Republic of Namibia

MINISTRY OF HEALTH AND SOCIAL SERVICES

SURVEY REPORT ON FORMATIVE ASSESSMENT OF INFANT AND YOUNG CHILD FEEDING AND CARE PRACTICES IN NAMIBIA

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ACRONYMS

ANC	Antenatal Care
CI	Confidence interval
EA	Enumeration area
ECD	Early childhood development
IEC	Information, education, communication
IECD	Integrated early childhood development
ISR	Inverse sampling rate
IYCF	Infant and young child feeding
MICS	Multiple Indicator Cluster Survey
MoEAC	Ministry of Education, Arts and Culture
MoHSS	Ministry of Health and Social Services
MRC	Multidisciplinary research centre
MUAC	Mid upper arm circumference
NAD	Namibian dollar
NCIP	Namibian Country Implementation Plan
NDHS	Namibian Demographic Health Survey
NSA	National Statistics Agency
PAHO	Pan American Health Organisation
PRoPAN	Process for the promotion of child feeding
PSU	Primary Sampling Unit
SPSS	Statistical package for social science
SUN	Scaling up Nutrition
UNAM	University of Namibia
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
VAD	Vitamin A deficiency
WHO	World Health Organisation

PREFACE

The Government of the Republic of Namibia recognizes the importance of investing in stunting reduction, given stunting's critical link to child development and consequently to national development. The emerging evidence on the role of nutrition in the early years has resulted in a better understanding of the short and long term consequences of undernutrition in all its forms, especially during the critical period of vulnerability between conception and a child's second birthday (the first 1000 days of life) where the consequences of such nutritional deficits are potentially irreversible. Children who suffer from chronic undernutrition in the early stages of life fail to grow and develop to their full potential, both mentally and physically, which then results in reduced capacity for learning in school and subsequent reduced employment opportunities in adulthood.

In recognition of the importance of intervening within the critical first 1000 days of a child's life to prevent or reverse stunting, the Ministry of Health and Social Services, with support from development partners, have committed to implementing Namibia's Multi-Sectoral Country Implementation Plan, 2012/13-2015/16, which sets out a range of interventions and strategies that if implemented could result in a reduction of stunting to below 20 percent (%) by 2017. One key activity within the Multi-sectoral implementation Plan is a national assessment of infant and young child feeding and care practices.

This infant and young child feeding and care practices assessment is the first of its kind in Namibia and the findings will be used to inform improvements to the development and delivery of nutrition programs for the country. The assessment was undertaken in recognition that very little was known about how and what children are being fed, what are the barriers and facilitators to breastfeeding and what foods are available locally within the different regions that are suitable for children.

The assessment marks a major achievement in the goal to reduce childhood stunting. Poor infant and young child feeding practices can result in inadequate dietary intakes by infants and young children, which in turn is an immediate cause of undernutrition. The assessment also considered other underlying causes of undernutrition such as the physical environment in which children live, including sanitation and access to safe water. The findings of this assessment reinforce that infants and young children are living in less than optimal conditions with respect to sanitation and many are living in households that are adversely affected by food insecurity.

I fervently hope that this assessment on infant and young child feeding practices and care will be beneficial to the policy makers, government ministries, non-government organisations, private sector, academic institutions, development partners and communities, and individuals who are caregivers of children. I hope that this assessment acts as a catalyst for all Namibians and those that support development in Namibia, to improve the conditions in which children live and grow, the diversity of foods available to households and especially to young children and that mothers now and in the future, are better supported to practice early initiation of breastfeeding with the first hour of birth, to exclusively breastfeed their infants from birth to 6 months, and to continue breastfeeding up to the child's second birthday.

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We would like to express our deep sense of gratitude to all who contributed their time, technical ideas, inputs and services to completing this assessment. Gratitude especially goes to the Ministry of Health and Social Services national and regional health teams for their support during the data field collection phase, to University of Namibia (UNAM) for providing the technical support to carry out the data analysis and contracted UNICEF consultant for carrying out additional analyses of the market survey and analysis of the early childhood development and child protection sections of the caregiver survey.

EXECUTIVE SUMMARY

Chronic undernutrition during pregnancy and early childhood manifests as stunted growth. Stunting is a well-established risk factor for poor child development. Children who suffer from chronic undernutrition in the early stages of life fail to grow and develop to their full potential, both mentally and physically. Several longitudinal studies show stunting before age 2-3 years predicts poorer cognitive and educational outcomes in later childhood and adolescence.[1] Deficiencies of essential micronutrients also have significant adverse effects on child survival, growth and development. The causes of undernutrition are multifaceted and range from immediate causes such as inadequate dietary intake and incidence and recurrence of illnesses and disease, to underlying causes such as household food insecurity, inadequate care and feeding practices, unhealthy household environment and inadequate health services. Underlying these causes are basic causes such as household access to adequate quantity and quality of resources; land, education, employment, income, technology, inadequate financial, human, physical and social capital and the broader sociocultural, economic and political context.[2]

A child's dietary intake is affected by underlying factors including household food insecurity, inadequate care and feeding practices, unhealthy household and surrounding environments and inaccessible and or inadequate health care. Prior to undertaking the national formative assessment of infant and young child feeding and care practices, very little was known about how infants and young children were being fed and what they were being fed in Namibia. Very little was also known about breastfeeding practices, particularly the barriers to mothers exclusively breastfeeding for the recommended period from birth to 6 months of age. To address these knowledge gaps, and to obtain information that could inform better programing for infant and young child feeding (IYCF), a formative assessment was carried out in 2014 by the Ministry of Health and Social Services (MoHSS) and development partners, that included all 14 regions of Namibia. A series of assessment tools were used to assess the current infant and young child feeding and care practices against 12 ideal practices. In addition to feeding practices, questions on child welfare and early childhood development were included in order to gather information about these child development factors. The tools were both quantitative and qualitative, consisting of a caregiver survey and 24-hour dietary intake recall interview, and a semi-structured interview that unpacked the reasons behind current practices. The caregiver survey was completed by 1596 caregivers giving a response rate of 96 % and a total of 538 (24-hour dietary recall interviews) were completed.

Infant and young child feeding

Key findings from the caregiver survey indicate that overall caregiver practices for infant and young child feeding do not meet the standards for the recommended practices. It is recommended that all children start breastfeeding within the first hour after birth and the findings indicated that this is the case for only 70 percent (%) of infants. Similarly, it is recommended that infants be fed only breastmilk from birth until they reach 6 months of age and these findings indicate that infants are being fed water or other milks as early as 2 and 3 months of age.

The findings from the semi-structured interviews identified key barriers and facilitators to the ideal practices. An overwhelming majority of mothers reported their need to return to work within the child's first 6 months of life as the reason they were not able to exclusively breastfeed. There was also a strong and widely held belief or opinion that infants need more than breastmilk alone in the first 6 months of life, hence the reason for giving water, other milks and infant formula in addition to breastmilk before the age of 6 months.

The 24-hour dietary recall provided information about the quality and quantity of food being fed to children. The findings indicate that while children are being given an adequate number of meals per day, the quality of those meals is inadequate to meet their nutritional requirements for energy or micronutrients. The nutrient density of foods being given to children is very low and therefore not providing them with essential nutrients such as protein, iron, zinc, vitamin A, vitamin C or calcium.

Information obtained from the caregiver survey about care practices highlights caregivers' lack of knowledge about how to feed an infant or child when he/she is sick or what to do when the child has not consumed

1 Walker SP. Wachs TD, Grantham-McGregor S, et al. Inequality in early childhood: risk and protective factors for early child development. Lancet 2011; 378:1325-3

2 United Nations Children's Fund. Strategy for improved nutrition of children and women in developing countries. New York: UNICEF, 1990

sufficient amounts during a main meal. Demographic and caregiver characteristics were also collected by the caregiver survey and the data obtained also provides important information about potential barriers to ideal feeding practices. The age of caregivers for example, indicates that some caregivers are as young as 13 years. Housing information obtained indicate that the sanitation situation for many children is less than optimal, with more than 50 % of respondents reporting they use the bush. The findings also indicate there is a risk to children of oral-faecal contamination due to the presence of faeces in their immediate household environment.

Early Childhood Development

With regard to early childhood development (ECD) education and stimulation at home for children aged 2-5 years the results show that a majority (80%) do not have children's books while 17% have less than 10 books and only 3% have more than 10 books. This shows that early childhood development with regard to cognitive stimulation through books is poor.

Play is a major component of early childhood stimulation and central to good mother/caregiver-child interaction, and it is through play and other activities such as reading and singing to children, playing with them outdoors that early learning, physical and socio-emotional development occurs. From the results regarding home stimulation, 69.9% of children played with household items or objects from outside, 60% played with shop bought toys and 50.7% played with homemade toys. The results also showed that more children use objects (e.g. sticks, stones, plastic bottles) from the household or outside as toys compared to shop bought toys.

Early childhood stimulation and care is essential for children aged 2-5 years. Caregivers ideally should be providing care and stimulation to promote the health, nutrition, emotional, social, language and intellectual development of the child. However, the results show that 19% of children had been left alone for more than one hour in the past week. Similarly, 35.1% had been left alone with a child aged less than 10 years in the past one week. This highlights a critical issue regarding child care, whereby young children are being left alone or in the care of another child, which predisposes such children to vulnerability and lack of proper socio-emotional care and stimulation.

For children aged 3–5 years, organized or formalized early childhood learning centres not only improve school readiness but also educational attainment. In turn, children who remain and succeed in school are more likely to earn higher incomes as adults, and to provide better nutrition, health care, stimulation, and educational opportunities to their own children. From the results, a majority (70%) of children aged 3-5 years were not attending any organized learning or early childhood education program. Of the 30% who were attending, 20.5% reported attending for an average of 14.3 hours in last seven days.

ECD centres can provide an environment for early learning that complement home stimulation and play. These results suggest that participation in organised early learning activities is low especially in rural areas and by children whose caregiver has little or no education. While the benefits to be gained from attending ECD centres is dependent on the quality of the learning experience, it was beyond the scope of this study to assess the quality of ECD centres and therefore it is recommended that this be undertaken sometime in the near future. Home stimulation enhances leaning and is an important aspect in the cognitive development of children. The results showed that the majority of children (71.8%) were stimulated by caregivers singing songs while reading books was the least used method of stimulation (46.2%). Based on these results from the early childhood development assessment, there is a need to increase capacity of childcare workers in ECD centres and the knowledge of parents about the importance of play and stimulation in the physical, emotional and social development of children.

The assessment also provided data used to calculate an early childhood development index score. The ECD Index score assesses the developmental status of children aged 3-5 years with respect to four domains: literacy-numeracy, physical, social-emotional and learning. From the results the national score for Namibia is 0.67 which is classified as below average. The score means that only 67% of the children aged 3-5 years are able to meet the recommended thresholds of holistic early childhood development.

Social Protection

With regard to social protection, housing indicators, affordability of healthcare, access to safe places for children to play and receipt of social grants were investigated. The results showed that 44% of the sampled households do not have access to clothing sufficient to keep them warm and dry. In addition, 32% of the sampled households live in dwellings that do not protect them from bad weather. It was found that 37.8% of households do not have separate bedrooms for children and adults, meaning children and adults are sharing the same room. These findings suggest that the majority of households surveyed do not have access to basic needs such as safe shelter, adequate clothing and sufficient space within the dwelling for children to sleep in a separate room as adults.

In terms of access to healthcare, the results highlight disparities with respect to household affordability of healthcare. The cost of health care in this instance, includes the cost of transport to the health centre, the health centre fees, and all the medicines prescribed by the health practitioner. The results showed that 32.3% of the sampled population could not afford these healthcare expenses, while 22% could afford them only sometimes. If people cannot afford to seek healthcare when they or their family member is sick, this has implications for health and wellbeing, especially for the most vulnerable members of the family such as children and the elderly.

Two aspects relating to children were considered in the assessment. These included access to a complete school uniform for school-aged children and access to safe playgrounds for children to play outside of the house. The results showed that a majority of school-aged children (48.8%) did not have a complete school uniform and 30% of the children did not have access to safe playgrounds. Access to safe places to play is important from a child protection and child development perspective. If children do not have safe places to play, they may be put at greater risk for child abuse if forced to play in unsupervised areas, or they may be at greater risk for physical harm if the space they play in is not safe.

Social grants are a type of a social protection, which are aimed at poverty-reduction, prevention of vulnerability and exclusion, and protection from shocks. The results indicated that 58% of the sampled households did not receive any social grant.

Overall the formative assessment of infant and young child feeding and care practices has provided a wealth of new information that can and will be used to; improve the dissemination of key messages to caregivers about breastfeeding and complementary feeding, improve the capacity of health services to support mothers and caregivers to adopt the recommended feeding practices, and it will be used by policy makers to improve the enabling environment for breastfeeding in Namibia. The information gained about caring practices and early childhood development will be used to inform strategies to improve formal early childhood develop services and home stimulation practices by caregivers.

CHAPTER 1:
INTRODUCTION AND BACKGROUND

The first 1000 days of life from conception until age 2 years are critical for the optimal growth and development of infants and young children. Undernutrition that is not addressed during this critical window of opportunity is often irreversible. Children who suffer from chronic undernutrition in the early stages of life fail to grow and develop to their full potential, both mentally and physically. Several longitudinal studies show stunting before age 2-3 years predicts poorer cognitive and educational outcomes in later childhood and adolescence.[3] Therefore, optimal and appropriate infant and young child nutrition during the first 1000 days of life has the potential of reducing stunting, as well as improving child survival outcomes through reduction in mortality and morbidity from common childhood diseases such as diarrhoea and pneumonia. In accordance with the 2010 World Health Organisation (WHO) Guidelines on HIV and Infant Feeding, optimal and appropriate infant and young child feeding (IYCF) will not only lead to improved nutritional outcomes, but also reduction in the transmission of HIV from an HIV positive mother to her infant.[4]

Of all proven preventive health and nutrition interventions, infant and young children feeding (IYCF) has the single greatest potential impact on child survival. Reduction of child mortality can therefore only be achieved, when nutrition in early childhood and IYCF specifically, are prioritized.

The 2003 Lancet Child Survival Series ranked the top 15 preventative child survival interventions for their effectiveness in preventing under-five mortality. Exclusive breastfeeding up to six months of age and breastfeeding up to 12 months was ranked number one, with complementary feeding starting at six months' number three. These two interventions alone were estimated to prevent almost one fifth of under-five mortality in developing countries.[5] The subsequent 2008 Lancet Nutrition Series and the 2013 Maternal and Child Nutrition Series also reinforced the significance of optimal IYCF on child survival.

According to the 2013 Maternal and Child Nutrition Series, 3.1 million children younger than five years die every year from undernutrition. Evidence indicates that undernutrition is responsible for 45% of deaths of children younger than 5 years.[6]

Breastfeeding, especially six months of exclusive breastfeeding, has a significant effect in the reduction of mortality from the two biggest contributors to infant deaths; diarrhoea and pneumonia.[7] The evidence also exists for the specific survival benefits of continued breastfeeding from 6 to 24 months. A child who receives breastmilk up to the age of 24 months, continues to be protected from illnesses such as diarrhoea and pneumonia.

Optimal IYCF is essential for child growth and development, both physically and cognitively. After birth, a child's ability to achieve the standards in growth is determined by the adequacy of dietary intake, which depends on IYCF and care practices and food security, as well as exposure to disease. The first 1000 days or 'window of opportunity' is the period when the recommended IYCF ideal practices: exclusive breastfeeding for the first 6 months, continued breastfeeding to 2 years or beyond together with adequate, safe and appropriate complementary feeding from 6-24 months are applied. Therefore, sub-optimal breastfeeding and complementary feeding practices put children at high risk for undernutrition, which are difficult to reverse later in life.

3 Walker SP. Wachs TD, Grantham-McGregor S, et al. Inequality in early childhood: risk and protective factors for early child development. The Lancet 2011; 378:1325-38

4 WHO. Guidelines on HIV and infant feeding. 2010. Principles and recommendations for infant feeding in the context of HIV and a summary of evidence. World Health Organisation. 2010

5 Gareth Jones, Richard W Steketee, Robert E Black, Zulfiqar A Bhutta, Saul S Morris et al. How many child deaths can we prevent this year? The Lancet, Vol 362, July 5, 2003. www.thelancet.com

6 Horton R, Selina L. Nutrition: a quintessential sustainable development goal. Maternal and Child Nutrition, The Lancet 2013; 1-2

7 Black R. et al. Maternal and child undernutrition: global and regional exposures and health consequences. (Maternal and Child Undernutrition Series 1). The Lancet 2008.

Based on the Guiding principles for complementary feeding of the breastfed child (PAHO/WHO, 2003)[8] and the Guiding principles for feeding the non-breastfed children 6-24 months old (WHO, 2005)[9] a list of 12 ideal breastfeeding and complementary feeding practices were defined. The use of improved (or ideal) breastfeeding and complementary feeding practices is a direct and effective strategy for preventing child undernutrition. These ideal IYCF practices are also used as a benchmark to assess the adequacy and appropriateness of IYCF practices in developing countries. The 12 ideal IYCF practices are as follows:

- **Ideal practice one**: All infants breastfed for first time within one hour of birth
- **Ideal practice two**: All infants not fed anything other than breastmilk during first 3 days of life
- **Ideal practice three**: All infants fed colostrum
- **Ideal practice four**: All infants and young children breastfed on demand, day and night
- **Ideal practice five**: All infants less than 6 months exclusively breastfed
- **Ideal practice six**: All children breastfed through to the age of 2 years old or older
- **Ideal practice seven**: All infants fed semi-solid complementary foods at the age of 6 months
- **Ideal practice eight**: All infants and young children aged 6-24 months meet recommended daily energy and nutrient requirements
- **Ideal practice nine**: All infants and young children aged 6-24 months fed nutrient and energy dense foods
- **Ideal practice ten**: All infants and young children 6-24 months fed recommended number of meals daily
- **Ideal practice eleven**: All infants and young children 6-24 months fed by caregiver responsive to child
- **Ideal practice twelve**: All infants and young children 6-24 months fed as recommended during and after illness.

To improve child nutrition, the caregiver is the ultimate target population for behaviour change related to infant and young child feeding and care practices. In the context of IYCF programs, the term caregiver refers to the person or persons who feed and care for the infant or young child most of the time and/or make decisions on how and what he/she should be fed. While the caregiver is usually the mother, it may also be the grandmother or another relative. Other individuals may serve as gatekeepers, facilitating or hindering caregivers' willingness and ability to adopt recommended practices. These include other family members, health workers, religious leaders, midwives, and other influential people within and outside of the child's family.

In order to achieve the desired changes in IYCF practices, programme planners need to think strategically about how to best leverage the contributions of these different gatekeepers. There is a need to understand who and what is hindering the adoption of recommended practices by caregivers, and who and what is most likely to facilitate and support the adoption and implementation of recommended practices.

There is growing evidence that the building blocks for long-term health and well-being are formed during the early years of life, often beginning prenatally. During these early years' disparities in children's growth and development begin to appear, associated with poverty, general undernutrition, specific nutritional deficiencies, illnesses, environmental toxins and the lack of opportunities for stimulation, responsive relationships, and protection from harm. The 1000 days 'window of opportunity' is a narrow one and if action is not taken before the child reaches the age of 2 years, it is likely that growth and developmental problems will be impossible to correct.

The early years in child development are extremely important for outcomes in later life. Events and experiences in the early years have long term consequences and deficits accumulated early on are very difficult and expensive to reverse in later life. Early childhood development is influenced by a range of factors including early nutrition, a clean and stimulating home environment, and maternal health and nutrition.

8 PAHO/WHO. Guiding principles for complementary feeding of the breastfed child, Washington DC, Pan American Health Organisation 2003

9 WHO. Guiding principles for feeding non-breastfed children 6-24 months of age, Geneva, World Health Organisation 2005

Infants and young children who are fed according to the recommended breastfeeding and complementary feeding practices from birth to 2 years have a good foundation for a healthy life in adolescence and adulthood. Positive environmental stimulation can also contribute to better health, learning outcomes and child development. The risk and protective factors for ECD are the same. Poor foetal growth, unsanitary home environment, poor maternal health and poor early nutrition are risk factors. The inverse, optimal foetal growth, clean and safe home environment, optimal maternal health and nutrition in the first two years of life are protective factors for early child development. Infants born extremely preterm, those with very low birth weights (< 1000g) and those with severe neurodevelopmental impairments are less likely to live independently, to be in paid employment and have cohabitating relationships as adults. [10]

Interventions that combine nutrition and early childhood stimulation have been shown to have important impacts that are long lasting. One such intervention is the one designed and implemented in Jamaica by Sally Grantham-McGregor and colleagues. About 25 years ago a number of malnourished children living in Kingston, Jamaica were selected to participate in a study on the impact of nutrition and stimulation on child development. 22 years after the end of the intervention finished, the stimulated children had significantly better economic, cognitive and socio-emotional outcomes.[11]

Evidence from nutrition interventions has shown that ensuring adequate nutrients early in life can protect children, promote their growth, and stimulate their motor, cognitive, and socio-emotional development. Evidence from early child development interventions has shown that providing high quality early child care, stimulation, and responsive interactions can prevent or ameliorate early disparities, enabling children to proceed along normal developmental trajectories ready to learn and to take advantage of social and community opportunities.

Early childhood development and nutrition interventions therefore need to go hand-in-hand. There is little known about combined early childhood development and nutrition interventions in Namibia. In order to inform the development of integrated ECD services that are holistic and attend to the child's health, nutrition, development, psychosocial and other needs parents, communities, NGOs and government departments need to understand the importance of optimal infant and young child feeding and early stimulation. If all 12 recommended breastfeeding and complementary feeding practices are adopted and implemented by caregivers of children 0-24 months, positive stimulation is provided through play and caregiver-child interaction, the potential to prevent malnutrition in childhood, especially stunting and non-communicable chronic diseases in adulthood is significant.

Background situation in Namibia

Namibia is a large country with large agro-ecological contrasts between the north, east, west and south of the country. There are also differences in population density in the north of the country in contrast to the south. It has been estimated that approximately 59% of the population lives in the north of the country[12]. Food consumption patterns also differ between the north and the south of the country. One of the challenges to achieving optimal nutritional status in Namibia is limited access to diverse diets rich in micronutrients. The limited food variety available in the country and the choices made by caregivers about what to feed children, coupled with poor sanitation conditions, inequitable access to safe water and exposure to infections and disease, the task of reducing all forms of malnutrition is huge, however should not be considered insurmountable.

1.1 Undernutrition

Namibia has made some good progress towards reducing malnutrition of children under 5 years. The Namibia Demographic and Health Survey (NDHS, 2013) shows a reduction in key anthropometric indicators; stunting (low height for age) has reduced from 29 to 24%, wasting (low weight for height) from 8 to 6 % and underweight (low weight for age) from 17 to 13% between 2006 and 2013.[13]

10 Moffitt TE, Arseneault L, Belsky D, Dickson N, Hancox RJ, et al. (2011) A gradient of childhood self-control predicts health, wealth, and public safety. Proceedings of the National Academy of Sciences 108: 2693–2698.

