutz Ackermann (Independent Researcher) Mankweng, Zone A, Stand 506 Tel: +27 72 3487010 e-mail: DRLA4 @ directbox.com

14 Oct 2017

TO WHOM IT MAY CONCERN

This is to confirm, that I, Dr Lutz Ackermann, have read the Research Thesis entitled

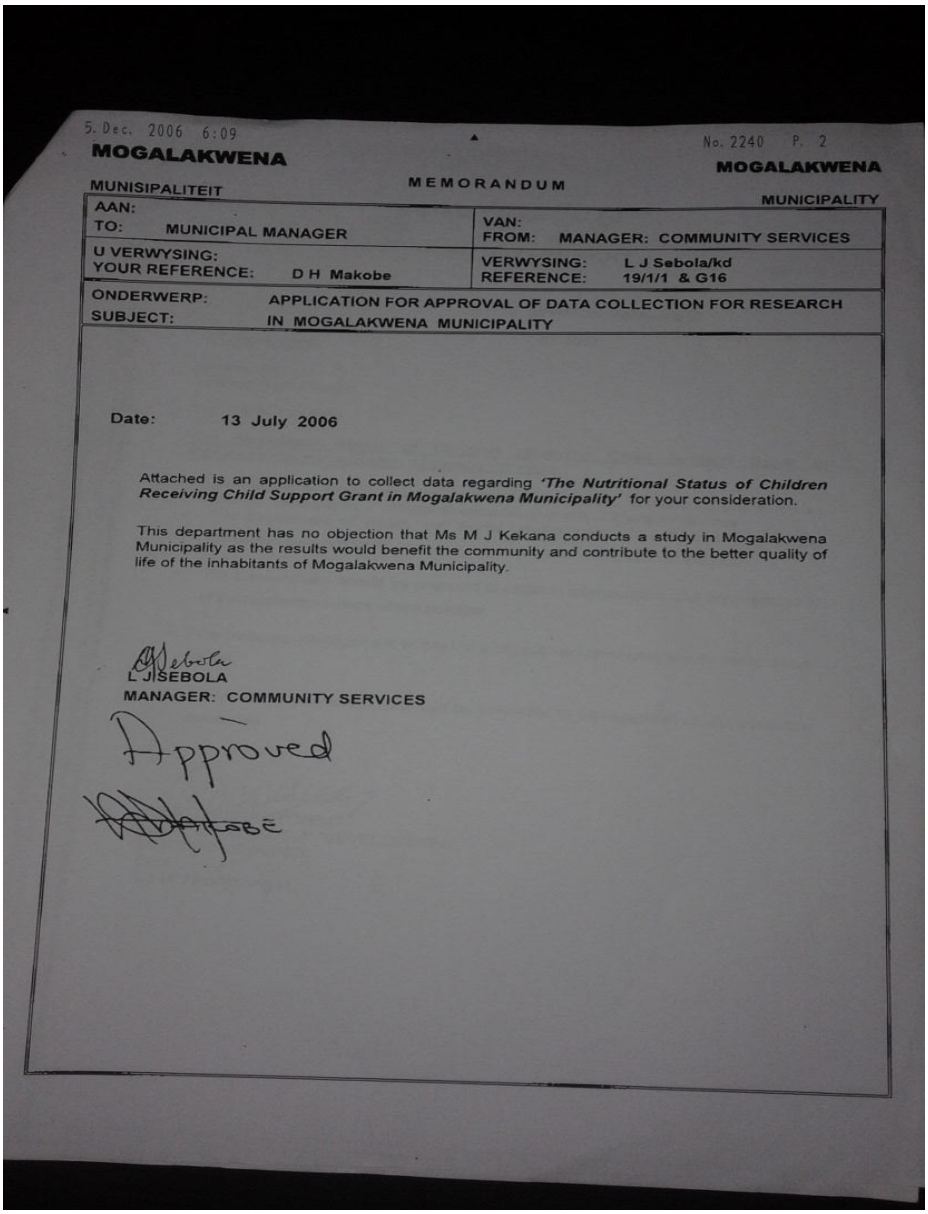
“THE NUTRITIONAL STATUS OF CHILDREN LESS THAN 5 YEARS OF AGE RECEIVING CHILD SUPPORT GRANT IN THE MOGALAKWENA MUNICIPALITY, WATERBERG DISTRICT, LIMPOPO PROVINCE, SOUTH AFRICA”

by Mrs KEKANA M.J.

(student number 11543155) and that I am satisfied with the quality of work she has produced in terms of structuring the document, in terms of style, grammar and spelling. Suggestions for suitable corrections and improvements have been made to the candidate.

_____ (Rev. Dr. Lutz Ackermann, Mankweng)

Appendix G



5. Dec. 2006 6:09 No. 2240 P. 2

MOGALAKWENA
MUNISIPALITEIT

MOGALAKWENA
MUNICIPALITY

MEMORANDUM

AAN: TO: MUNICIPAL MANAGER	VAN: FROM: MANAGER: COMMUNITY SERVICES
U VERWYSING: YOUR REFERENCE: D H Makobe	VERWYSING: L J Sebola/kd REFERENCE: 19/1/1 & G16
ONDERWERP: SUBJECT: APPLICATION FOR APPROVAL OF DATA COLLECTION FOR RESEARCH IN MOGALAKWENA MUNICIPALITY	

Date: 13 July 2006

Attached is an application to collect data regarding ***'The Nutritional Status of Children Receiving Child Support Grant in Mogalakwena Municipality'*** for your consideration.

This department has no objection that Ms M J Kekana conducts a study in Mogalakwena Municipality as the results would benefit the community and contribute to the better quality of life of the inhabitants of Mogalakwena Municipality.

L J SEBOLA
MANAGER: COMMUNITY SERVICES

Approved