11 Attanasio O, Fernández C, Fitzsimons E, Grantham-McGregor S, Meghir C, Rubio-Codina M. Early Childhood Stimulation, Nutrition and Development: A Randomised Control Trial. Center for the Evaluation of Development Policies (EdePo) at Institute for Fiscal Studies (IFS), London, UK

12 NSA: (2012) Namibia population and housing census 2011. Windhoek: NSA

13 MoHSS & ICF International (2014). The Namibia Demographic and Health Survey 2013. Windhoek, Namibia, and Rockville, Maryland, USA: MoHSS and ICF International

While this is an improvement, the rate of reduction in undernutrition is slow. Stunting is a chronic form of undernutrition that is caused by multiple factors, including but not limited to, sub-optimal breastfeeding and complementary feeding practices, poor sanitation and hygiene, low education level of caregivers, poverty, food insecurity, repeated exposure to infections and disease and weak health and social welfare systems.

1.2 Micronutrient deficiencies

Micronutrient deficiency is another form of malnutrition. It is a major contributor to childhood morbidity and mortality. Iron deficiency is one of the primary causes of anaemia, which has serious health consequences for both women and children. Vitamin A is an essential micronutrient for the immune system and plays an important role in maintaining the epithelial tissue of the body. Severe Vitamin A deficiency (VAD) can cause eye damage and is the leading cause of childhood blindness. VAD also increases the severity of infections, such as measles and diarrheal disease in children, and slows recovery from illness. Due to a lack of current data on the prevalence of vitamin A deficiency, the magnitude of vitamin A deficiency in Namibia remains unknown.

NDHS 2013 measured anaemia levels among children age 6-59 months. Overall, 48% of children age 6-59 months are anaemic. The majority of children who suffer from anaemia are classified as having mild or moderate anaemia (25% and 22% respectively), while less than 1% are severely anaemic. Anaemia is highest among children age 12-17 months (70%). According to the NDHS 2013 report, the prevalence of anaemia is lowest among children whose mother has more than secondary education and those in the richest households.[14]

It is recommended that breastfed children age 6-23 months should receive animal source foods and vitamin A rich fruits and vegetables daily (PAHO/WHO, 2003)[15]. Child growth and development increases the need for macro and micronutrients. If children don't consume an adequate quantity and or variety of foods daily, it is likely they will develop a micronutrient deficiency. Measuring micronutrient deficiency clinically however, requires invasive procedures that are costly to administer and analyse. In lieu of biochemical micronutrient studies, the existence of micronutrient deficiencies in children can be determined based on whether children aged 6-24 months have eaten foods from less than three or four food groups; grains, animal source foods, fruits and vegetables and dairy. The NDHS reported that only 41 % of children age 6-23 months are fed the minimum number of times per day, and 31 % are fed from the required number of food groups (NDHS, 2013)[16]. This implies that micronutrient deficiencies, for example, vitamin A for may in fact be a significant health concern in Namibia.

Stunting and micronutrient deficiencies are a significant threat to the economic and social development of Namibia. Stunting and micronutrient deficiencies not only impairs a child's growth, they also have lasting negative effects on the development of the brain, thereby resulting in reduced learning potential and therefore lowered productivity in adulthood. The Government of the Republic of Namibia (GRN) is committed to improving nutrition outcomes for children and reducing stunting through a multi-sectoral approach. Namibia is a member of the global Scaling up Nutrition (SUN) movement, and as such has committed to reducing stunting to below 20 % by 2017. The interventions and strategies to achieve this target are outlined in the Multi-sectoral Nutrition Implementation Plan (NCIP, 2012-2016).[17] One of the key strategies in this plan is building capacity within government ministries and civil society organisations to support caregivers and communities to learn about, adopt and use the ideal IYCF practices.

1.3 Early Childhood Development (ECD)

A great number of children between the ages of 0-8 years old in Namibia are not reaching their developmental potential due to poor health and nutrition, lack of adequate stimulation and neglect.

14 Ibid.
15 PAHO/WHO. Guiding principles for complementary feeding of the breastfed child, Washington DC, Pan American Health Organisation 2003
16 MoHSS & ICF International (2014). The Namibia Demographic and Health Survey 2013. Windhoek, Namibia, and Rockville, Maryland, USA: MoHSS and ICF International
17 MoHSS. Multi-sectoral nutrition implementation plan, results framework and dashboard of indicators. MoHSS 2014.

Only 13% of children between the ages of 0-4 years old were benefiting from ECD programmes and 40 % attending pre-primary education in 2011 in Namibia.[18] The provision of integrated early childhood development (IECD) is characterized by unqualified and inexperienced providers, inadequate infrastructure and facilities, especially in remote rural communities, as well as lack of educational play and learning materials. Over 70 % of IECD caregivers and edu-carers neither have the necessary qualification and experience, nor have they been trained to recognize the special needs of individual children, including those with disabilities. Only 16 % of children with disabilities in Namibia were attending IECD services in 2012. IECD policy implementation remains weak and coordination between health, education and social services remains minimal.

There is limited understanding and appreciation among decision makers and the community at large of the importance and role of ECD in enhancing lifelong learning and well-being. There is even less understanding of the linkages between ECD and nutrition and the essential role that integrated programming can play in promoting optimal child growth and development and well-being in adulthood.

Problem statement

According to the NDHS 2013, nationally, 24% of children under age 5 are stunted, and 8 % are severely stunted. The percentage of children who are stunted initially increases with age, from 1% among children age 6-8 months to 35 % among those age 24-35 months, before declining steadily to reach 21 % among children age 48-59 months. Severe stunting shows a similar trend, with 14 % of children age 24-35 months severely stunted and those below 9 months the least likely to be severely stunted (2 %). This indicates that children age 24-35 months are more likely to be stunted and severely stunted. Children in rural areas are much more likely than those in urban areas to be stunted; 28 % and 17 % respectively. By region, Ohangwena (37 %) has the highest proportion of stunted children, while Khomas (13 %) has the lowest. Mother's level of education has an inverse relationship with stunting. Children whose mothers have no education are most likely to be stunted (34 %). Size at birth is also a determinant of stunting. Children whose size at birth was reported as very small are most likely to be stunted (40 %).[19] This suggests that the mother's nutritional status before and during pregnancy are also important factors contributing to chronic malnutrition and the nutritional status of children. The 1000 days are therefore critical to long term development and prevention of stunting. The right nutrition during the first 1000 days' results in a lifetime of benefits; healthy growth and brain development, stronger immune system, better educational attainment and greater lifetime earning potential.

Infant and young child feeding and caring practices are one of many determinants of malnutrition. In order to reduce stunting and other forms of malnutrition, knowledge, attitudes and caregiver's practices in relation to IYCF need to be better understood. This formative research therefore sets out to achieve the overall objective of understanding current IYCF practices and to compare them to ideal or optimal IYCF practices.

18 NSA: (2012) Namibia population and housing census 2011. Windhoek: NSA 2011
19 Ibid.

CHAPTER TWO: STUDY METHODOLOGY

2.1 Study Rationale

To date there has not been an in-depth assessment undertaken in Namibia that specifically targets infant and young child feeding and care practices. With a population of 2.1 million spread over an area of 824 295 square kilometres, Namibia, faces significant challenges with regards to the delivery of an optimal IYCF and nutrition programme. Researching current IYCF practices and comparing them to the recommended practices is one part of the Ministry of Health and Social Services (MoHSS) strategy to improve child nutrition and child survival. The implementation of a national IYCF and care practices assessment in 2014 was the first step toward better understanding of the barriers that hinder and the facilitators that support caregivers to adopt and use recommended IYCF practices.

Knowledge about early childhood development with respect to play, early stimulation and child care practices is also lacking in Namibia. For this reason, a section covering ECD was added to the caregiver survey to capture data about ECD indicators. The ECD section consisted of questions taken from the Multiple Cluster Indicator Survey (MICS), developed by UNICEF.[20] The additional questions were targeted at children aged between 2 and 5 years of age.

It was assumed that the formative research methodologies and survey tools used would generate information about feeding practices and levels of dietary inadequacies for the key nutrients, such as vitamin A and iron in children in the target age group. It was also assumed that an IYCF formative assessment, would identify the main institutional, community, social, cultural, familial and individual factors influencing breastfeeding and complementary feeding practices; and elicit the identification of barriers and enablers to optimal IYCF. It was assumed that the ECD component would identify key child care practices related to early childhood development.

Overall Objective

The overall objective of the assessment was to understand the feeding and caring practices for infants and young children aged 6-59 months with the main aim to assess the general nutrition situation pertaining to feeding and care practices of infants and young children aged 6-59 months.

The specific objectives of the assessment were:

- To understand caregiver knowledge, attitudes and practices with respect to infant and young child feeding and care practices
- To assess the dietary intake of infants and young children aged 6-24 months.
- To understand caregiver practices with regard to early childhood development
- To develop interventions, key messages and information, education, communication (IEC) materials and job aids based on results of the formative assessment to promote and support improvement in IYCF and care practices
- To disseminate and use results from the formative research for the purpose of advocacy and program planning for nutrition
- To investigate the availability of locally available foods suitable for use as complementary foods for infants and young children 6 months up to two years.

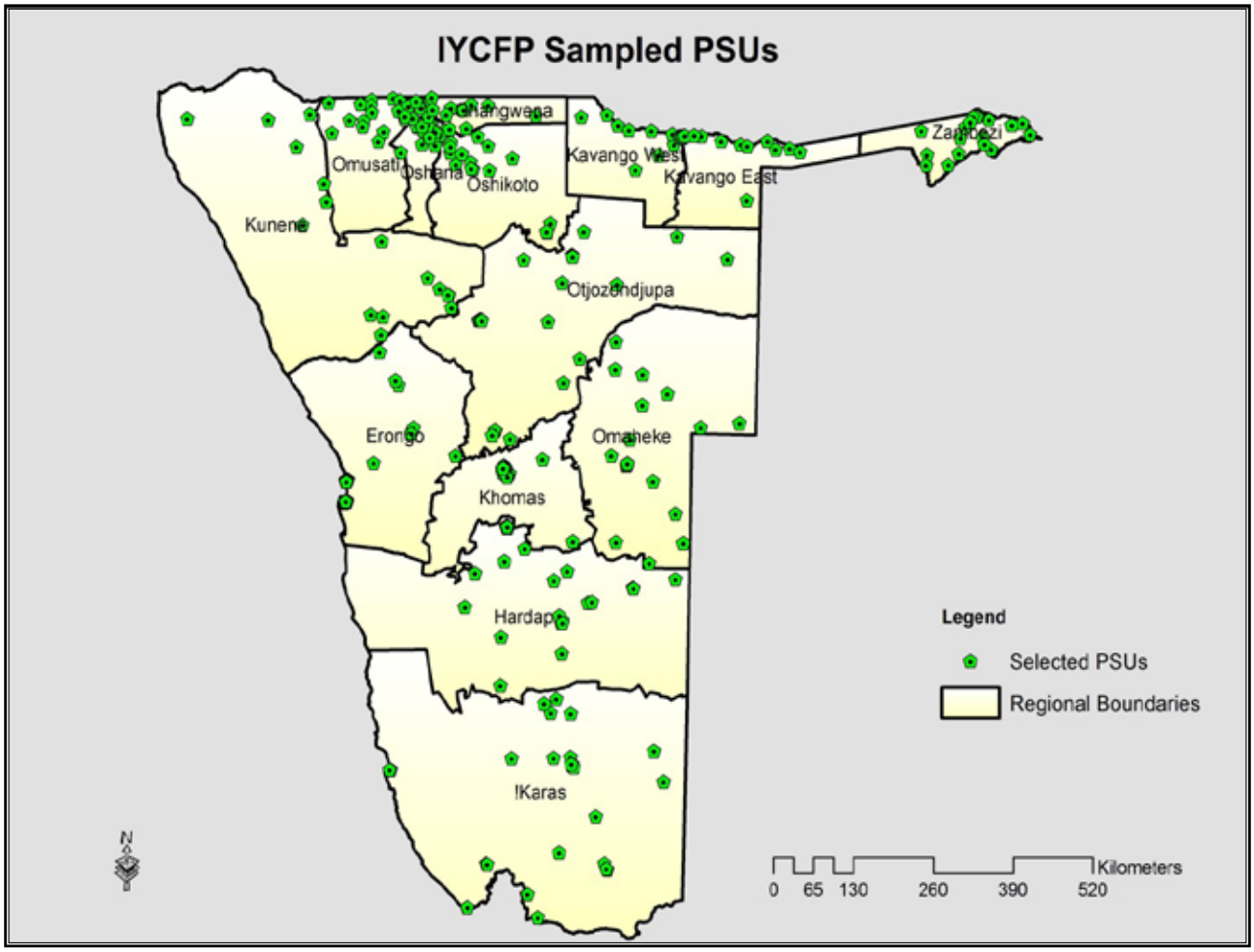
2.2 Design and Methodology

2.2.1. Description of Study Area

The initial intention was to produce estimates representative at a regional level with sufficient accuracy, however the available budget was not sufficient to meet the requirement for a larger sample size. Hence it was decided to combine the regions to form four zones such that reliable estimates could be produced at the zonal level, with the assistance and collaboration of the National Statistics Agency (NSA). The zones and their respective regions were; Zone 1 (Kavango East, Kavango West, Zambezi); Zone 2 (Ohangwena, Oshana,

20 http://mics.unicef.org/

Oshikoto, Omusati); Zone 3 (Kunene, Omaheke, Otjozondjupa) and Zone 4 (Erongo, Hardap, //Kharas, Khomas). The selection of regions into zones was based on geographical proximity and similar ethnicity.



2.2.2. Study Population

The study objectives were to understand feeding and caring practices for infants and young children aged 0-59 months. Therefore, the target population was children under the age of five in Namibia. Excluded from the survey population were those children under the age of five who reside in institutions such as hospitals, child care centers and orphanages.

2.2.3 Sample design

The sample design for the IYCF caregiver survey was a stratified three-stage cluster sample where the first stage was the selection of primary sampling units and the second stage units were the selection of eligible households (households with children in the relevant age group). Third stage was the selection of the actual child within the eligible household. Third stage selection was not done according to a random process. The decision was to select the youngest child in the eligible household. Two factors influenced this decision – difficulty of controlling the selection process at the field level and also the likelihood of a strong relationship with the study objective.

Sampling frame

Sampling frame used for the caregiver survey was a list of Primary Sampling Units (PSUs). These were based on the 2011 Population and Housing Census Enumeration areas (EAs). A PSU can be one EA, part of an EA or more than one EA.

Stratification

The PSUs were first stratified by the 4 zones followed by the regions within them. They were also further stratified implicitly by urban and rural areas and constituencies within each region.

Sample size

Sample sizes were determined to give reliable estimates of different characteristics at the zonal level. National, national urban and national rural estimates would have much higher level of accuracy because of the larger sample sizes. Within each selected PSU, a sample of 16 eligible households was selected from a prepared list of households that was compiled the day before or on the same day as the interviewing. The final sample sizes (PSUs and households) are shown in the table below. Refer to Appendix 1 for the sample size calculations.

Table 1: The distribution of sample PSU and sample households between Zones and Regions

Zones	Region	Household1	Children aged 0-42	Number of PSU selected	Sampled households
National		**463,500**	**283,154**	**104**	**1,664**
Zone 1	Zambezi	21283	12978	5	80
	Kavango East	20,797	14601	6	96
	Kavango West	14,605	20778	9	144
	Total	**56,685**	**48,357**	**20**	**320**
Zone 2	Ohangwena	43723	37985	9	144
	Omusati	46698	33706	8	128
	Oshana	37284	21497	5	80
	Oshikoto	37400	25582	6	96
	Total	**165105**	**118770**	**28**	**448**
Zone 3	Kunene	18495	14280	7	112
	Omaheke	16174	10656	6	96
	Otjozondjupa	33192	20199	10	160
	Total	**67861**	**45135**	**23**	**368**
Zone 4	Erongo	44116	16240	8	128
	Hardap	19307	9420	5	80
	!Karas	20988	8639	5	80
	Khomas	89438	36593	15	240
	Total	**173849**	**70892**	**33**	**528**

Sample allocation to strata

Due to the large differences in the population distribution, the zones/regions with smaller populations would get smaller samples under the proportional allocation procedure. Hence a compromise allocation procedure was used to oversample these areas. Refer to Appendix 2 for the allocation procedure.

Sample selection

The first stage sample of PSUs was selected from the sampling frame using the probability proportional to size (PPS) sampling together with systematic sampling procedure. Once the PSUs were selected a listing operation was carried out to prepare a list of households and also to identify the eligible households where the target group of children aged 0 – 5 years old were living. Then 16 households were selected from the eligible households using systematic sampling procedure. If there were more than one eligible child in the household, then the youngest one and the caretaker of that child was selected for the interviewing.

Weighting

Since the inclusion probability of a child in the sample is not the same in this design, a weight factor has to be applied to the data to cover this aspect. The sampling weights (Base weight or design weight) for the data collected from the sampled households were constructed so that the responses could be properly expanded to represent the zones. The design weights, which are the inverse sampling rate (ISR) for the PSU and Households are assigned to each case interviewed to enable estimates at National level. See appendix 3 for the calculation of weight.

Data Collection

Enumerators were selected from all 14 regions in the country. Training was conducted for the enumerators and drivers providing basic information about infant and young child feeding as well as training on the assessment tools, household listing and sampling before data collection started in August 2014. A total of 176 enumerators, 57 drivers, 14 regional coordinators and 10 national supervisors took part in the assessment. The enumerators were divided into 2-3 teams per region and were supported and supervised by the regional coordinators and national supervisors to ensure correct and truthful completion of the assessment tools. The data collection took 5 weeks to complete. The teams interviewed caregivers at household level during the data collection period.

A total number of 108 PSU's were selected with the guidance of the National Statistics Agency (NSA) and included both urban and rural areas. All households in selected PSUs were listed and a sample of households were randomly selected for the survey from eligible households, being households with at least one child under the age of 5 years. A list of the selected PSU's per region is attached in Annex 1.

The formative assessment was carried out using a set of tools specifically developed to investigate IYCF. Collectively the methodology is called ProPAN. It was developed by Pan American Health Organisation (PAHO) with support from UNICEF and WHO. The tools consist of quantitative methods such as a caregiver survey, 24-hour dietary recall and market survey, and qualitative methods such as semi-structured interviews, and opportunistic observations. The survey tools have been approved and endorsed by UNICEF and WHO.

The caregiver survey, 24-hour dietary food intake recall, market survey, opportunistic observations and semi-structured interviews were administered by trained enumerators at the household and community level in all 14 regions.

Permission and Ethical consideration

The proposal for the formative assessment on infant and young child feeding practices was approved by the Policy Planning Directorate in the Ministry of Health and Social Services in May 2014. A training for the core research team members on the Process for the Promotion of Child Feeding (PRoPAN) software and adapted tools took place with the financial assistance from UNICEF and Global Fund. The core research team members consisted of staff members from MOHSS National Primary Health Care (PHC) staff, regional coordinators, and nutritionists from UNICEF, ITECH, Synergos and FANTA-3 project as well as staff members from the University of Namibia (UNAM) Multidisciplinary Research Centre (MRC). The training was followed by pilot testing of the assessment tools.

2.3 Data Analysis

Data entry for the caregiver survey, 24-hour dietary recall and market survey was done in PRoPAN by trained data entry clerks under the supervision of University of Namibia, MRC researchers. The analysis plan was developed by the MoHSS and adopted by MRC researchers. Due to shortcomings and limited capacity for detailed analysis in PRoPAN, the caregiver survey dataset was transferred to SPSS for analysis. This also allowed for the analysis of the additional questions on ECD and child protection. Similarly, the market survey was analysed using Excel. Analysis of the semi-structured interview and opportunistic observations were done using data integration matrices provided by ProPAN. The data was analysed manually, whereby common themes and responses were identified.

The Semi-Structured Interview was administered to caregivers who had previously completed the caregiver survey and who consented to the interview. A target of 8 interviews per PSU was set and a total of 290 interviews were completed and analyzed, giving a response rate of 32 %.

Data was collected using a semi-structured interview guide that contained specific questions relating to ideal practice 1, 2, 3, 5, 7 and 12 for respondents with children aged 0-6 months. Questions relating to ideal practices 4, 6, 7, 8, 9, 10, 11 and 12 were asked to respondents with children aged 6-24 months. The questions were asked by the enumerator/interviewer and answers were recorded in writing.

The analysis of the semi-structured interviews was done by hand using two matrices; the matrix for summarizing caregiver reasons for current practices and knowledge/attitudes about ideal practices and the matrix for summarizing facilitators of/barriers to ideal practices (Form I-8.2 and Form I-8.3 from the ProPAN Field Manual, p139 - 140).

This assessment tool was used to achieve the following objectives to identify current complementary feeding practices, to compare current complementary feeding practices with the ideal practices and determine the adequacy of caregivers current practices, to determine the adequacy of energy, protein, iron, zinc, vitamin A, vitamin C, and calcium intake and to identify other complementary feeding practices that affect macro and/or micronutrient intake

A total of 538 dietary recalls were administered for children aged 6-59months. Infants aged less than 6 months were excluded based on the assumption that they should be breastfeeding exclusively from birth to 6 months. Caregivers who were selected for the caregiver survey and who had a child aged 6-24 months were asked to participate with their consent, in the 24-hour food recall activity. The criteria for participating in the 24-hour recall was that the respondent be the person who fed the child the previous day to the interview.

Data was collected using a 24-hour dietary recall form (Form I-4.1 from ProPAN Field Manual). Caregivers were asked to recall all foods and drinks given to the child 'yesterday', from the time the child woke until the time the child went to bed that same night. The type of food and drinks, the quantities served to the child and the amount eaten by the child was recorded. The number of meals and snacks consumed was recorded also.

ProPAN criteria for analysis of diet, and feeding practices are based on the PAHO/WHO Guiding principles for complementary feeding of the breastfed child (PAHO/WHO, 2003) and the WHO Principles for feeding non-breastfed children 6-24 months of age (WHO, 2005), the WHO/UNICEF Indicators for assessing infant and young child feeding practices (WHO and partners, 2008), and other WHO criteria for breastfeeding and complementary feeding of infants and young children (Dewey and Brown, 2003, WHO, 1998).[21]

The market survey tool was used to achieve the following objectives to identify locally available foods that provide the greatest amount of energy and nutrients for the least cost (nutrient/cost ratio) and to determine the seasonality and availability of foods

The data regarding the market survey was obtained by visiting either supermarkets or local open markets and recording the price and seasonality of foods taken from those listed in the 24-hour recall forms.

The market survey questionnaire included a calendar in order to determine availability of foods throughout the year and to assess seasonality of foods in different areas/regions. From the survey results, almost all of the foods (> 98%) were available all year round i.e. from January to December. This was due to the fact that almost all of the respondents (> 95%) bought foods from supermarkets, which have an almost consistent supply of different foods throughout the year.

21 Dewey, K. G. & Brown, K.H. Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. *Food Nut Bulletin*, 24, 5-28 2003.

This was achieved by comparing the price of the same food item with the same retail unit with the prices from different retail locations in the country where that particular food item was sold. A standard retail unit for each food item had been agreed upon by the research team before embarking on the market survey. From the results, it was observed that there was no difference in the pricing of the foods at the zonal level as the same price was used across different retail locations.

ProPAN software was used to analyse all the foods recorded in the market survey in terms of the cost per unit (in Namibian Dollar- NAD) per specific amounts of protein, micronutrients and the edible portions of these foods in order to determine the nutrient-cost ratio of these foods in terms of their contribution. The micronutrients analysed were calcium, zinc, iron, vitamin A and vitamin C.

CHAPTER THREE: FINDINGS

3.1 Caregiver Survey and Semi-Structured Interview

These assessment tools were used to achieve the following objectives:

Objectives

1. To identify current breastfeeding and complementary feeding practices
2. To understand the reasons behind these practices
3. To identify facilitators and barriers to each ideal breastfeeding and complementary feeding practice
4. To compare current practices with the ideal infant and young child feeding practices and determine the adequacy of the current practices
5. To collect information that will help clarify the context in which the current breastfeeding and complementary feeding practices occur.
6. To understand caregiver practices with regard to early childhood development

Sample description

A total of 1596 out of 1664 caregivers of infants and young children under age 5 years were successfully interviewed, which is a response rate of 96 %. The majority of infants and young children were female (51.9%) (unweighted) and lived in rural areas (53%) (unweighted). Table 2 shows the distribution of children under 5 according to the zone and urban/rural.

Table 2: Zone distribution of respondents by urban-rural (unweighted) by percentage (%)

	Total		Urban		Rural	
	Number	**%**	**Number**	**%**	**Number**	**%**
Zone 1	300	18.8	77	25.7	223	74.3
Zone 2	427	26.8	88	20.6	339	79.4
Zone 3	351	22.0	168	47.9	183	52.1
Zone 4	518	32.5	417	80.5	101	19.5
Total	**1596**	**100**	**750**	**47.0**	**846**	**53.0**

Zone and residency status of caregivers

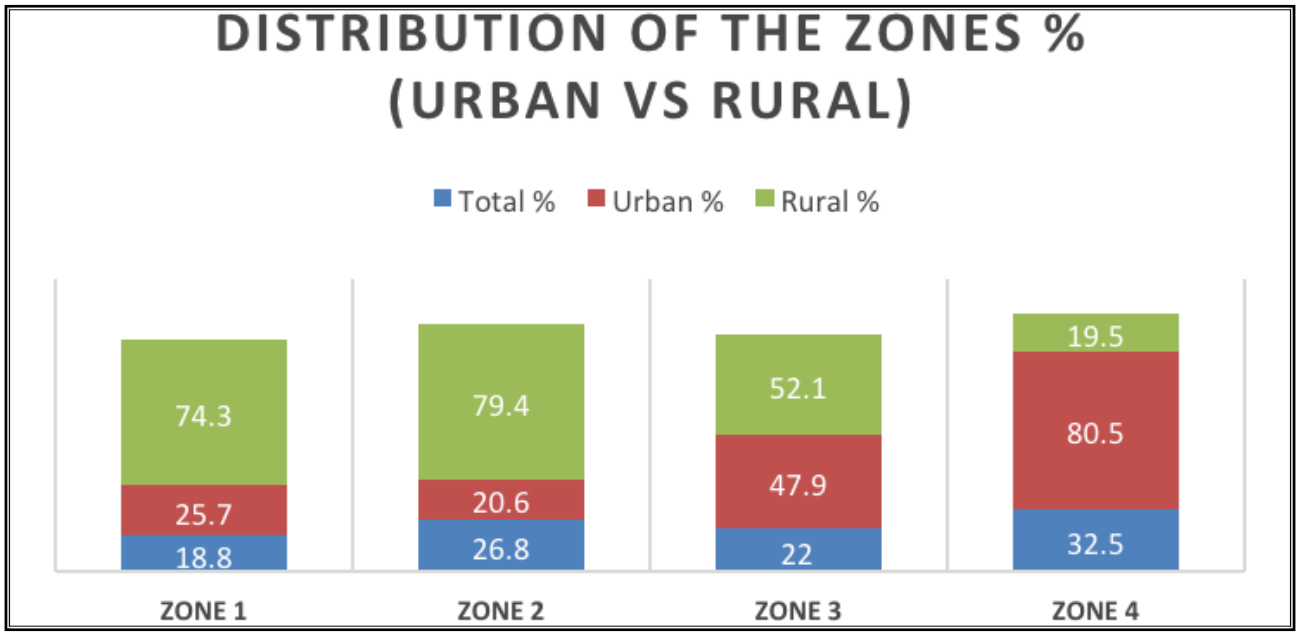


Figure 1: Urban and Rural distribution of zones

The proportion of urban and rural areas within the zones is indicated in figure 1. Zone 1, 2 and 3 are predominantly rural, while zone 4 represented predominantly urban areas.

General Characteristics of the caregiver

Relationship of caregiver to child

For the purposes of this assessment a caregiver refers to a person caring for a child on a daily basis and who is also responsible for feeding the child. This can be the mother, father, relative such as grandparent, or non-relative such as a nanny. The majority of caregivers of children in rural and urban areas, were mothers (72%). In addition to mothers, relatives such as grandmothers were also frequently cited. Tables 3 shows the distribution of respondents' relationship to child by zone and place of residence. Based on zone distribution, mothers are still the dominant caregivers. However, for Zone 2 there is relatively more children cared for by 'other' caregivers than in all other Zones. This is the case in both rural and urban areas. In this instance, 'other' caregivers include grand-parents, aunts, siblings, domestic workers and other relatives.

Table 3: Percentage (%) distribution of respondents' relationship to the child by Zone and place of residence

	Total (%)			Rural			Urban		
	Mother	Father	Other	Mother	Father	Other	Mother	Father	Other
Zone 1	79.1	1.1	19.9	80.2	0.9	18.9	75.0	1.7	23.3
Zone 2	63.4	1.1	35.6	62.7	1.2	36.1	67.1	0.0	32.9
Zone 3	74.5	2.8	22.7	77.8	2.7	19.6	69.3	3.0	27.7
Zone 4	79.7	2.9	17.4	78.2	0.7	21.1	80.1	3.6	16.3

The results in table 4 indicate the relationship of the caregiver to the child. The findings indicate that for the majority of caregivers surveyed, the primary caregiver is in fact the mother. Less than 3 % of caregivers were identified as the father. Caregivers identified as other, included; grandparents, aunties, uncles and non-relatives such as a nanny. Irrespective of the age of the child, the mother was identified as the primary caregiver.

Table 4: Percentage (%) Relationship of Caregiver to child by age of child

Age groups		Relationship to child						Total
		Mother	%	Father	%	Other	%	
Age group in months	0-5	51803	93.0	329	0.6	3562	6.4	55694
	6-8	19060	85.9	0	0.0	3118	14.1	22178
	9-11	22420	83.2	499	1.9	4025	14.9	26944
	12-24	71630	68.0	1473	1.4	32252	30.6	105355
	25+	71739	61.6	3255	2.8	41514	35.6	116508

Table 5 indicates the different age range of caregivers. 41.8 % of caregivers are aged between 30 and 59 years. Of note is the percentage of caregivers between the age ranges of 13-17, which suggests that in some households, children are the primary caregiver of younger children in that household. Also of note is the 7.6% of caregivers over the age of 60 years identified as primary caregivers of children.

Table 5: Percentage (%) group distribution of caregivers

Age group	Number of respondents	%
13-17	5414	1.6
18-29	137264	41.8
30-59	157380	47.9
60+	25123	7.6
Not stated	3312	1
Total	**328492**	**100**

Age and educational level of caregivers

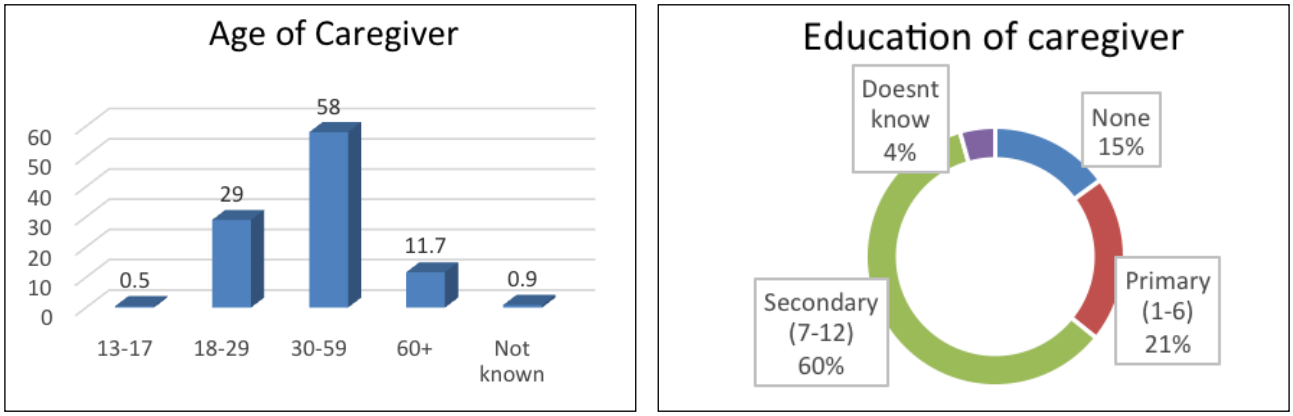


Figure 2: Age and educational attainment of caregiver

According to figure 2, 58 % of caregivers are aged between 30 and 59 years. The youngest age of a caregiver is 13 years and the oldest above 60 years. With regard to level of education attained by caregivers, 60 % have secondary education, 21 % have primary education and 15 % no education.

Table 6 indicates that 47 % and 46 % of caregivers/respondents were single and married, respectively.

Table 6: Percentage (%) Marital status of caregivers

Marital status	Number of respondents	%
Single	155697	47.4
Married	151417	46.1
Separated	19079	5.8
Not stated	2299	0.7
Total	**328492**	**100**

Table 7 indicates that 78.5 % of respondents are able to read and write. This has significant implications for the mode of delivery back to the surveyed communities and of key messages developed as a result of the assessment.

Table 7: Percentage (%) Literacy level of caregivers

Literacy levels	Number of respondents	%
Yes	257713	78.5
No	41245	12.6
Able to read a bit	26998	8.2
Blind	1950	0.6
Not stated	586	0.2
Total	**328492**	**100**

When asked about involvement in work, aside from own housework, 24.6 % of respondents reported working in the 7 days prior to the caregiver survey and 75 % reported not working (Table 8).

Table 8: Percentage (%) Work status in last seven days

Work status	Number of respondents	%
Yes	80962	24.6
No	246343	75.0
Not stated	1187	0.4
Total	**328492**	**100**

As indicated in Table 9 the majority of those who did some paid work are vendors, office workers, service workers, cleaners, bartenders and domestic workers.

Table 9: Percentage (%) Occupation of caregivers

Occupation	Number of respondents	%
Vendor	14986	18.5
Agricultural worker	5056	6.2
Office worker	14582	18.0
Service worker	13143	16.2
Education/research	7959	9.8
Health care	1530	1.9
Domestic Worker	10424	12.9
Others	11279	13.9
Not stated	2003	2.5
Total	80962	100.0

Decision making about purchasing food for children

Table 10 indicates that 44.2 % of mothers are making decisions about purchasing food for children with fewer husbands being involved in decision making at only 13.9 %. 23.9 % of elder persons are making decisions about the purchase of food for children.

Table 10: Percentage (%) Decision makers about purchasing food for child

	All		Zone 1	Zone 2	Zone 3	Zone 4
Decision makers	Number	%	%	%	%	%
Mother/caregiver	145122	44.2	35.0	38.9	46.8	60.0
Husband	45747	13.9	19.2	11.0	15.4	13.5
Mother/father	36245	11	14.8	9.7	12.0	9.5
Elder person	78538	23.9	23.3	32.7	19.6	11.3
Mother/elder	7145	2.2	1.3	3.2	0.9	1.9
Mother/other	1884	0.6	0.5	0.8	0.3	0.3
Other	8695	2.6	3.1	2.3	3.4	2.3
Not stated	507	0.2	2.1	1.3	1.2	1.1
Does not know	4609	1.4	0.6	0.0	0.2	0.0

3.1.1 Ideal Practices

Breastfeeding and Complementary Feeding

Breastfeeding has been proven to be one of the most effective interventions for preventing infant and child mortality. Early initiation of breastfeeding within the first hour after delivery is one of the key actions that can prevent new born deaths and starting breastfeeding within the first hour determines the successful establishment and duration of breastfeeding. Colostrum, an important source of nutrition and protection for the new born is produced during the first three days after delivery, which is why it is recommended that infants be put to the breast immediately or within one hour after birth and that pre-lacteal feeding (feeding new borns anything other than breast milk before breastfeeding is initiated) be discouraged.

The practice of giving pre-lacteal feeds limits the frequency of suckling by the infant and exposes the infant to the risk of infection. It is not recommended to give anything other than breastmilk from birth up until the infant is 6 months old. This is the practice of exclusive breastfeeding and it is recommended because breastmilk is uncontaminated and contains all of the nutrients necessary for infants and young children in the first 6 months of life. In addition, the mother's antibodies in breast milk provide immunity to diseases or infections. Early introduction of complementary foods and other liquids, including milks other than breastmilk is discouraged because it exposes infants to pathogens and increases risk to infections. Giving foods and other liquids other than breastmilk to infants younger than 6 months interferes with breastfeeding. It can decrease infants' intake of breastmilk, whereby they suckle less, and a decrease in suckling in turn reduces breastmilk production. All infants should be breastfeed on demand during the day and night and not according to a fixed schedule.

Percentage of infants 0-24 months ever breastfeed

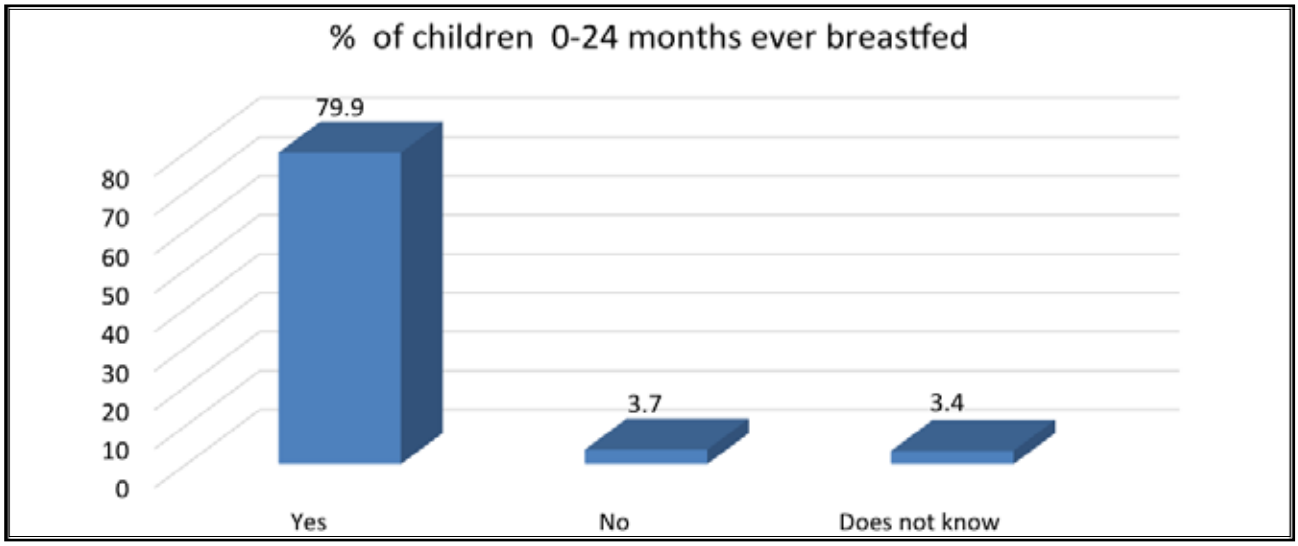


Figure 3: % of children 0-24 month ever breastfed

The results of the caregiver survey in figure 3 indicate that 80 % of children aged 0-24 months were ever breastfed.

Infants and young children need nutritious foods in addition to breast milk from the age of six months, therefore WHO recommends that infants should begin receiving complementary foods at that age. Locally available and affordable foods that enrich the infant's diet with additional calories and micronutrients should be offered – soft or mashed – in small quantities, several times a day. These complementary foods should gradually increase in amount and frequency as the infant grows. Breastfeeding, on demand, should continue until the age of two years or beyond.

The current IYCF practices in Namibia were assessed against 12 ideal (IYCF) practices. Nine of the ideal practices were assessed using a caregiver survey and three of the practices were assessed using a 24-hour dietary recall tool.

Ideal practice one: Early Initiation of Breastfeeding: All infants breastfed for the first time within 1 hour of birth

This practice focuses on assessing whether all infants are breastfed for the first time within 1 hour of birth. The results refer to infants and young children aged 0-24 months who had ever been breastfed. Of the 80 % of infants and young children aged 0-24 months who had ever been breastfed, 57.7 % were breastfed within 1 hour after birth. There is no significant difference in initiation of breastfeeding with regard to place of residence, whether rural or urban; although slightly more infants in urban areas were breastfed within 1 hour after birth when compared to those in rural areas.

Table 11: Percentage (%) Initiation of breastfeeding by place of residence

First time breastfeeding	Total	%	Rural	%	Urban	%
within 1 hour after birth	103485	57.7	66766	57.1	36719	60.4
from 1 to 3 hours after birth	31779	17.7	19453	16.6	12326	20.3
more than 3 hours after birth	27450	15.3	19924	17.0	7526	12.4
Does not know	14953	8.3	10780	9.2	4173	6.9
Not stated	1738	1.0	0	0	0	0

Table 12: Percentage (%) Initiation of breastfeeding by Zone

Zones	within 1 hour after birth	from 1 to 3 hours after birth	more than 3 hours after birth	Does not know
Zone 1 Zambezi, Kavango east and west	46.9	18.6	21.8	12.7
Zone 2 Ohangwena, Omusati, Oshana, Oshikoto	63.3	15.9	13.2	7.6
Zone 3 Kunene, Omaheke, Otjozondjupa	58.8	17.6	17.6	6
Zone 4 Erongo, Hardap, !Karas, Khomas	58.5	20.8	13	7.7

The ideal practice is that all infants are breastfed within one hour after birth however this is not the case as indicated in Table 12. The findings in Table 12 shows the proportion of infants being breastfed within one hour after birth by zone whereby Zone 2 has the highest proportion of infants initiating breastfeeding within one hour after birth with 63.3 %, and Zone 1 has the lowest proportion initiating breastfeeding within one hour after birth at 46.9 %.

With regard to where infants were born, the majority; 70 % were born in a hospital, 11 % at home and 6 % at a health centre as indicated in Table 13.

Table 13: Percentage % distribution of infants aged 0-24 months by place of birth

Birth Place	Number of respondents	Percentage %
Hospital	147866	70.4
Health Centre	12814	6.1
Home	23925	11.4
TBA's Home	1323	0.6
Others	1178	0.6
Don't know	5781	2.8
Not stated	17283	8.2
Total	**210170**	**100**

Table 14 indicates that of those infants born in hospital and ever breastfed, 62 % were breastfed within 1 hour after delivery. This suggests that 38 % of infants born in hospitals did not start breastfeeding within the recommended 1 hour after delivery time frame.

It is evident from the findings in table 14 that less infants are initiating breastfeeding within 1 hour after delivery when they are born at home.

Table 14: Percentage (%) Initiation of breastfeeding by place of birth

Breastfeeding initiation	Hospital	Health Centre	Home	TBA's Home	Others	Don't Know
within 1 hour after birth	62	54.6	40.5	43.5	21.4	100
from 1 to 3 hours after birth	16	30.5	23.8	0	27.7	0
more than 3 hours after birth	13	11.8	31.8	8.1	32.1	0
Don't know	9	3.1	4	48.4	18.7	0
Total	**100**	**100**	**100**	**100**	**100**	**100**

Semi-structured interview findings for ideal practice one

Findings from the semi-structured interview regarding the practice of initiating breastfeeding indicate that a key external barrier to mothers initiating breastfeeding within 1 hour of delivery in hospitals or health centres is being separated from their infant straight after delivery. Many women cited not knowing the benefits or importance of early initiation of breastfeeding as an internal barrier.

Women who delivered in hospital were more likely to initiate breastfeeding within the first hour of delivery if they were assisted by a nurse to do so.

Table 15: Barriers and Facilitators for ideal practice 1

IDEAL PRACTICE 1: ***All infants are breast fed for the first time within the first hour after birth***				
	Barriers		Facilitators	
Current Practice	External	Internal	External	Internal
58% breastfed within first hour of birth	Separation of mother and infant; Infants are kept by nurses for washing, drying and other procedures or mother is sick or asleep and not woken up by nurses or infant is sleeping	Majority of mothers did not have knowledge about the benefits or importance of initiating breastfeeding within the first hour after delivery	When nurses assisted mothers they were able to initiate breastfeeding within the first hour of birth	Those mothers with knowledge about the importance of breastfeeding started within the first hour after delivery
	Mothers who had a caesarian section did not start breastfeeding within the first hour because they were not assisted to do so by nurses	Many mothers reported delay in milk production		
		Some young mothers who reported plans to return to school chose not to start breastfeeding at all because of fear the infant would not adjust to formula when she returned to school		

Ideal practice two: All infants not fed anything other than breastmilk during first 3 days of life

It is recommended that infants are not given pre lacteal feeds. A pre lacteal feed is any food or liquid provided to a new born before initiating breastfeeding. Pre lacteal feeding is a major barrier to exclusive breastfeeding. It is therefore, recommended that new borns are not given pre lacteal feeds.

The results in Table 16 indicate that 12 % of infants were given a pre lacteal feed.

Table 16: Percentage % Infant given anything other than breast milk during the first three days after birth

Responses	Number of respondents	%
Yes	25036	12
No	148441	71
Does not know	3213	1
Not stated	33479	16
Total	**210170**	**100**

Table 17 indicates of those who were given something other than breastmilk, the majority were given water (35 %) and infant formula (30 %). In rural areas, infants were commonly given water (50.0 %) during the first 3 days of life while in urban areas the majority (53 %) were given infant formula.

Table 17: Percentage % Food or liquids given during the first 3 days of life by place of residence

Food or liquids given	Number of respondents	%	Rural	%	Urban	%
Tea	266	1	0	0	266	4
Water	8641	35	7389	50	1252	16
Infant formula	7464	30	3448	23	4016	53
Other non-breast milk	2484	10	2141	15	343	4
Others	2940	12	1659	11	1281	17
Does not know	611	3	142	1	468	6
Not stated	2630	9				
Total	**25036**	**100**	**14779**	**100.0**	**7626**	**100.0**

Table 18 shows that there were some differences in what was given to infants during the first 3 days of life by Zones. Infants in Zone 3 and Zone 1 were given water during the first 3 days of life, while more infants in Zone 2 and Zone 4 were given infant formula.

Table 18: Percentage % Food or liquids given during the first 3 days of life by Zone

Zones	Tea	Water	Infant formula	Other non-breast milk	Others	Does not know
Zone 1	0.0	56.6	15.2	8.8	15.0	4.3
Zone 2	0.0	19.4	41.9	20.0	15.3	3.4
Zone 3	0.0	63.3	25.8	6.0	4.9	0.0
Zone 4	5.8	11.3	64.6	7.5	10.8	0.0

Semi-structured interview findings for ideal practice two

According to the findings of the semi-structured interview with respect to pre lacteal feeding, there is an indication that women who receive advice and support at time of delivery to initiate breastfeeding within the first hour and who are provided with advice against feeding the new born anything other than breastmilk, are more likely to follow the ideal practice and not give pre lacteal feeds.

In cases where women reported a delay in their breastmilk 'coming in' advice was given by nurses to commence formula feeding. Some women also reported giving water and traditional herbs as per cultural beliefs. Key facilitators for not giving pre lacteal feeds include increasing knowledge amongst expectant mothers, grandparents, and family relatives about the risks associated with this practice and building capacity of nurses and health care workers to support women not to give pre lacteal feeds. Addressing the external barriers such as cultural and traditional beliefs will also be an important strategy for reducing this harmful practice.

Table 19: Barriers and Facilitators for ideal practice 2

IDEAL PRACTICE 2: ***All infants are not fed with pre lacteals***				
	Barriers		Facilitators	
Current Practice	External	Internal	External	Internal
12% of infants were fed something other than breastmilk within the first 3 days of birth	Nurses advised mothers to give infants formula because breastmilk had not 'come in'	Mothers' beliefs that infants need water due to thirst	Nurses who advised against pre lacteal feeds	Those mothers who knew pre lacteal feeds should not be given to infants did not give anything other than breastmilk
Water and formula were the most common liquids given to infants	Grandparents or other relative advised mother to give something other than breastmilk, driven by cultural beliefs and traditional practices			

Ideal Practice three: All infants are fed colostrum

It is recommended that all infants are fed colostrum. This practice focuses on whether all infants were fed colostrum. Of all infants and children aged 0-24 months who were ever breastfed, 88 % were fed colostrum. Of those fed colostrum, 79 % were born in hospital, and 13 % were born at home. 64.4 % of infants from rural areas were fed colostrum compared to 35.6 % of infants from urban areas (figure 4).

While the majority of infants were given colostrum, of those who were not, the reason/s given were related to negative beliefs about colostrum. Some mothers discard colostrum because they believe it makes infants sick and is 'bad milk' as indicated in Table 20.

Table 20: Percentage % Child fed colostrum

Responses	Number of respondents	%
Yes	158337	88
No	14148	8
Does not know	3977	2
Not stated	2944	2
Total	**179406**	**100**

Table 21: Percentage % Fed colostrum by place of birth

Place of birth	Number of respondents	%
Hospital	125668	79.1
Health centre	10185	6.4
Home	20210	12.7
TBA's Home	1323	0.8
Others	1126	0.7
Does not know	345	0.2
Total	**158857**	**100**

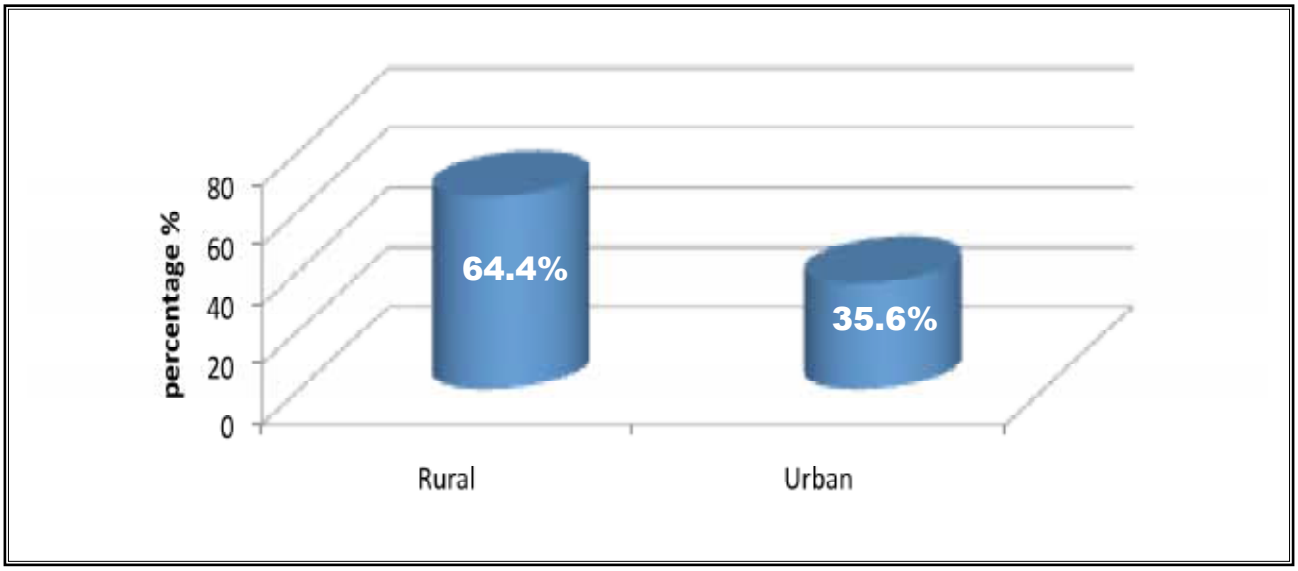


Figure 4: Percentage (%) Fed colostrum by place of residence

Semi-structured interview findings for Ideal practice three

Facilitators for promoting mothers to give colostrum include advice given by nurses, doctors and family members with knowledge about the benefits of colostrum. Women who were given information at ANC visits, or were assisted by nurses immediately after delivery to initiate breastfeeding, were more willing and able to give colostrum to their infant. Women with prior knowledge about the importance and benefits of giving colostrum reported following this ideal practice.

Table 22: Barriers and facilitators for ideal practice 3

IDEAL PRACTICE 3: ***All infants are fed colostrum milk***				
	Barriers		Facilitators	
Current Practice	External	Internal	External	Internal
88% of infants were fed colostrum, It was more common for women living in rural areas to feed colostrum to their infants compared to women living in urban areas	Some mothers were advised by doctors not to give colostrum	Colostrum was discarded by women who believe it brings illness and is 'bad milk'	Mothers who were advised by doctors, nurses or at ANC or by family members, such as elders or sisters to give colostrum fed colostrum to their infants	Many mothers reporting having knowledge about the importance of colostrum or the 'first milk'. Those mothers with this knowledge fed colostrum to their infants

Ideal practice four: All infants and young children breastfed on demand, day and night

This practice focuses on assessing whether all infants and young children were breastfed on demand, day and night.

Firstly, the proportion of children 0-24 months breastfed the previous day was calculated. It was found that 61.7 % of children were breastfed the previous day and 7 % were no longer breastfed as indicated in Table 23. Among those who were not breastfed the previous day, the majority (71.1%) are aged 12-24 months (Figure 5).

Table 23: Percentage (%) Children 0-24 months breastfed yesterday

Responses	Number of respondents	%
Yes	110780	61.7
No	54457	30.4
No longer breastfeeding	12380	6.9
Not stated	1789	1.0
Total	**179406**	**100**

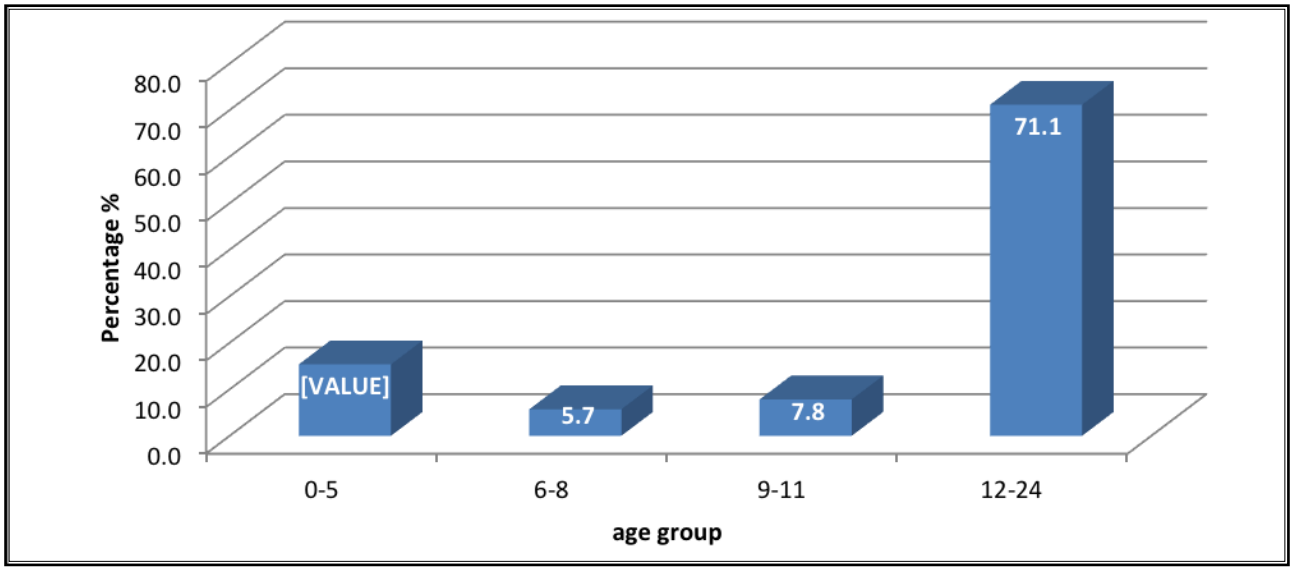


Figure 5: **Percentage (%)** ***Infants not breastfed previous day by age group***

With regard to ideal practice number four; breastfeeding on demand day and night, the results shown in Table 24 indicate that, of those who were breastfed the previous day 58.2 % were breast fed when they wanted and 9 % were breastfed on a fixed schedule.

Table 24: Percentage (%) Child breastfed previous day whenever he/she wanted or on fixed schedule

Responses	Number of respondents	%
When child wanted	64526	58.2
On a fixed schedule	9837	8.9
Not stated	36417	32.9
Total	**110780**	**100**

Of the children breastfed on a fixed schedule, the majority of these (78.2%) are living in rural areas (figure 6) and 51 % of caregivers feeding infants on fixed schedule are domestic workers (figure 7).

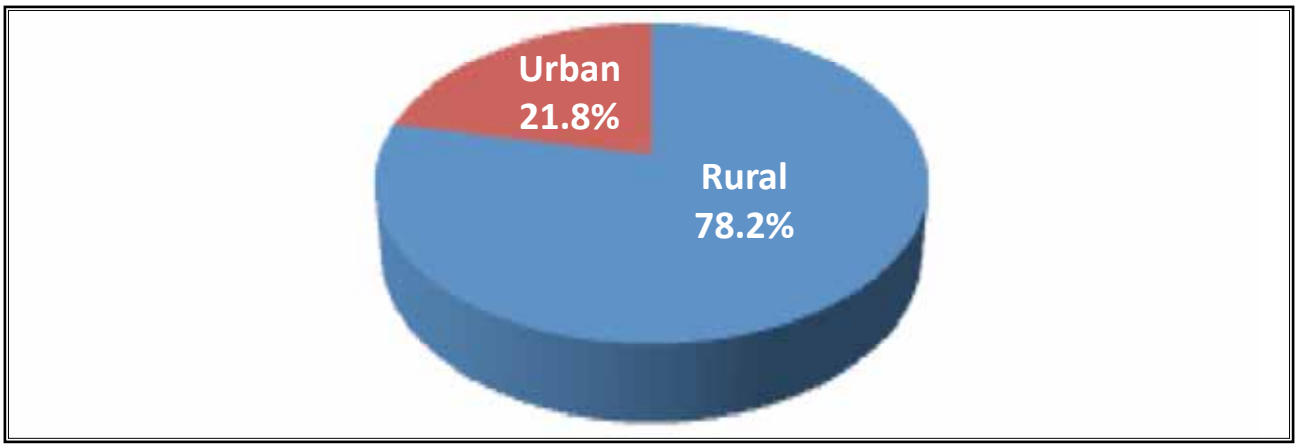


Figure 6: Percentage (%) place of residence of children breastfed on a fixed schedule

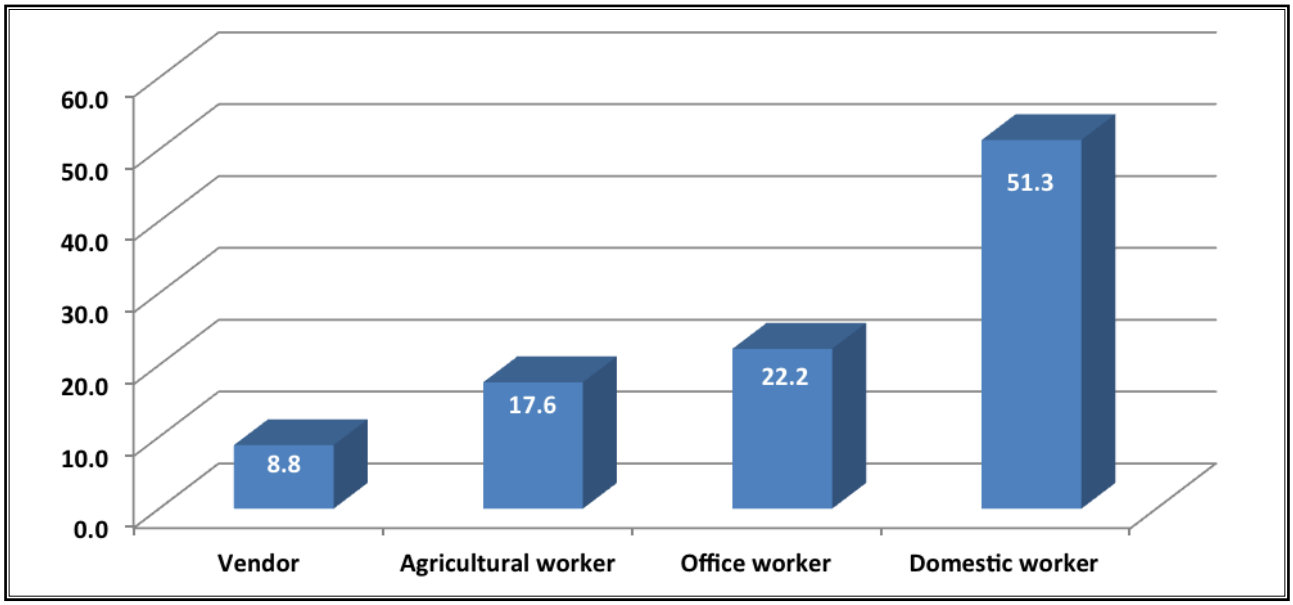


Figure 7: Percentage (%) Breastfed on fixed schedule by occupation of mother (caregiver)

According to the semi-structured interviews, a key facilitator for feeding on demand was a mother's proximity to her infant or young child, meaning that women who were able to remain all day and night with their infant were more likely to feed on demand. Women who reported they had returned to work or school said that they fed their infant or young child according to a fixed schedule. Some mothers indicated they did not know about the recommendation to feed on demand.

Table 25: Barriers and facilitators for ideal practice 4

IDEAL PRACTICE 4: ***All infants and young children are breast fed on demand, during the day and night***				
	Barriers		Facilitators	
Current Practice	External	Internal	External	Internal
58 % infants are fed on demand	Women who had to return to work or school did not breastfeed on demand	Limited knowledge amongst women and their families about the recommendation to breastfeed on demand	Women who can remain with their infant all day can practice breastfeeding on demand	Women with knowledge about breastfeeding on demand practiced it more than women who did not know

Ideal practice five: All infants less than 6 months exclusively breastfed

Exclusive breastfeeding means giving an infant only breastmilk, and no other liquids or solids, not even water from 0-6 months. Drops or syrups consisting of vitamins, mineral supplements or medicines are permitted if medically indicated or prescribed. This practice focuses on assessing whether all infants less than 6 months are exclusively breastfed. Overall, 85 % of infants younger than 6 months are currently breastfed, 14 % were not breastfed and 1 % indicated they were no longer breastfeeding.

Table 26: Percentage (%) Infants under 6 months of age breastfed yesterday

	Number of respondents	%
Yes	35080	85
No	5657	14
No longer breastfeeding	620	1
Total	**41358**	**100**

Table 27 shows that 52 % of infants younger than 6 months were not given any liquid other than breastmilk the previous day. However, 43.5 % of infants under 6 months were given liquids other than breastmilk. Liquids given include water, oshikundu and infant formula. Complementary foods, which include drinks and solid foods, should only be introduced at the age of 6 months with continued breastfeeding up to 2 years.
Table 28 shows the % of infants younger than 6 months given liquids other than breastmilk by zone. Children in zone 2 receive water more often in zone 2 (15%), while zone 1 gives infant formula (7%).

Table 27: Percentage (%) Liquids other than breastmilk given before age 6 months

Liquid given	Total		Rural		Urban	
	Number of respondents	%	Number of respondents	%	Number of respondents	%
None	18253	52	13955	53.4	4298	48.2
Tea	1560	4.4	1201	4.6	359	4.0
Water	7540	21.5	4895	18.7	2645	29.6
Infant formula	1270	3.6	425	1.6	844	9.5
other milks	488	1.4	488	1.9	0	0
Cool drink	92	0.3	92	0.4	0	o
Juice	840	2.4	840	3.2	0	0
Oshikundu	2389	6.8	2102	8.0	288	3.2
Others	1071	3.1	979	3.7	93	1.0
Not stated	1576	4.5	1179	4.5	398	4.5
Total	**35080**	**100**	**26156**	**100**	**8925**	**100**

Table 28: Percentage (%) Liquids other than breastmilk given before age 6 months of age by zone

	Zone 1		Zone 2		Zone 3		Zone 4	
Liquid given	Number of respondents	%	Number of respondents	%	Number of respondents	%	Number of respondents	%
None	2228	33.3	8719	54.3	3672	60.5	3634	58.1
Tea	411	6.1	274	1.7	724	11.9	151	2.4
Water	989	14.8	4590	28.6	656	10.8	1305	20.9
Infant formula	483	7.2	300	1.9	295	4.9	191	3.1
other milks	0	0	167	1	321	5.3	0	0
Cool drink	0	0	0	0	92	1.5	0	0
Juice	0	0	840	5.2	0	0	0	0
Oshikundu	1424	21.3	678	4.2	0	0	288	4.6
Others	478	7.1	501	3.1	93	1.5	0	0
Not stated	683	10.2	0	0	211	3.5	682	10.9
Total	**6695**	**100**	**16069**	**100**	**6065**	**100**	**6252**	**100**

Table 29: Percentage (%) Solid foods given to infants less than 6 months of age

Responses	Number of respondents	%
Yes	7324	21
No	11258	32
Does not apply (child does not eat solid foods)	14302	41
Not stated	2195	6
Total	**35080**	**100**

Although it is not recommended to give infants less than 6 months anything other than breastmilk, Table 29 indicates that 21 % of infants aged less than 6 months were given solid foods.

Semi-Structured Interview findings for ideal practice five

The barriers to exclusive breastfeeding identified included a strong belief by many mothers that breastmilk alone is not sufficient to meet the needs of infants. An external barrier to exclusive breastfeeding was identified as the need for women to return to work or school. This suggests however that knowledge of and the practice of breastmilk expression is very low amongst women and their communities.

Women who had received information and counselling during ANC visits reported to know the benefits of exclusive breastfeeding and were more inclined to adopt this ideal practice. Increasing capacity of health care providers to support women to exclusively breastfeed is a key external facilitator. Another is improving the enabling environment for women by providing supportive workplaces for breastfeeding and having strong policies that protect, promote and support breastfeeding.

Table 30: Barriers and Facilitators for ideal practice 5

IDEAL PRACTICE 5: ***All infants less than 6 months are exclusively breast fed***				
	Barriers		Facilitators	
Current Practices	External	Internal	External	Internal
52% of infants not given anything other than breastmilk the previous day	Women returning to work or school	Beliefs that water is needed for thirst and other foods because breastmilk is not sufficient Perceptions that only HIV positive mothers should be exclusive breastfeeding Perceptions that breastmilk production is linked with nutritional status of the mother	Women who received information at ANC visits about importance of exclusive breastfeeding reported to practice it Women not working and who could stay at home with the infant were able to and more willing to exclusively breastfeed	Women who reported knowing the benefits of exclusive breastfeeding were either planning to exclusively breastfeed for 6 months or had done so. Some women committed to exclusive breastfeeding only if she had enough milk

Ideal practice six: All children breastfed through to the age of 2 years old or older

It is recommended that infants and young children are fed only breastmilk (exclusively breastfed) from birth to 6 months followed by the introduction of complementary foods at 6 months and continued breastfeeding up to the age of 2 years. Continued breastfeeding up to 2 years is recommended because breastmilk continues to contribute to meeting the child's energy and nutrient requirements.

This practice focuses on whether children are breastfed through to the age of 2 years or older. The results in table 31 shows that 57 % of children aged 20-24 months were not breastfed yesterday. Only 22 % of these children were breastfed the previous day while 20 % were no longer breastfeeding. Compared to urban areas (9%), more children in rural areas (30%) aged 20-24 months were breastfed the previous day. These results indicate that for the majority of young children breastfed, breastfeeding stops before the recommended age of 2 years.

Table 31: Percentage (%) Children aged between 20 and 24 months breastfed previous day

Responses	All respondents	%	Rural	%	Urban	%
Yes	5792	22	4991	30	801	9
No	14942	57	9014	53	5928	64
No longer breastfeeding	5339	20	2921	17	2417	26
Not stated	82	1			82	1
Total	**26154**	**100**	**16926**	**100**	**9229**	**100**

Table 32: Percentage (%) Children aged between 20 and 24 months breastfed previous day by zone

		Zone 1		Zone 2		Zone 3		Zone 4
Responses	**Respon-dents**	**%**	**Respon-dents**	**%**	**Respon-dents**	**%**	**Respon-dents**	**%**
Yes	1895	33.1	1603	17.6	1137	30	1158	15
No	2945	51.5	5149	56.6	1969	53	4880	65
No longer breastfeeding	880	15.4	2352	25.8	644	17	1463	19
Not stated	-	-	-	-	-	-	82	1
Total	**5720**	**100**	**9104**	**100**	**3749**	**100**	**7582**	**100**

According to table 32, more children aged 20 to 24 months did not breastfeed the day prior to the survey in zone 4 (65%) compared to the other zones.

Semi-structured interview findings for ideal practice six

When asked why breastfeeding did not continue up to 2 years, mothers reported not having enough breastmilk as a key reason. Another key reason was the need for women to return to work or school. In some cases, mothers were permanently or temporarily separated from their young children due to work, illness or family reasons. Many mothers also expressed a belief that it is not necessary to continue breastfeeding up to 2 years.

Those women who reported breastfeeding up to 2 years were either advised to do so by a nurse, doctor or influential relative or they have existing knowledge about the benefits of continued breastfeeding.

Some women who stopped breastfeeding at 12 months reported doing so based on advice from doctors with regard to the HIV and infant feeding guidelines from the MoHSS. Women who stopped at 12 months due to their HIV status are adhering to the national guidelines of the MoHSS.

Table 33: Barriers and facilitators to ideal practice 6

IDEAL PRACTICE 6: ***All children are breast fed up to 2 years of age or more***				
	Barriers		Facilitators	
Current Practices	External	Internal	External	Internal
57% children aged between 20 and 24 months not breastfed the previous day and 20% no longer breastfeeding	Mothers returning to work or school Advice from doctors to stop breastfeeding before 2 years (no indication if related to HIV infected women) Mother and child separated either due to illness or mother moving away leaving care of child with relatives	Mothers claiming that they could not produce enough milk as the reason for stopping before the recommended age of 2 years Strong belief by many mothers that it is not necessary and that there is no benefit to continued breastfeeding up to 2 years	Doctors, nurses and relative's advice is influential. Advice given by doctors or nurses to mothers HIV positive is to stop at 12 months as per the MoHSS IYCF guidelines	Some mothers are motivated to breastfeed up to 2 years because they believe it is better for their baby Mothers with knowledge about the recommendation report planning to or have breastfed up to 2 years.

Ideal practice seven: All infants and young children fed semi-solid complementary foods at the age of 6 months.

Complementary feeding means giving other foods and drinks in addition to breast milk at the age of six months. Complementary foods are introduced at age 6 months because at this age, breastmilk no longer meets all of the nutritional requirements of the growing infant. This practice focuses on complementary feeding among children aged 6 to 24 months. The risk of early introduction of complementary foods is associated with increased risk of infections, diarrheal diseases and malnutrition.

The results in table 34 show that complementary feeding started as early as age 3 months, however the majority of infants received complementary foods at the recommended age of 6 months in both rural and urban areas.

Table 34: Percentage (%) when child fed his/her first solid/semi solid food

	All respondents		Rural		Urban	
Age in months	Frequency	%	Frequency	%	Frequency	%
0	1194	0.8	93	0.1	1101	2.0
1	1439	0.9	880	0.9	559	1.0
2	1311	0.8	567	0.6	744	1.4
3	13004	8.4	7028	7.0	5976	11.0
4	16906	10.9	10104	10.1	6802	12.6
5	13556	8.8	8636	8.6	4920	9.1
6	58579	37.9	40446	40.3	18133	33.5
7	9312	6.0	4974	5.0	4338	8.0
8	7108	4.6	5341	5.3	1767	3.3
9	6627	4.3	4240	4.2	2387	4.4
10	1259	0.8	1054	1.1	205	0.4
11	147	0.1			147	0.3
12	3147	2.0	2576	2.6	572	1.1
13	550	0.4	74	0.1	475	0.9
14	213	0.1	213	0.2		
15	67	0.0			67	0.1
18	538	0.3	468	0.5	70	0.1
22	74	0.0			74	0.1

Semi-structured interview findings for ideal practice seven

The semi-structured interview unpacked some of the barriers to timely introduction of complementary foods at 6 months of age. It was found that complementary foods are in fact being introduced too early in some cases, as early as 2 and 3 months. Mothers who introduced complementary foods earlier than 6 months reported no knowledge about the importance of exclusive breastfeeding or reported external barriers to exclusive breastfeeding such as the need to return to work. Mothers also reported not being given adequate information from doctors or nurses about when to start complementary feeding.

Of those caregivers who reported starting complementary feeding at 6 months, many stated they received good support from nurses, doctors and family members who had knowledge about complementary feeding. Some mothers reported learning about when to start complementary feeding from the Child Health Passport or from the radio.

Of the very few caregivers who introduced complementary feeding after the age of 6 months, the most common reason given was a belief that at 6 months the infant is not old enough to start eating foods.

Table 35: Barriers and facilitators to ideal practice 7

IDEAL PRACTICE 7: ***All infants are fed semi-solid complementary foods at 6.0 months of age (180 days)***				
	Barriers		Facilitators	
Current Practices	External	Internal	External	Internal
Complementary feeding starts as early as 3 months	Many infants are feed semi-solid foods before the age of 6 months either because the mother returns to work or because of family members' influence Very little information given by nurses or doctors about when to start complementary feeding Information from labels of infant formula and follow-on foods	Mothers reported no knowledge about importance of exclusive breastfeeding from 0-6 months or about starting complementary feeding at 6 months Many mothers reported not enough milk as the reason to introduce complementary foods early before the age of 6 months. In a few cases, mothers did not believe an infant aged 6 months is old enough to eat other foods.	Many responses from mothers saying that they received advice from nurses, doctors and family members Child Health Passport messages Information on the radio about complementary feeding starting at 6 months	Women who knew that breastmilk alone was not enough when the infant reached 6 months introduced complementary feeding

Ideal practice eight: All infants and young children 6.0 to 24 months meet their recommended daily energy requirements.

Ideal practice nine: All infants and young children 6.0 to 23.9 months are fed nutrient- and energy-dense foods.

Ideal practice ten: All infants and young children 6.0 to 23.9 months are fed the recommended number of meals daily.

Ideal practice eight, nine and ten were assessed using the 24-hour dietary recall method. Data about daily energy and nutrient intakes were obtained by asking caregivers to recall what the child ate in the 24 hours prior to the interview. The amounts, types and frequency of meals were estimated based on the caregiver's description of what the child ate at each meal or snack. Table 36 shows information pertaining to the 24-hour dietary recall obtained from each region.

A total of 538 24-hour dietary recall interviews were conducted; 201 for the 6-11 month and 337 for the 12-23-month age ranges.

Table 36: Basic information pertaining to 24 hr dietary recall from regions

Region	Number of PSU sampled	Number of 24 Hour Recall		
		6-11 months	12-23 months	Total
//Kharas	6	5	18	23
Erongo	7	16	20	36
Hardap	6	6	15	21
Kavango East	9	12	27	39
Kavango West	6	15	24	39
Khomas	17	39	59	98
Kunene	7	9	18	27
Ohangwena	9	12	39	51
Omaheke	6	13	20	33
Omusati	8	25	20	45
Oshana	5	7	18	25
Oshikoto	6	12	27	39
Otjozondjupa	8	26	19	45
Zambezi	6	4	13	17
Total	**106**	**201**	**337**	**538**

Table 37 shows data for regions with respect to ideal practices 8, 9 and 10; three aspects of complementary food; energy density, nutrient density and frequency of meals.

Table 37: Proportion of children who obtain at least half (50%) of the following: daily energy requirement (IP8), nutrient density at medium bioavailability (IP9) and who consume recommended number of meals (IP10) per day for each region.

Region	IP 8 %	IP 9 (%)	IP 10 (%)
//Kharas	73.9	0.0	95.7
Erongo	41.7	0.0	72.2
Hardap	23.8	0.0	47.6
Kavango East	41.0	0.0	76.9
Kavango West	69.2	0.0	89.7
Khomas	69.4	0.0	86.7
Kunene	44.4	0.0	77.8
Ohangwena	88.2	0.0	92.2
Omaheke	45.5	0.0	84.8
Omusati	71.1	0.0	80.0
Oshana	72.0	0.0	96.0
Oshikoto	56.4	0.0	89.7
Otjozondjupa	80.0	0.0	77.8
Zambezi	29.4	0.0	41.2
Average	**57.6**	**0.0**	**79.2**

At least 50 % of children must meet their energy requirement to consider this practice satisfied.[22] Based on the findings for (IP8) in Table 37, 57.6 % of children met their energy requirement, therefore it concluded that ideal practice 8 is satisfied.

In order to say 'consumed recommended energy and nutrient densities', which is ideal practice 9, the following seven criteria must be met; 1) % energy density recommendations met ≥ 50%, 2) % protein density recommendation met ≥ 100%, 3) % iron density recommendation met ≥ 100%, 4) % zinc density recommendation met ≥ 100%, 5) % vitamin A density recommendation met ≥ 100%, 6) % vitamin C density recommendation met ≥ 100%, 7) % calcium density recommendation met ≥ 100%. Based on this criteria, and the findings in Table 37 for IP9, 100 % or all children for whom a 24-hour dietary recall was completed, do not meet this criterion and therefore are not receiving their recommended daily nutrients intakes. Zero % of children met at least 50 % of their requirement for a nutrient dense intake. Ideal practice 10 states that all children 6-24 months fed recommended number of meals per day. Table 37 (IP10) indicates that 79.2 % of children did achieve the recommended number of meals per day.

The finding for ideal practice 8, 9 and 10 shown in Table 37 suggest that despite meeting the recommendation for energy intake and recommended number of meal per day, none of the children for whom the 24-hour dietary recall was completed, is receiving adequate nutrient density from their current dietary intakes. This means that the foods they are consuming are not rich in micronutrients despite being moderately energy dense.

Table 38 below indicates the proportion of children aged 6-23 months consuming 100 % or more of the proxy nutrient recommendation for energy, protein, iron, vitamin A, zinc, vitamin C and calcium. The key micronutrients for infants and young children are iron, zinc and vitamin A because deficiency in any of these is linked to increased infant and child mortality and morbidity. Table 38 indicates the nutrient intakes by region and the national average. It is indicated that less than 50% of children nationally are meeting the nutrient requirement for iron, vitamin A, zinc or calcium with the exception being vitamin C for which 56% of children are meeting that specific requirement. This reinforces information provided in Table 37, indicating children are not receiving diets adequate in nutrient density.

Table 38: Proportion of children aged 6-23 months consuming 100% or more of the proxy nutrient recommendation

Region	Energy	Protein	Iron	Vitamin A	Zinc	Vitamin C	Calcium
//Kharas	74	95	26	24	52	71	52
Erongo	39	72	11	31	17	56	17
Hardap	24	62	5	0	19	19	24
Kavango East	43	87	9	35	16	51	11
Kavango West	71	97	34	55	30	63	29
Khomas	72	90	27	42	49	69	38
Kunene	44	78	15	7	8	30	19
Ohangwena	84	100	46	36	53	38	22
Omaheke	42	87	10	26	16	45	23
Omusati	82	100	38	52	45	78	28
Oshana	72	100	44	16	63	48	20
Oshikoto	58	100	21	47	32	47	26
Otjozondjupa	82	86	28	22	51	67	41
Zambezi	71	100	28	50	14	56	57
Average		**89**	**24**	**32**	**33**	**56**	**29**

22 Unlike nutrient recommendations, which are set at two standard deviations above the average requirement, to ensure the needs of virtually all of the population are met, energy recommendations are set at the median, to discourage excess intake. Therefore, if 50% of the population meets or exceeds this requirement, energy intake is considered adequate.

Semi-structured interview findings for ideal practice 8, 9 and 10.

Table 39: Barriers and facilitators for ideal practice 8

IDEAL PRACTICE 8: ***All infants and young children 6.0 – 23.9 months meet their recommended daily energy requirements***				
	Barriers		**Facilitators**	
Current Practice	**External**	**Internal**	**External**	**Internal**
Many infants and young children not meeting their recommended daily energy requirements due to household food insecurity	Insufficient money to buy enough food Household food insecurity; not enough food in the house to give to the child	Mothers beliefs about how much food an infant or young child should eat; "too much food is bad"	Available resources to purchase additional foods Advice from nurses about what infants and young children should eat	Willingness and motivation to increase food given to infants based on advice from health care workers about what infants and young children should eat.

The key barrier to children 6-23 months meeting their recommended daily energy requirements was insufficient money within the household to buy adequate amounts of food. Household food insecurity was identified as the most common external barrier to children meeting their daily energy requirements. Conversely, those households with sufficient funds were able to purchase and obtain adequate amounts of food. Advice given by nurses about what children 6-23 months should eat was also identified as a facilitating factor.

Table 40 below summarises the key barriers and facilitators for feeding children 6-23 months nutrient and energy dense foods. It was found that the advice from nurses about suitable and age appropriate texture of complementary foods was associated with caregivers opting for more energy and nutrient dense food choices. The caregivers' knowledge about nutrient dense foods being more suitable was also a facilitator.

A key external barrier for feeding children nutrient and energy dense foods was identified as the influence of family and friends and their advice to caregivers to fed children watery, thin textured foods in preference to energy or nutrient dense foods. Some caregivers expressed a belief that children 6-23 months cannot tolerate eating solid or semi-solid foods. This indicates a limited knowledge amongst caregivers about age appropriate texture of foods.

Table 40: Barriers and facilitators for ideal practice 9

IDEAL PRACTICE 9: ***All infants and young children 6.0 – 23.9 months are fed nutrient- and energy-dense foods***				
	Barriers		**Facilitators**	
Current Practices	External	Internal	External	Internal
No children for whom the 24-hour recall was completed, is obtaining at least 50% of requirements for nutrient density. Foods non-nutrient dense are most commonly fed to children.	Advice from family and friends about giving watery, thin textured foods to children	Belief that children 6-23 months cannot tolerate eating solid foods; belief that solid food causes constipation and is difficult to swallow. Knowledge about appropriate food textures is limited	Advice given by nurses about age appropriate food texture, amount, frequency	Mother or caregivers knowledge that nutrient dense foods are better for the child compared to watery liquid foods

Table 41 below highlights some of the barriers to children being fed the recommended number of meals per day. Data from the 24-hour dietary recall shows that the majority of children are achieving the recommended number of meals per day, however the data pertaining to energy and nutrient density indicates these ideal practices are not being achieved.

The semi-structured interview findings for ideal practice 10 indicate that a key barrier to children receiving the recommended number of meals per day is household food insecurity; specifically, insufficient money to buy enough food.

Caregivers with knowledge about the recommended meal frequency for children and those with sufficient resources to buy adequate amounts of food, reported feeding their child accordingly.

Table 41: Barriers and facilitators for ideal practice 10

IDEAL PRACTICE 10: ***All infants and young children 6.0 – 23.9 months are fed the recommended number of meals daily***				
	Barriers		**Facilitators**	
Current Practices	**External**	**Internal**	**External**	**Internal**
	Insufficient money to buy enough food to meet recommended number of meals per day	Willingness is there, however resources to buy more food is not	If given advice from health worker, mothers and caregivers are willing to increase frequency of meals per day	Caregiver with knowledge about recommended meal frequency are motivated to do so

Ideal practice eleven: All infants and young children 6-24 months fed by caregiver responsive to the child

Responsive feeding refers to a caregiver who is able to identify and interpret an infant's or young child's cues and signals indicating feeding needs. It also refers to the caregiver being able to respond appropriately to those cues and signals. It involves active engagement and presence by caregivers in feeding infants and young children.

This practice focuses on responsive feeding. It focuses on how caregivers engage with and respond to the child during meal times. Table 42 indicates that 65 % of caregivers believed that their child ate a sufficient amount during any main meal. 35 % thought that the child had not consumed sufficient amounts. Table 43 indicates that 57 % of caregivers did not do anything to encourage the child to eat, when he/she considered the child had not consumed sufficient quantity. 42 % of caregivers did do something to encourage the child to eat more during the meal. According to the results in table 44, 52.2 % used verbal encouragement, 10.5 % offered the child an alternative food or drink and 9.7 % forced the child to eat.

Table 42: Percentage of children aged 0-24 who consumed food the previous day by whether they ate all the food they should take during the main meal.

Responses	Number of respondents	(%)
Yes	85141	65
No	44924	35
Total	**130065**	**100**

Table 43: Proportion of caregivers' answers which relate to responsive feeding behaviour "by doing" during meal times.

Did Something	Number of respondents	(%)
Yes	48544	42
No	66299	57
Not stated	919	1
Total	**115762**	**100**

Table 44: Types of encouragement practiced by caregiver during a child's meal time (percentage).

Encouragement done by caregiver	Number of respondents	(%)
Offered another food or liquid	5083	10.5
Encouraged verbally	25343	52.2
Modeled eating (with or without a toy)	3746	7.7
Ordered strongly or forced the child to eat	4694	9.7
Another person helped feed child	1900	3.9
Another form of encouragement	5075	10.5

Table 45 indicates that 68 % of caregivers talk to the child during meal times. Of those who reported to talk to the child during mealtimes, 43.1 % ordered the child to eat and 24.4 % praised the child.

Table 45: Percentage of caregivers' answers which relate to responsive feeding behaviour "by talking to child" during meal times

Talked to child	Number of respondents	(%)
Yes	79115	68
No	36646	32
Total	**115762**	**100**

Table 46: Types of "responsive feeding talk" practiced by caregiver during a child's meal time (percentage).

Type of talking to child	Number of respondents	(%)
Ordered child to eat	35760	43.1
Praised child	20235	24.4
Asked child questions	708	0.9
Talked about the food	9871	11.9
Threatened the child	727	0.9
Told child that she liked the food	2580	3.1
Rewarded the child	2478	3.0
Talked about other things	8993	10.8
Does not know	1655	2.0

The amount of time that a child feeds him/herself during a meal is also a reflection of the caring practices used by caregivers. While it is part of a child's developmental process to start self-feeding and exploring his/her environment, of which meal times are included, there is a risk that a child may not consume sufficient amounts of food at meal times if he/she is self-feeding for the majority of the meal.

Table 47 shows that 57% of caregivers responded yes to the question; "does the child self-feed at any moment during the main meal". 42% responded no. Of those who responded yes, results indicate that 65.5% of children are self-feeding for the whole duration of the main meal. This suggests that children are being left to self-feed with little or no encouragement from the caregiver. The risk of children feeding themselves for the duration of the meal, is that they may not eat sufficient amounts to meet their nutritional requirements.

Table 47: Percentage of caregivers' answers which relate to responsive feeding behaviour "child self-feeding at any moment during a main meal".

Child self-fed	Number of respondents	(%)
Yes	65601	57
No	48732	42
Does not know	468	0.4
No answer	961	0.6
Total	**115762**	**100**

Table 48 shows the percentage of children reported by caregivers to self-feed for a given period of time during a main meal. 65.5 % of children were reported to self-feed for the duration of the meal, 24.6 % for half of the duration of the meal and 8.5 % only a little bit of time during the meal.

Table 48: Percentage of caregivers' answers which relate to responsive feeding behaviour "amount of time a child self-feeds during a main meal".

Duration that child-self-fed	Number of respondents	(%)
All of the time	42980	65.5
Half of the time	16135	24.6
Little bit of time	5558	8.5
Does not know	139	0.2
No answer	790	1.2
Total	**65601**	**100**

Table 49: Percentage of Child self-fed by age

Duration that child-self-fed	6-12months	13-18 months	19-24 months
	%	%	%
All of the time	12.7	33.4	53.9
Half of the time	16.9	58.9	24.2
Little bit of time	25.8	35.2	39.0

Table 49 indicates the percentage of infants and young children self-feeding at meal times by age. 12.7 % of infants aged 6-12 months, 33.4 % of young children aged 13-18 months and 53.9 % of young children aged 19-24 months are self-feeding for the full duration of the main meal. In addition to the risk infants and young children might not consume sufficient amounts of food if they are mostly self-feeding, there is also a risk of choking especially if the texture of the food provided is not age appropriate.

Semi-structured interview findings for ideal practice eleven

Knowledge about responsive feeding is low amongst those caregivers interviewed. Very few caregivers who responded to the semi-structured interview claimed to know anything about responsive feeding. The findings of the semi-structured interview for ideal practice eleven reinforce the findings of the caregiver survey. The majority of caregivers force the child to eat if they think he/she has not eaten a sufficient amount at meal times.

Those caregivers who understood the importance of being present during meal times knew and practiced methods of encouraging the child to eat using songs, role modelling and by ensuring the child was not alone at meal times.

Table 50: Barriers and facilitators to ideal practice 11

IDEAL PRACTICE 11: ***All infants and young children 6-24 months fed by caregiver responsive to child***				
	Barriers		Facilitators	
Current Practices	External	Internal	External	Internal
Force feeding if caregiver does not believe child has eaten sufficient amount	Many caregivers report force feeding children Caregiver not using methods to positively encourage the child to eat more	Limited knowledge about responsive feeding	Presence of someone at meal times with the child, either family or nanny	Mother or caregiver has knowledge of methods to encourage children to eat; verbal, role modeling, playing etc

Ideal practice twelve: All infants and young children 6-24 months fed as recommended during and after illness

It is a recommended practice that for infants (from birth to 6 months) the frequency of breastfeeding should increase during and after illness, while for infants and young children from the age of 6 months, breastfeeding, food and fluid intake should increase during and after illness. Children should not be force-fed but should be offered drinks and foods more frequently and in smaller portions to prevent nausea and vomiting. Increasing the frequency of breastfeeding for infants younger than 6 months and increasing breastfeeding, foods and drinks for young children from age 6 to 24 months is important to fully recover from illness.

This practice focuses on children 6-23.9 months who were fed as recommended during and after illness. Table 51 indicates that 43% of children were breastfed less, 17.9 % were fed the same, and 4.7% were fed more during illness compared to when they are healthy. This trend is the same as when feeding a child non breastmilk liquids and/or solid foods (table 52).

Table 51: Amount of breastmilk offered to child DURING illness as compared to when the child is healthy (percentage)

Amount of breastmilk offered	Number of respondents	(%)
Less, because the child did not want it	66486	43
Less because mother's decision	2994	1.9
More	7215	4.7
The same	27667	17.9
Child never breast-fed or child stopped breastfeeding before last illness	26975	17.5
Child has never been sick	12417	8
Does not know	5400	3.5
Not stated	5322	3.4
Total	**154477**	**100**

Table 52: Amount of non-breastmilk liquids offered to child DURING illness as compared to when the child is healthy (percentage)

Amount of non-breastmilk liquids	Number of respondents	(%)
Less, because the child did not want it	72377	51.1
Less because caregiver's decision	5809	4.1
More	11015	7.8
The same	35406	25
Child never fed non-breast milk liquids	11274	8
Does not know	5079	3.6
Not stated	785	0.6
Total	**141744**	**100**

The results in table 53 and 54 indicate that caregivers have a tendency of offering less food during illness (55%) and more food to a child after illness (34.4%).

Table 53: Amount of food offered to child DURING illness as compared to when the child is healthy (percentage)

Amount of food	Number of respondents	(%)
Less, because the child did not want it	78432	55.3
Less because caregiver's decision	7578	5.3
More	8414	5.9
The same	36023	25.4
Child never fed foods	4768	3.4
Does not know	3415	2.4
No answer	3114	2.2
Total	**141744**	**100**

Table 54: Amount of food offered to child AFTER illness as compared to when the child is healthy (percentage)

Amount of food	Number of respondents	(%)
Less, because the child did not want it	10429	5.6
Less because caregiver's decision	6830	3.6
More	64603	34.4
The same	100408	53.4
Does not know	3594	1.9
No answer	2017	1.1
Total	**187882**	**100**

Semi-structured interview findings for ideal practice twelve

The caregiver and semi-structured interviews clearly highlight a lack of knowledge about how to feed an infant or young child during illness. The current practice is to feed the infant or young child either less breastmilk and or food and other liquids during illness. The current practice does not comply with the recommendations for feeding a sick child, which state more breastfeeding and other foods should be offered to the child during and after illness. Many caregivers stated that the child's lack of appetite was a driver for giving less or that they had no knowledge of how to feed a sick child.

Caregivers who had received advice from nurses or other health workers who had knowledge about how to feed a sick child were more likely to follow the recommended ideal practice.

Table 55: Barriers and facilitators for ideal practice 12

IDEAL PRACTICE 12: ***All infants and young children 6-24 months fed as recommended during and after illness.***				
	Barriers		**Facilitators**	
Current Practices	**External**	**Internal**	**External**	**Internal**
Majority of caregivers give less breastmilk, less food and liquids during illness and more after illness	Poor appetite of the infant or young child	Limited knowledge about how to feed a sick child	Advice from nurses is very influential	Caregivers with good knowledge about feeding during illness report to increase frequency of meals/ snacks to sick children

HIV/AIDS and Child feeding

Knowledge about HIV among caregivers is widespread. 92% of respondents reported they had heard of HIV. More than 70% of respondents indicated that HIV can be transmitted from mother to child during pregnancy, delivery and by breastfeeding.

Table 56: Percentage of mothers/caregivers ever heard of HIV

Responses	Number of respondents	(%)
Yes	301662	92
No	17032	5
Not stated	9798	3
Total	**328492**	**100**

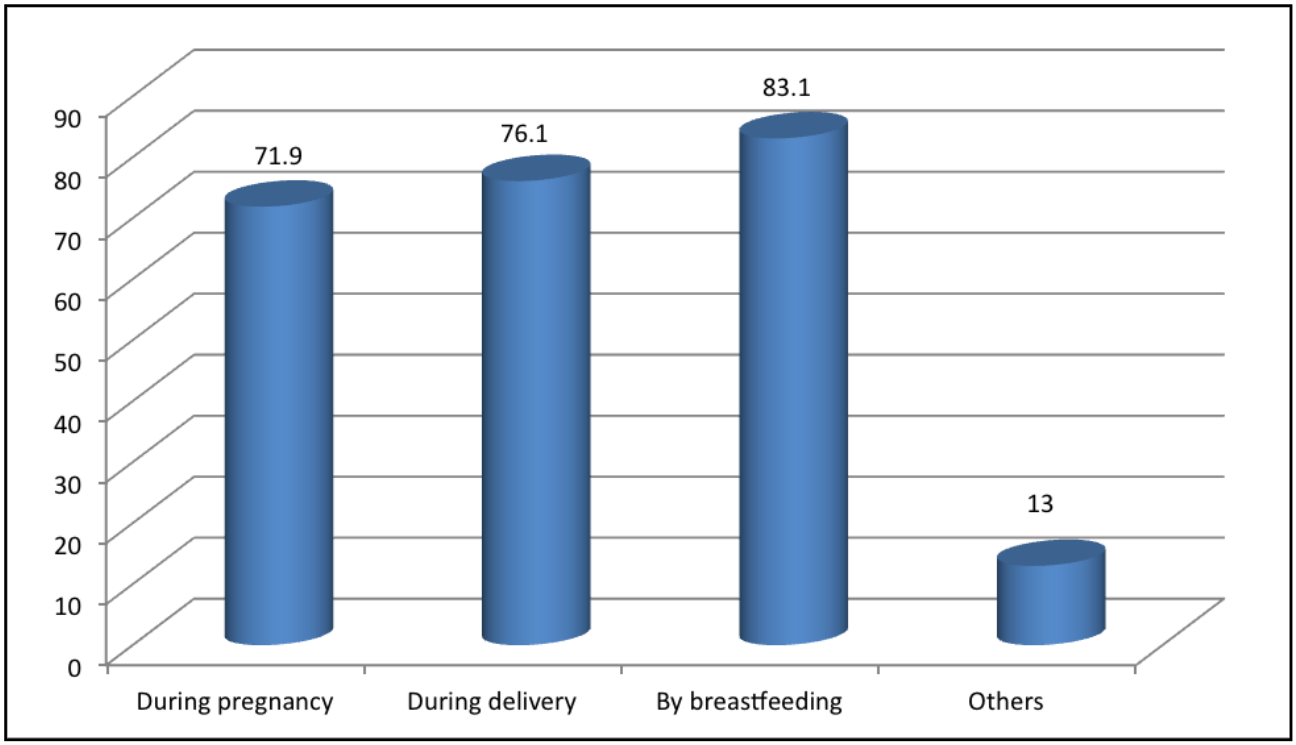


Figure 8: Knowledge of modes of HIV transmission from mother to child

Table 57: Knowledge of drugs given to HIV infected woman to reduce risk of transmission (percentage)

Responses	Number of respondents	(%)
Yes	242198	80
No	23835	8
Does not know	33394	11
Not stated	2236	1
Total	**301662**	**100**

Table 57 shows that 80% of caregivers indicated knowledge about drugs that can be given to HIV infected woman to reduce the risk of transmission.

67% of respondents indicated that they had ever learned ways to prevent passing HIV from mother to child during breastfeeding. The majority learned from health personnel. Noteworthy, 31% have no awareness of preventing the passing of HIV from mother to child during breastfeeding. Nevertheless, 81.4 % of caregivers indicated that that they had ever tested for HIV during pregnancy.

Table 58: Ever learned ways to prevent passing HIV from mother to child during breastfeeding (percentage)

Responses	Number of respondents	%
Yes	202153	67
No	91899	31
Not stated	7610	2
Total	**301662**	**100**

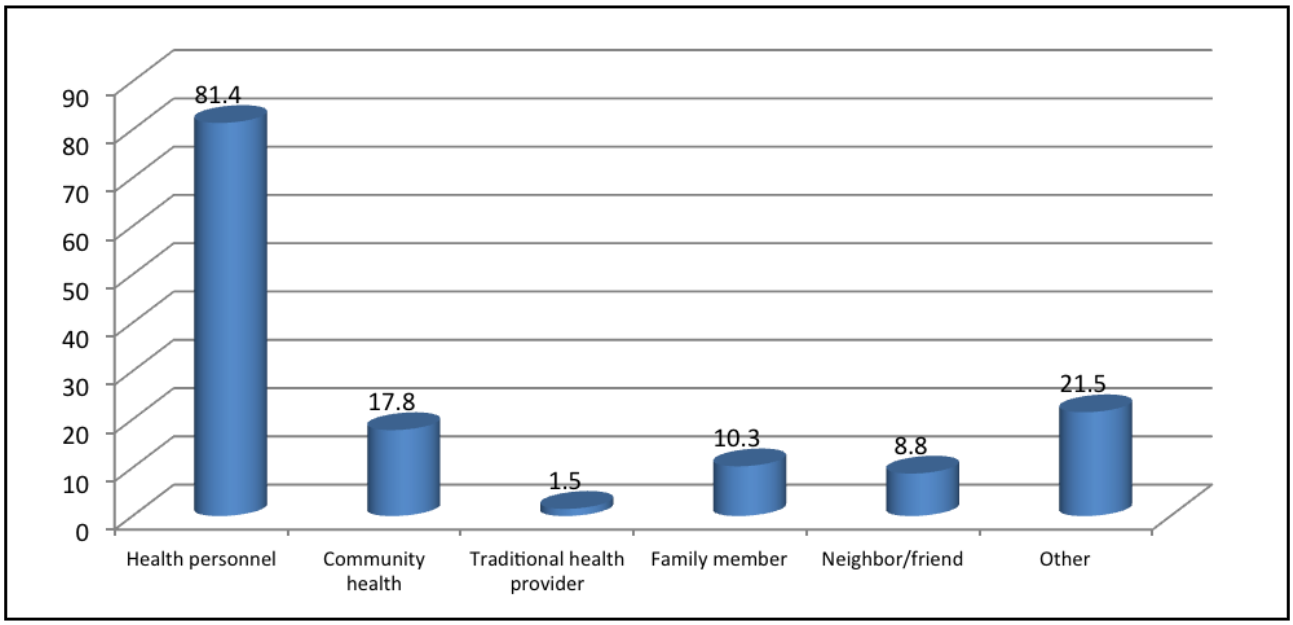


Figure 9: Where mothers /caregivers learnt about prevention of transmission of HIV during breastfeeding (percentage)

Table 59: Ever tested for HIV during pregnancy (percentage)

Responses	Number of respondents	%
Yes	246027	81.6
No	8962	3.0
Not applicable	35836	11.9
Does not know	3781	1.3
Not stated	7055	2.3
Total	**301662**	**100**

3.1.2 Health and Other services

Overall, most of the children were reported to have been taken to a health centre or clinic in the past 3 months. In rural areas, children are reported to have been taken to a clinic while in urban areas they are reported to have been taken to hospital. More children aged 6-11 months were taken to a hospital, health centre or clinic.

Table 60: Percentage of children taken to a health facility in the past 3 months

	All		Rural		Urban	
Type of health facility	**Number of respondents**	**%**	**Number of respondents**	**%**	**Number of respondents**	**%**
Hospital	70781	21.5	33567	15.6	37215	32.6
Health centre or clinic	120565	36.7	93856	43.8	26709	23.4
Outreach point	5765	1.8	4513	2.1	1252	1.1
Mobile unit	6876	2.1	4845	2.3	2031	1.8
Private doctor	12000	3.7	2558	1.2	9443	8.3
Others	1760	0.5	659	0.3	1102	1
Has not taken child	96917	29.5	65836	30.7	31081	27.3
Does not know	4731	1.4	1734	0.8	2997	2.6
Not Stated	9096	2.8	6923	3.2	2173	1.9
Total	**328492**	**100**	**214491**	**100**	**114002**	**100**

Table 61: Percentage of children taken to a health facility in the past 3 months by age group

Type of health facility	0-5 months	6-8 months	9-11 months	12-24 months	25+ months
Hospital	14.5	28.4	20.0	24.7	21.5
Health centre or clinic	43.0	50.4	44.6	35.3	31.1
Outreach point	3.2	0.0	0.0	1.4	2.1
Mobile unit	.3	0.0	1.7	2.8	2.8
Private doctor	4.7	2.9	3.9	2.9	4.0
Others	1.1	0.0	0.0	.8	.3
Has not taken child	30.5	18.3	19.3	29.3	34.2
Doesn't know	.6	0.0	1.3	1.0	2.6
Not stated	2.0	0.0	9.2	1.8	1.5

The most common supplements children are reported to have received in the past three months are multivitamin and mineral supplements (46%) and iron supplement (17.9%). This trend is the same in both rural and urban areas.

Table 62: Percentage of supplement given to children

	All		Rural		Urban	
Type of supplement	Number of respondents	%	Number of respondents	%	Number of respondents	%
Iron supplement or syrup	58937	17.9	39453	18.4	19484	17.1
Multivitamin and mineral supplement	151242	46.0	91724	42.8	59518	52.2
Lipid nutrient supplement (plumpy nut)	15470	4.7	8624	4.0	6846	6.0
Supplementary food (CSB, RUSF)	14017	4.3	7018	3.3	6999	6.1
General food rations	17895	5.4	10471	4.9	7424	6.5
Vouchers for food	3776	1.1	3132	1.5	643	0.6
Cash assistance	6995	2.1	5270	2.5	1725	1.5

As indicated in table 63, 67.5 % of children aged 6 months and above have received vitamin A in the past 6 months before the survey. The proportion is slightly higher for children in rural areas (70.4%) than those in urban areas (62.1%).

Table 63: Percentage of children ever taken Vitamin A (6 months and above)

	All		Rural		Urban	
Responses	Number of respondents	%	Number of respondents	%	Number of respondents	%
Yes	182781	67.5	123067	70.4	59713	62.1
No	69561	25.7	40568	23.2	28993	30.2
Doesn't know	10690	3.9	6228	3.6	4462	4.6
Not stated	7952	2.9	5015	2.9	2936	3.1
Total	**270984**	**100.0**	**174878**	**100.0**	**96105**	**100.0**

Table 64: Percentage of infants and children 0 -24 months who had been taken to health facility in the past three months by whether their weight was taken

Responses	Number of respondents	%
Yes	116673	80
No	25561	17.5
Does not Know	2702	1.9
Not stated	877	0.6
Total	**145813**	**100**

Caregivers were asked to indicate whether a child was taken for any health services in the past 3 months. Of those who were taken 80% had their weight measured; 36 % had their length measured and about 31 % had their mid upper arm circumference (MUAC) taken.

Table 65: Percentage of infants and children 0 -24 months who had been taken to health facility in the past three months by whether their length was taken

Responses	Number of respondents	Percentage %
Yes	52464	36
No	83869	57.5
Does not Know	8143	5.6
Not stated	1337	0.9
Total	**145813**	**100**

Table 66: Percentage of infants and children 0 -24 months who had been taken to health facility in the past three months by whether their mid upper arm circumference was taken

Responses	Number of respondents	%
Yes	44643	30.6
No	88985	61
Does not Know	11482	7.9
Not stated	704	0.5
Total	**145813**	**100**

3.1.3 Health Communication

It is important to note that 73.9 % of caregivers have not heard messages about child feeding practices. Of the 22.4 % who have heard messages, 44.7 % reported hearing messages about child feeding from a health facility, followed by 35.6 % from the radio (figure 10) and 12.7 % from family members or television. Table 69 shows that 88 % of those who heard messages reported remembering child feeding messages.

Table 67: Heard messages about child feeding practices (percentage)

Responses	Number of respondents	%
Yes	73458	22.4
No	242615	73.9
Does not know	2224	0.7
Not stated	10195	3.0
Total	**328492**	**100**

Table 68: Where messages about child feeding were heard (percentage)

Responses	Number of respondents	%
Health facility	32828	44.7
Radio	26138	35.6
A family member	9308	12.7
Television	9295	12.7
Community health worker	7184	9.8
Neighbour/friend	3738	5.1
Printed materials	2941	4
Mother to mother group	2496	3.4
Internet	1993	2.7
Community gathering	1703	2.3
Religious institution	1645	2.2
Mobile phone messaging	223	0.3
Traditional health providers	148	0.2

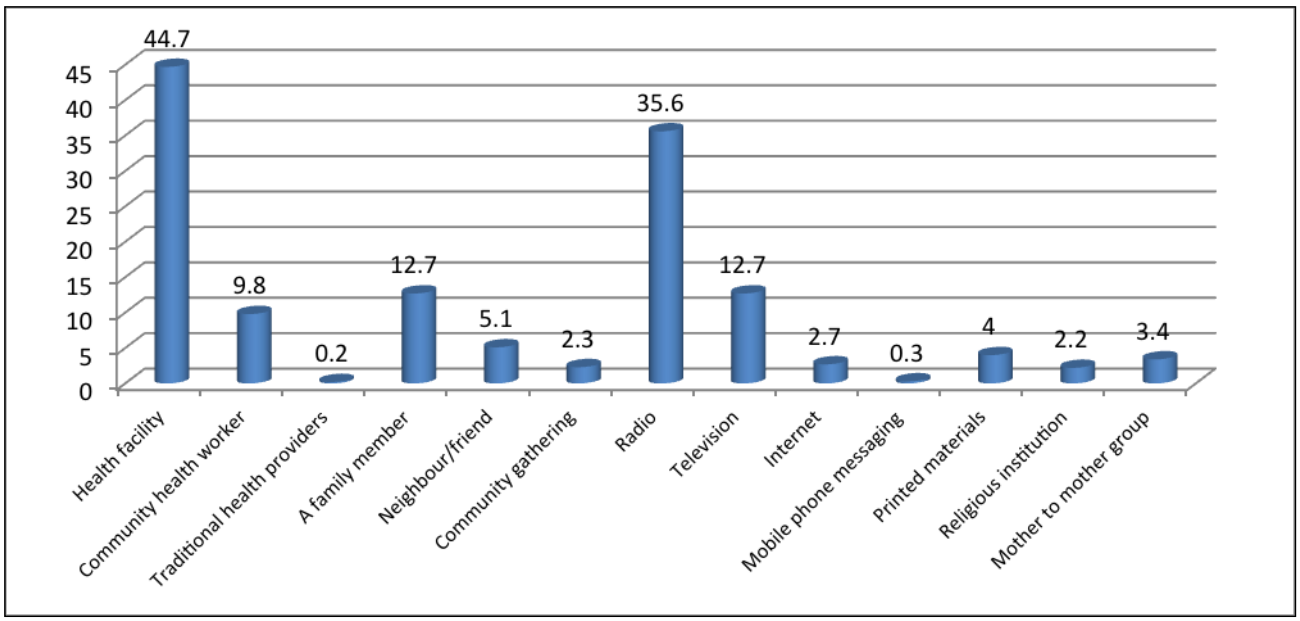


Figure 10: Medium of messages about child feeding

Table 69: Number of respondents that report remembering child feeding messages (percentage)

Responses	Number of respondents	%
Yes	64474	88
No	8078	11
Not stated	906	1
Total	**73458**	**100**

Table 70: Frequency of listening to radio (percentage)

Frequency	Number of respondents	%
2-7 days a week	163921	49.9
Once a week	20756	6.3
Once every 2 weeks	3459	1.1
Once a month	4527	1.4
Rarely	52994	16.1
Never	29481	9.0
Others	33391	10.2
Doesn't know	12349	3.8
Not stated	7615	2.3
Total	**328492**	**100.0**

Table 70 indicates the frequency of listening to the radio. It was found that 50 % of respondents reported that they listen to the radio 2-7 days per week and from table 71 it is shown that 43.3 % of respondents indicated that they watch TV. A significant high proportion of those who watch TV are from urban areas (72.9%). Table 72 indicates there is limited participation in community organisation by caregivers (25%). Of those participating in community organisations, the majority participate in church choirs and youth groups.

Table 71: Ever watch TV by rural and urban (percentage)

	All respondents		Rural		Urban	
Responses	Number of respondents	%	Number of respondents	%	Number of respondents	%
Yes	142246	43.3	59147	27.6	83099	72.9
No	174492	53.1	146251	68.2	28241	24.8
Not stated	11755	3.6	9092	4.2	2663	2.3
Total	**328492**	**100**	**214490**	**100**	**114003**	**100**

Table 72: Participation in any community organisation (percentage)

Responses	Number of respondents	%
Yes	81865	24.9
No	238345	72.6
Not stated	8282	2.5
Total	**328492**	**100**

Questions about growing food and owning livestock were asked in order to understand households capacity to supplement their dietary intakes with home grown food, meat or eggs or if they had access to additional income from the sale of these commodities.

Figure 11 shows that 45.8 % of respondents do not grow food at home. Of the respondents who grew food, 34.3 % reported growing grains, roots and tubers, 16.3 % grown legumes and nuts, 12.6 % grow green leafy vegetables, 5.9 % grew green leafy vegetables and only 5 % grow orange or yellow coloured fruits and vegetables.

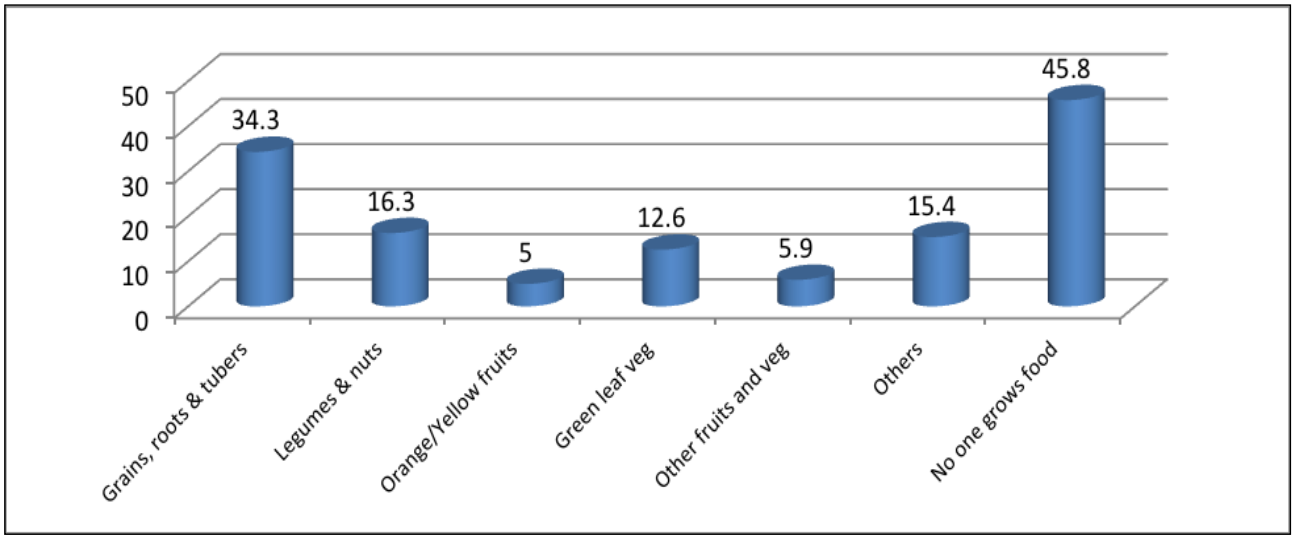


Figure 11: Household grown food

Figure 12 shows household grown food by region. Oshikoto (75.2%), Ohangwena (71.4%) Omusati (62.4%) and Kavango West (49.7%) grow grains, roots and tubers as compared to the other regions.

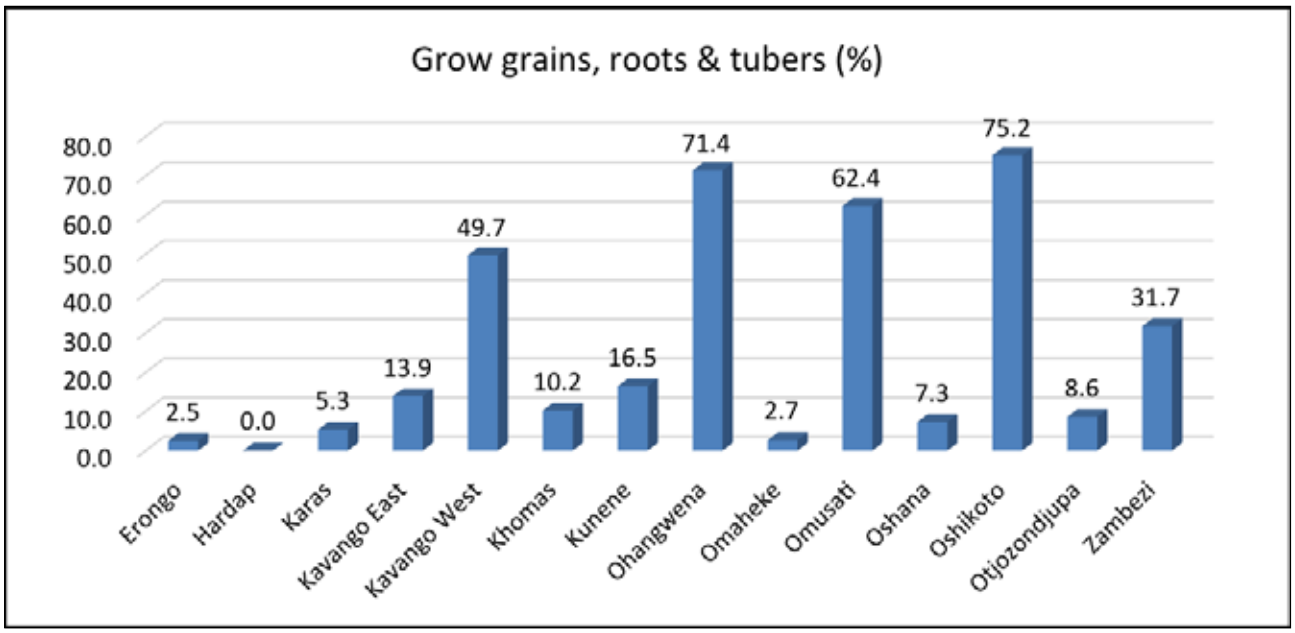


Figure 12: Household grown grains, roots and tubers by region

From the results, Oshikoto (46.8%), Oshana (30.7%), Omusati (28.3%) and Ohangwena (27.5%) grow legumes and nuts as compared to the other regions.

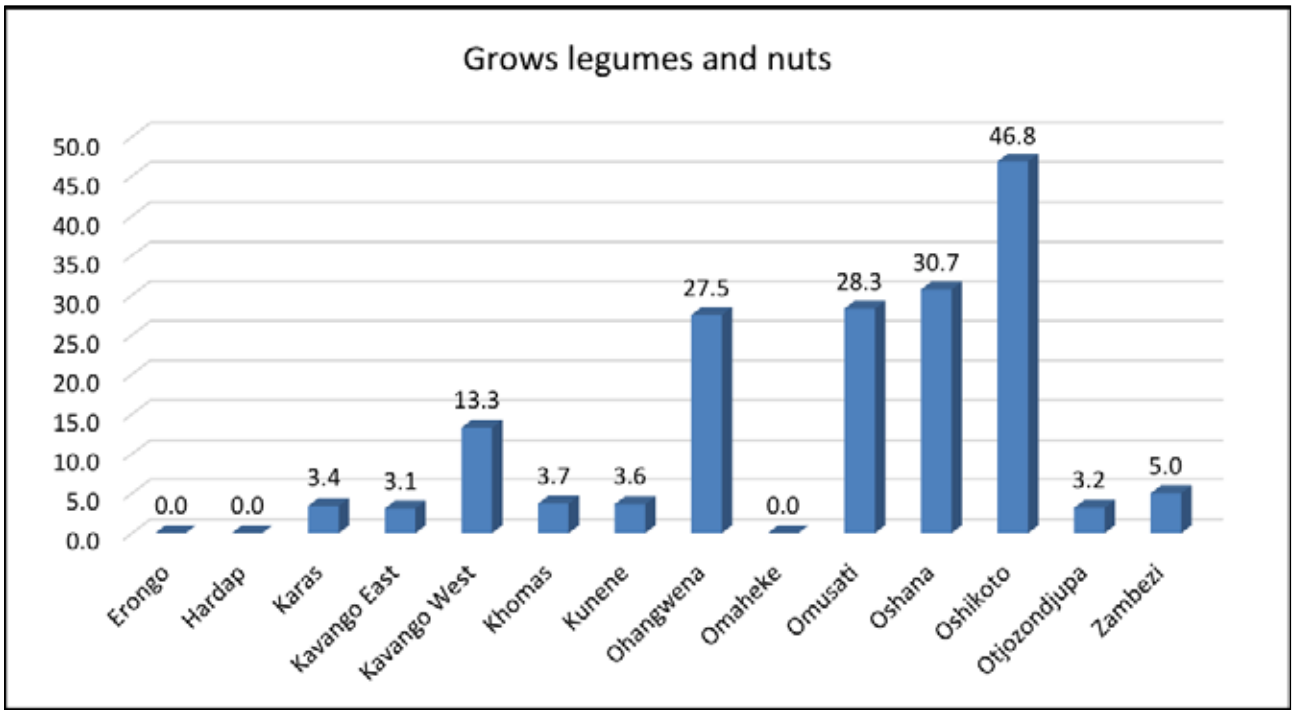


Figure 13: household grown legumes and nuts

Figure 14 shows the percentage of households growing orange / yellow fruits and vegetables. Omusati (17.3%) and Kunene (12%) grow orange/ yellow fruits and vegetables as compared to the other regions.

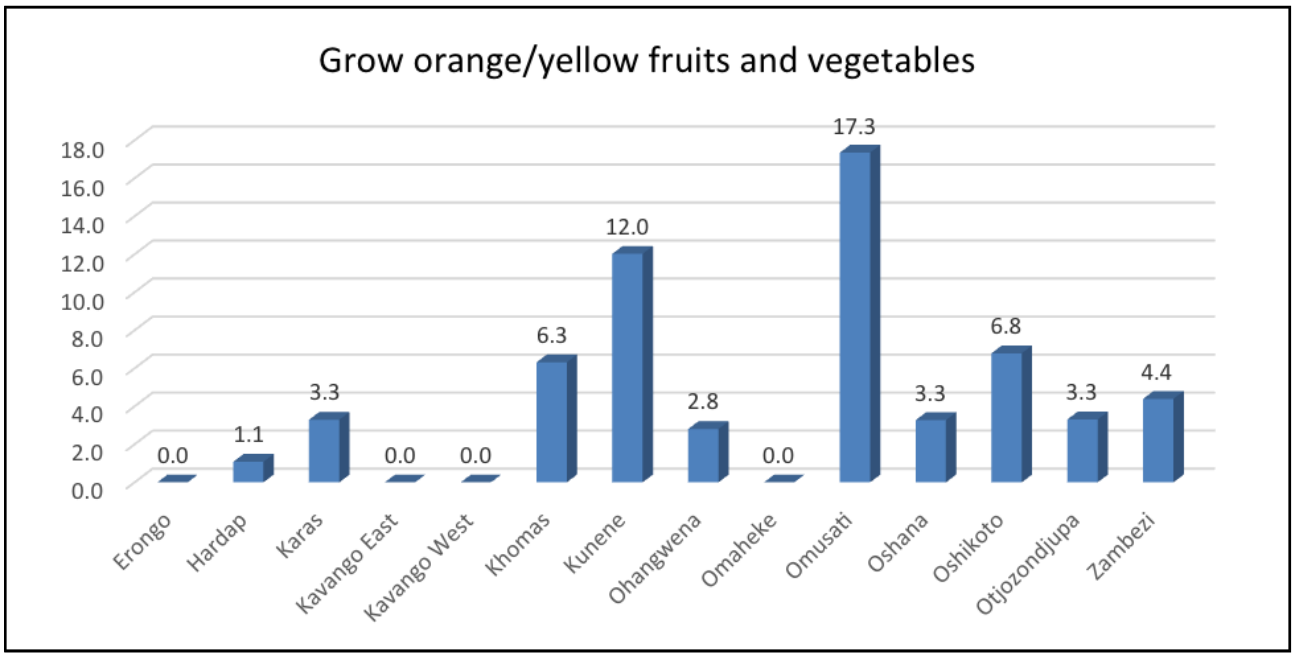


Figure 14: household grown orange/yellow fruits and vegetables

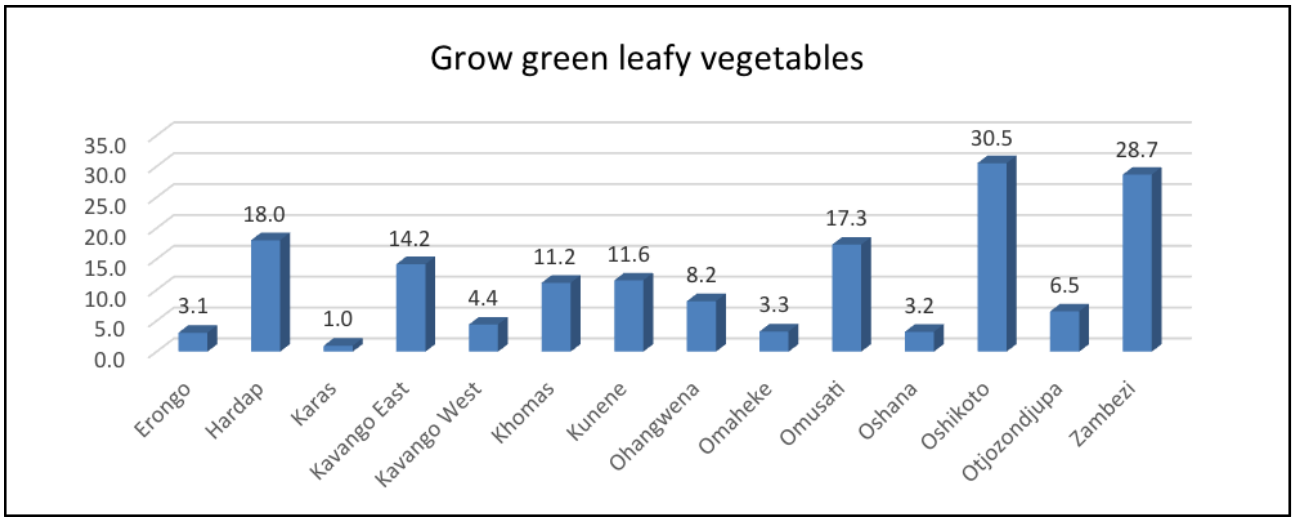


Figure 15: household grown green leafy vegetables

Figure 15 indicates that Oshikoto (30.5%) and Zambezi (28.7%) grow green leafy vegetables as compared to the other regions.

Figure 16 shows that Kunene (16.5%), Omaheke (13.0%) and Oshikoto (11.6%) grow other fruits and vegetables as compared to the other regions.

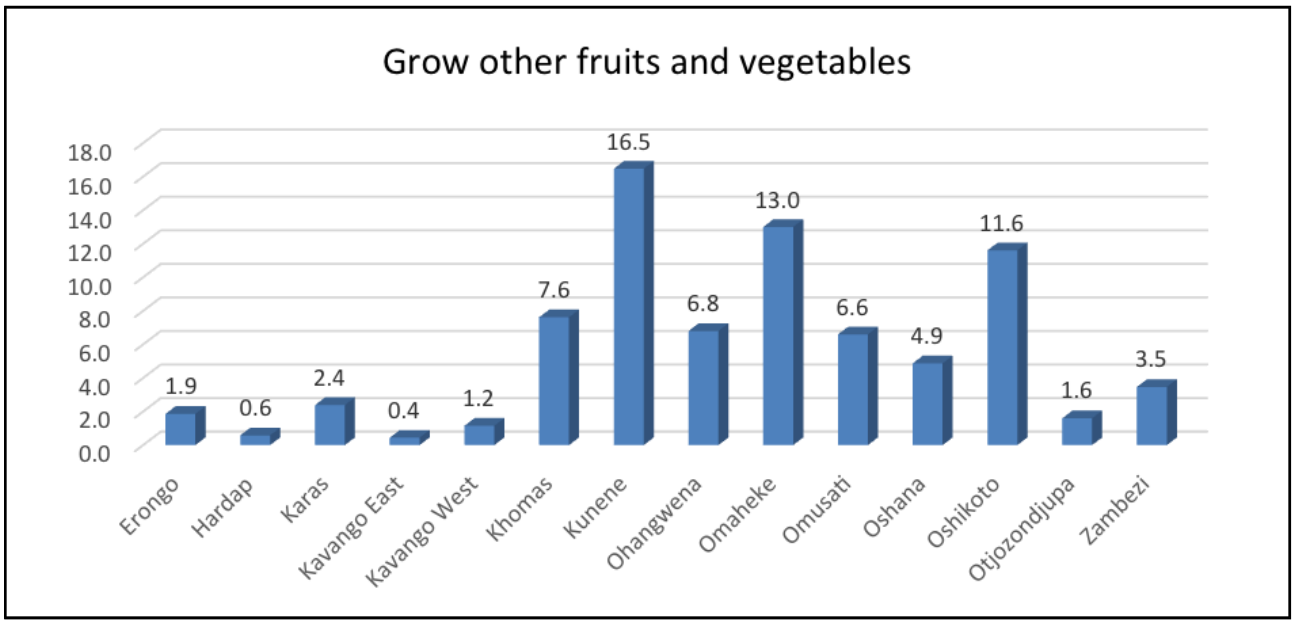


Figure 16: household grown other fruits and vegetables

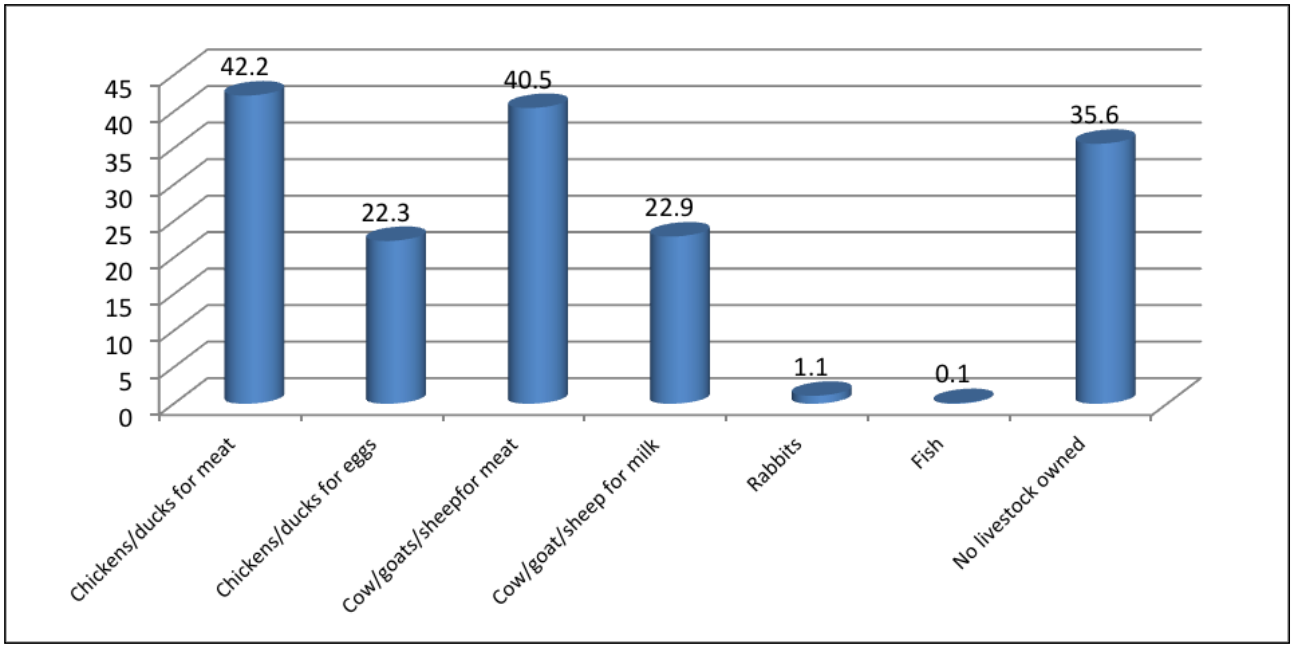


Figure 17: Household owns livestock

With regards to livestock, figure 17 shows that 35.6 % of households do not own any livestock. Of the respondents who owned livestock, 42.2% owned chicken/ducks for the meat, 40.5% owned cows/goats/ sheep for the meat, 22.9 % owned chicken/ducks for the eggs and 22.3% owned cows/goats/sheep for the milk.

3.1.4 Main source of drinking water

Figure 18 shows that the main source of drinking water is piped into dwelling (28%) and public tap (22%). Of note is the percentage of respondents reporting surface water as the main source of drinking water (7.7%). This has implications for the safety of the water being consumed. When asked how water is treated to make it safe, 63.3 % of respondents boil water. This is the most common practice compared to treating with chemicals, filtering or straining.

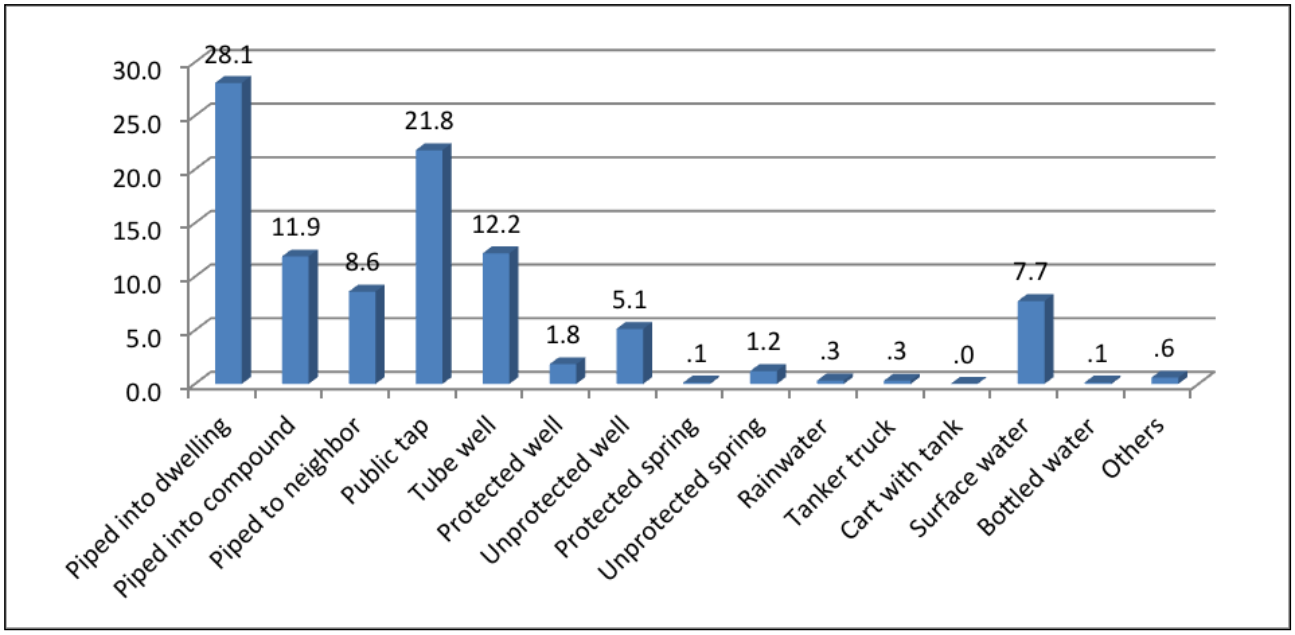


Figure 18: Main source of drinking water

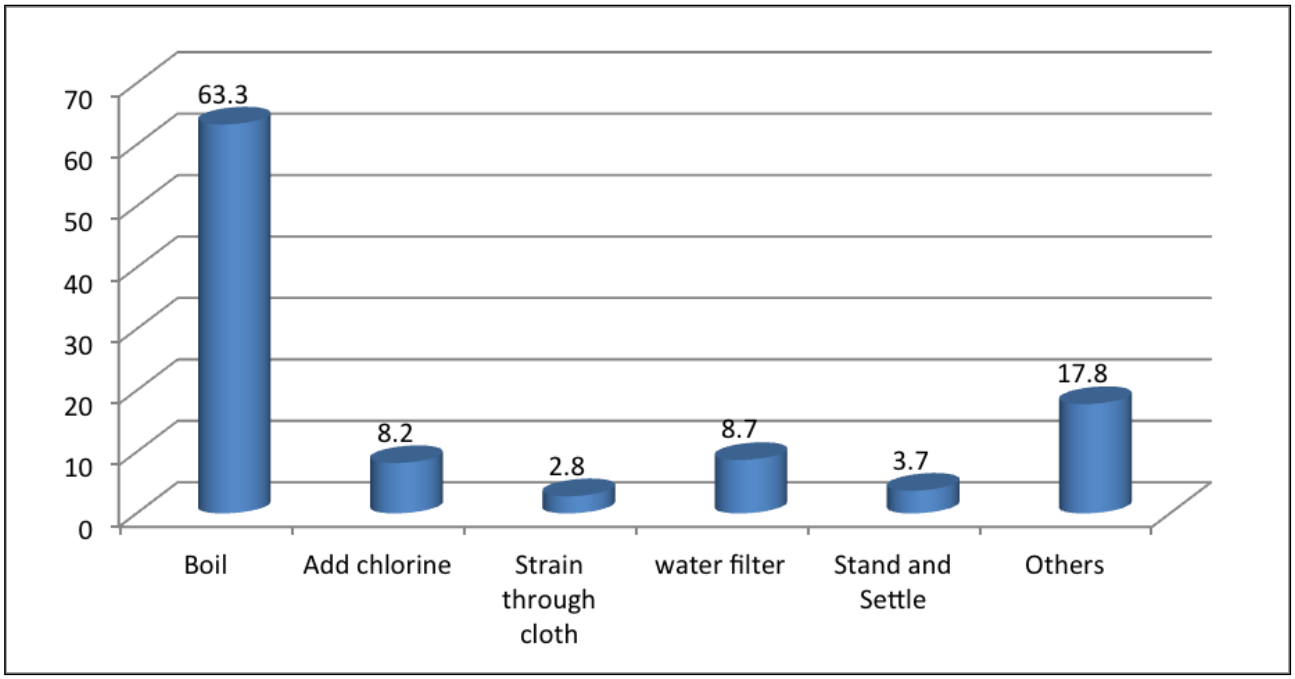


Figure 19: Ways used to make water safe

With regard to use of toilet facilities, Figure 20 shows that the majority of respondents, 59.7 % report using the bush, while 21.1 % use a flush to sewer toilet.

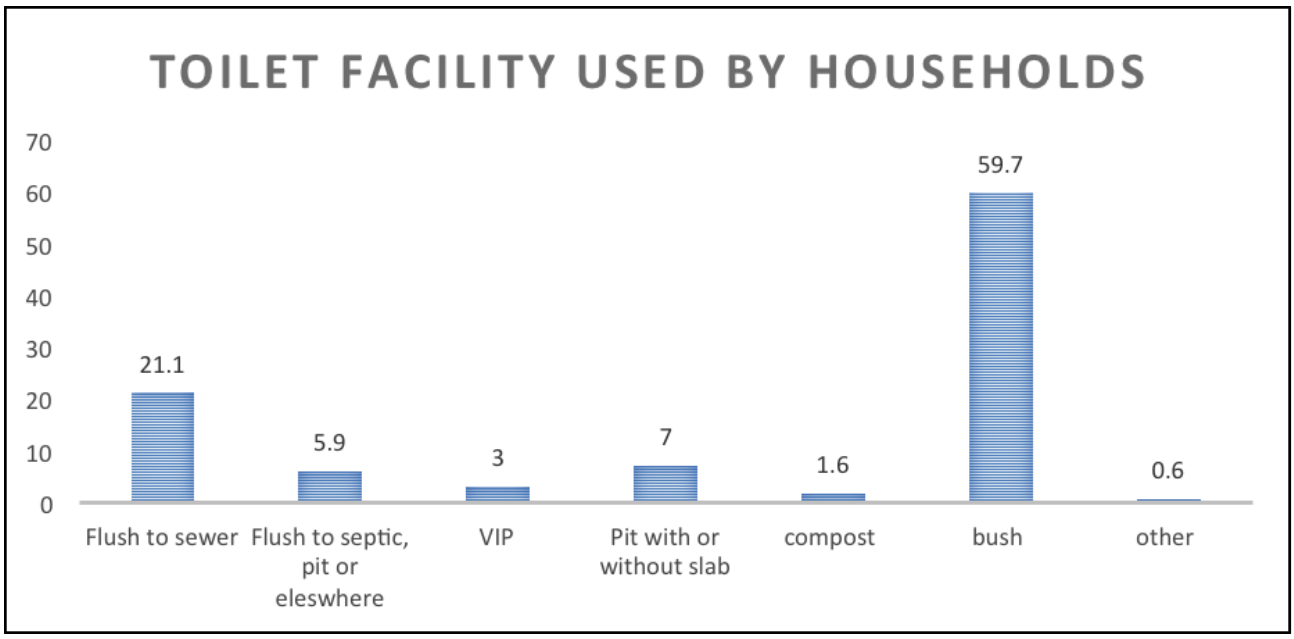


Figure 20: Toilet facility used by household members

It is recommended that children's faeces are disposed of in a toilet. With regard to the disposal of children's faeces, 42.3 % responded that children's faeces are buried away from the house, 15.6 % responded that it is disposed of in a toilet and 13.7 % disposed of in a rubbish bin. 10.8 % responded that children's faeces are buried close to the house.

Table 73: Ways of disposing child's faeces (percentage)

	All respondents		Rural		Urban	
Ways of disposing feaces	**Number of respondents**	**%**	**Number of respondents**	**%**	**Number of respondents**	**%**
Dispose in a toilet	51323	15.6	15574	7.3	35750	31.4
Dispose in a rubbish bin	44936	13.7	5778	2.7	39158	34.3
Dispose on a rubbish heap	15766	4.8	7845	3.7	7921	6.9
Buried away from house	138789	42.3	121107	56.5	17681	15.5
Buried close to house	35459	10.8	29191	13.6	6268	5.5
Left uncovered	24956	7.6	21072	9.8	3884	3.4
Other	15214	4.6	12497	5.8	2718	2.4
Does not know	450	0.1	370	0.2	80	0.1
Not stated	1599	0.5	1056	0.5	542	0.5
Total	**328492**	**100**	**214491**	**100**	**114002**	**100**

Table 73 shows that 42.3 % of respondents reported burying children's stools away from the house, 15.6 % dispose in a toilet, 14 % in a rubbish bin, 11 % buried close to the house and 8 % leave it uncovered. There is very strong evidence for the link between oral – faecal route contamination and stunting in children. Safe disposal of children's faeces in a toilet or at least buried away from the house, is an important behaviour that can reduce the incidence of diarrhoeal episodes, environmental enteropathy and break the oral –faecal route.

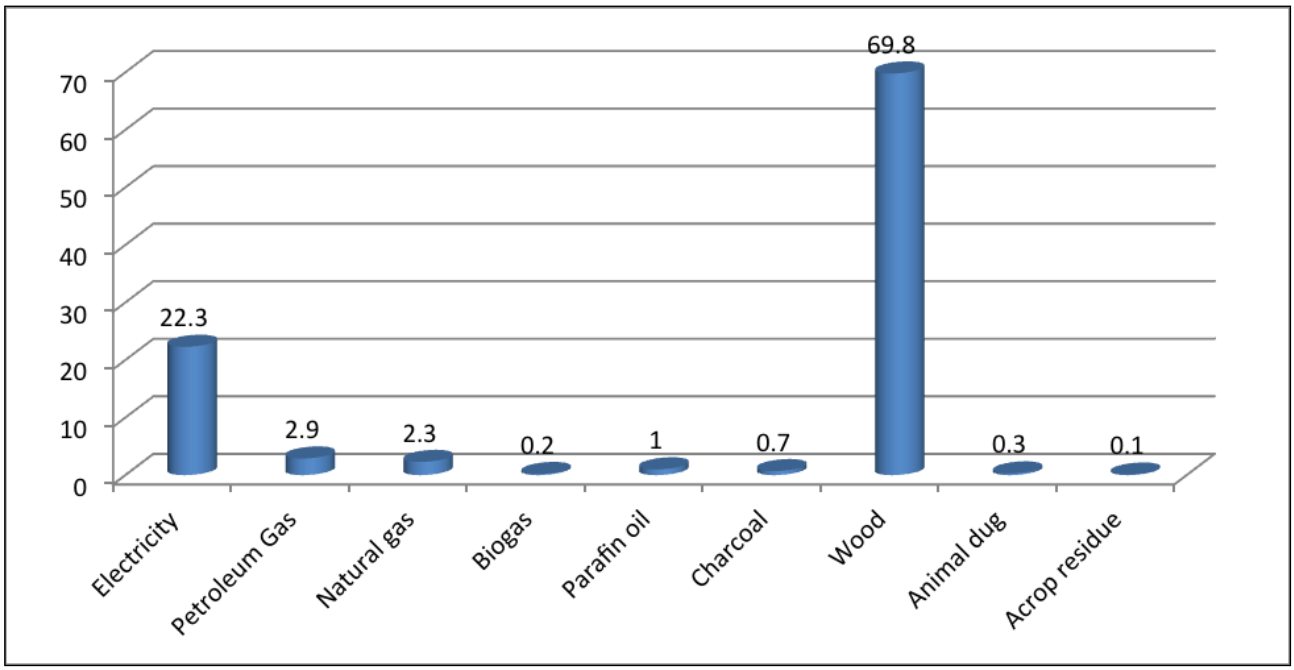


Figure 21: Type of fuel used for cooking

With respect to the most common fuel used for cooking, wood is the most commonly used source of fuel. Only 22.3 % use electricity for cooking (figure 21).

There are serious environmental consequences for relying on wood as the primary source of cooking fuel. The damage to the environment caused by deforestation is well understood and in a country like Namibia, that is affected by drought, alternative and sustainable fuel sources should be explored and promoted.

Findings regarding household possessions are shown in figure 22. 8% of respondents reported having a mobile phone, 65.7 % have a radio, 34 % have a television, 29 % have a refrigerator and 33 % have electricity.

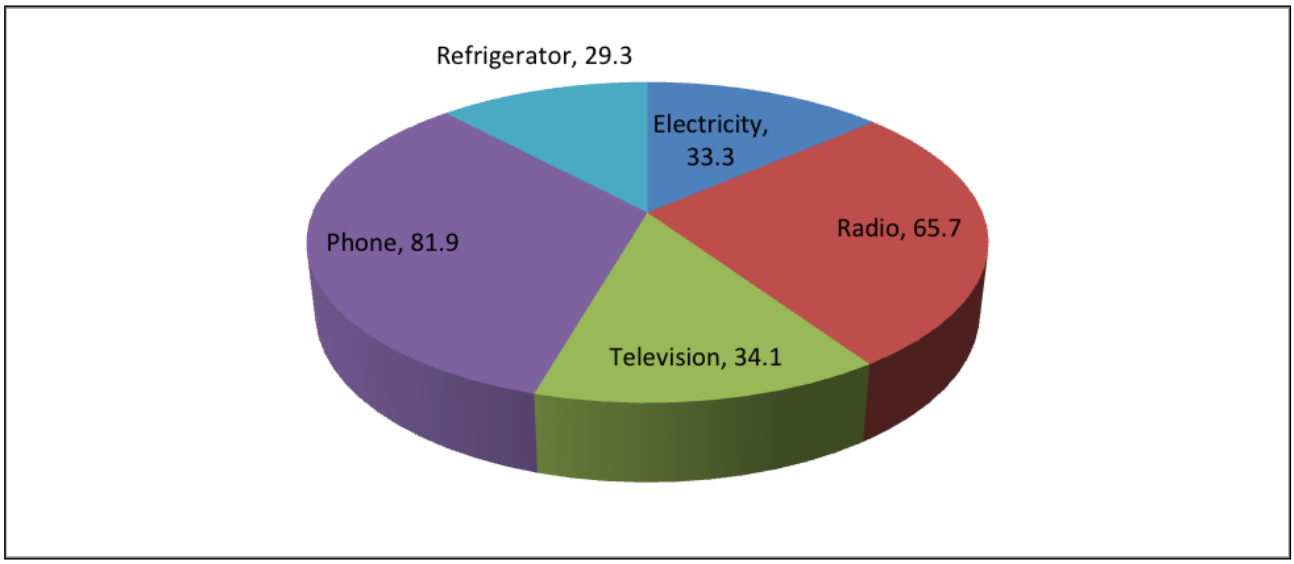


Figure 22: Household possessions (percentage)

3.2.2 Early Childhood Development Section

Objective of the early childhood development assessment

The main objective of the ECD section was;

- To understand the early childhood development situation of children added 2-5 years in Namibia

Sample size for ECD assessment

Although the IYCF Formative research conducted in 2014 targeted children aged 6-59 months, the ECD Section focused on children aged 24-59 months based on the target audience for the study questions taken from the Multiple Indicator Cluster Survey (MICS). The same weighting process was used to analyse the 12 ideal practices to get the national estimates. The following table shows the sample sizes for the ECD section.

Table 74: Sample size per age groups

Age Groups of Children	Unweighted (N)	Weighted (N)
24-59 months	663	112876
24-35 months	278	51984
36-59 months	385	60892

Data Entry and Analysis

The data was entered using an SPSS template with coded ECD questions from the main caregiver questionnaire. The original SPSS database template was modified to include the ECD section from where the ECD questions were entered.

The entered and cleaned data was analyzed using the SPSS software (version 20). Since the data was weighted to get the national estimates, the complex analysis function in SPSS was used to conduct advanced statistical tests.

Early Childhood Development Index

This is an index developed by UNESCO in partnership with global developmental partners that aims to measure the developmental status of children within four domains: literacy-numeracy, physical, social-emotional and learning. The ECDI index was adopted by UNICEF in its Multiple Indicator Cluster Surveys (MICS). The indicator is defined as the "percentage of children 36-59 months who are developmentally on track in literacy-numeracy, physical, social-emotional and learning domains". A score of 1 is considered ideal. Scores of >0.95 is considered excellent, >0.85 is good, >0.75 fair. The four domains assessed for the Index are defined as follows:

- **Literacy-numeracy:** Children are identified as being developmentally on track if they can do at least **two** of the following: identify/name at least ten letters of the alphabet; read at least four simple, popular words; and/or know the name and recognize the symbols of all numbers from 1 to 10**.**

- **Physical:** If the child can pick up a small object with two fingers, like a stick or rock from the ground, and/or the mother/caregiver does not indicate that the child is sometimes too sick to play, then the child is regarded as being developmentally on track in the physical domain.

- **Social-emotional:** The child is considered developmentally on track if two of the following are true: the child gets along well with other children; the child does not kick, bite or hit other children; and the child does not get distracted easily.

- **Learning:** If the child follows simple directions on how to do something correctly and/or when given something to do, is able to do it independently, then the child is considered to be developmentally on track in the learning domain.

Results of ECD Assessment

The results of the analysis of the ECD section focus on three broad areas; play and early stimulation, social-emotional development and early education.

Age and gender of children (percentage)

Figure 23 below shows the age and gender distribution of children for whom ECD questions were asked.

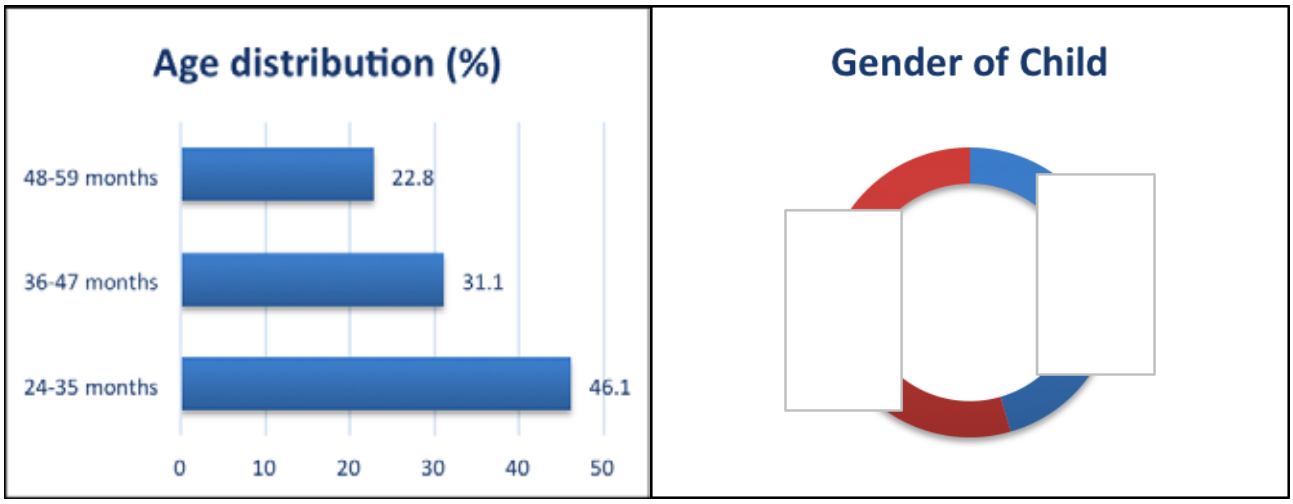


Figure 23: Age distribution and gender of child for whom ECD section was completed (percentage)

The age distribution of children who completed the ECD section of the caregiver survey shows that 46 % were aged 24-35 months, 31 % aged 36-47 months and 22.8 % aged 48-59months.

Education and stimulation of children aged 24-59 months

Figure 24 shows the percentage of children with books or picture books and the percentage age who play with toys. Of note, 80 % of children do not have any type of books at home. With regard to playing with toys, 70 % play with household objects or objects found outside such as sticks.

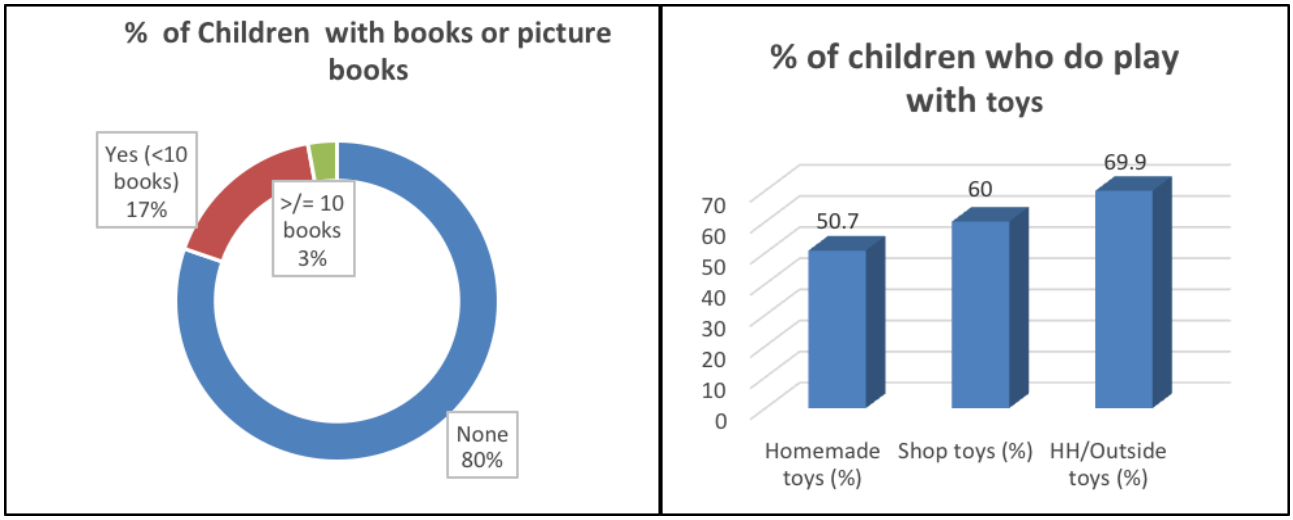


Figure 24: Percentage of children with books and who play with toys

Access to children books/ pictures by demographics

Access to children books and picture books for children aged 2-5 years was disaggregated by various demographic indicators which included the zones, residency and the gender of the child. From the results in table 75, it was observed that a higher proportion of children from Zone 4 have children's books/picture books for both categories of <10 books & >10 books as compared to the other zones (p=0.001, 95% CI).

In addition, a higher proportion of children living in urban areas own children's books/picture books as compared to their rural counterparts (p=0.000, 95% CI). When disaggregated by caregivers education level, the results showed that children with caregivers who had higher education levels had higher access to children's books and picture books, which was statistically significant (p=0.000, 95% CI). Similarly, children with caregivers engaged in paid work had higher access to children's books/ picture books (p=0.000, 95%CI).

Table 75: Access to books by zone and demographics of caregiver

Demographics		Percentage of children with books / picture books	
		<10 books	>10 books
Zones	Zone 1	14.1	0.9
	Zone 2	10.4	1.2
	Zone 3	12.7	2.4
	Zone 4	30.9	7.5
Gender	Male	18.8	1.9
	Female	15.1	3.6
Residency	Rural	8.3	0.1
	Urban	31.4	7.7
Education level	None	3.6	0.8
	Primary	14.6	0.9
	Secondary	21.0	4.0
Paid work	Yes	30.5	6.1
	No	11.2	1.6

Caring practices of children 24-59 months

The graphs in figure 25 indicate the length of time an infant aged 24-59 months is left alone or in the care of another child younger than 10 years for more than one hour.

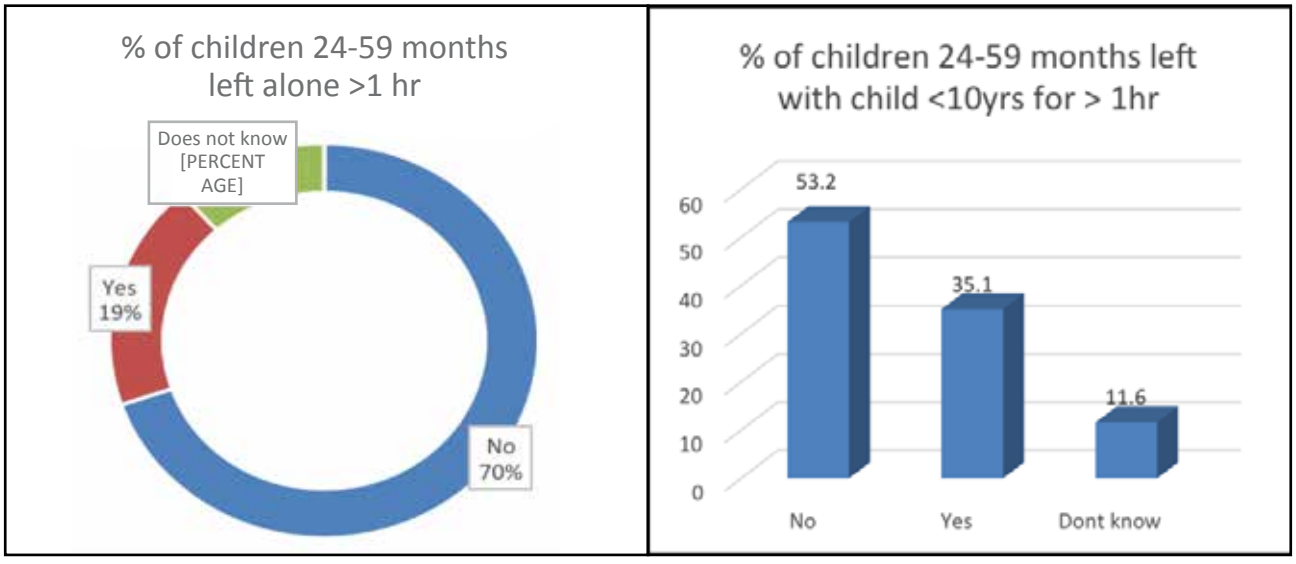


Figure 25: Children 24-59 months left alone or left alone with another child younger than 10 years for more than one hour (percentage)

Figure 25 indicates that 70 % of children aged 24-59 months are not left alone and 53 % are not left alone with another child younger than 10 years. 19 % of children are left alone and 35 % are left alone with another child who is younger than 10 years for more than one hour at a time.

ECD Stimulation and Care by demographics (24-59m)

Early childhood stimulation for learning and care for children aged 2-5 years was disaggregated by various demographic indicators, which included the zones, residency and the gender of the children. With regard to home stimulation the results in table 77 show that more children in zone 4 have toys bought from shops as compared to the other zones whose toys are home made from household and outside objects. The results also showed that a higher proportion of children from urban areas have shop bought toys shops compared to their rural counterparts.

With regard to caring practices, the results indicate that a higher proportion of children in zone 1 and 2 are left alone or in the care of children <10 years for more than an hour in the past week prior to the survey, which was statistically significant (p=0.021, 95% CI). A comparison of rural and urban with respect to caring practices shows more children in rural areas are left alone and in the care of children <10 years compared to their urban counterparts. There was no significant difference on home stimulation or caring practices when correlated with gender of the child.

Table 76: ECD stimulation by demographics

Demographics		Play with home-made toys	Play with toys from shop	Play with toys from HH/ outside	Child left alone for > 1 hour	Child left with other child (<10yrs) for > 1 hour
Zones	Zone 1	43.9	57.2	62.7	22.5	45
	Zone 2	58.7	48.7	78.5	20.9	44.8
	Zone 3	56.3	52.6	77.8	15.5	21.2
	Zone 4	43.2	82.9	61.9	13.9	20.7
Gender	Male	53.8	60.02	68.1	19.8	34.6
	Female	48.4	60.01	72.3	17.7	35.6
Residency	Rural	52	48.3	75.7	19.8	39.5
	Urban	48.9	80.2	61.1	16.7	27.6

Stimulation of children aged 36-59 months

From table 77 below, it can be seen that someone 'other' than the mother or father is engaging with children aged 36-59months the most. Compared to other and mothers, fathers play a very limited role in engaging with or playing with children of this age. Based on information obtained from the caregiver survey about who cares for children, 'other' was identified as the grandmother, aunt or uncle or other relative.

Table 77: Percentage of children 36-59 months engaged in play or stimulation at home

Type of stimulation	% of children 36-59 months engaged in play or stimulation at home	IF YES, Who engaged with child?		
		Mother (%)	Father (%)	Other (%)
Read books	46	13	3	26
Told stories	60	21	4	31
Sang songs	72	25	4	37
Took outside	64	15	5	39
Played with	68	11	3	4
Named/ counted	57	17	2.2	32

Figure 26 shows the percentage of children aged 36-59 months attending organized ECD learning. Of the 30 % who attend organized leaning, 79.5 % reported 0 hours since the schools were closed while the remaining 20.5 % who attended reported an average of 14.3 hours in last 7 days

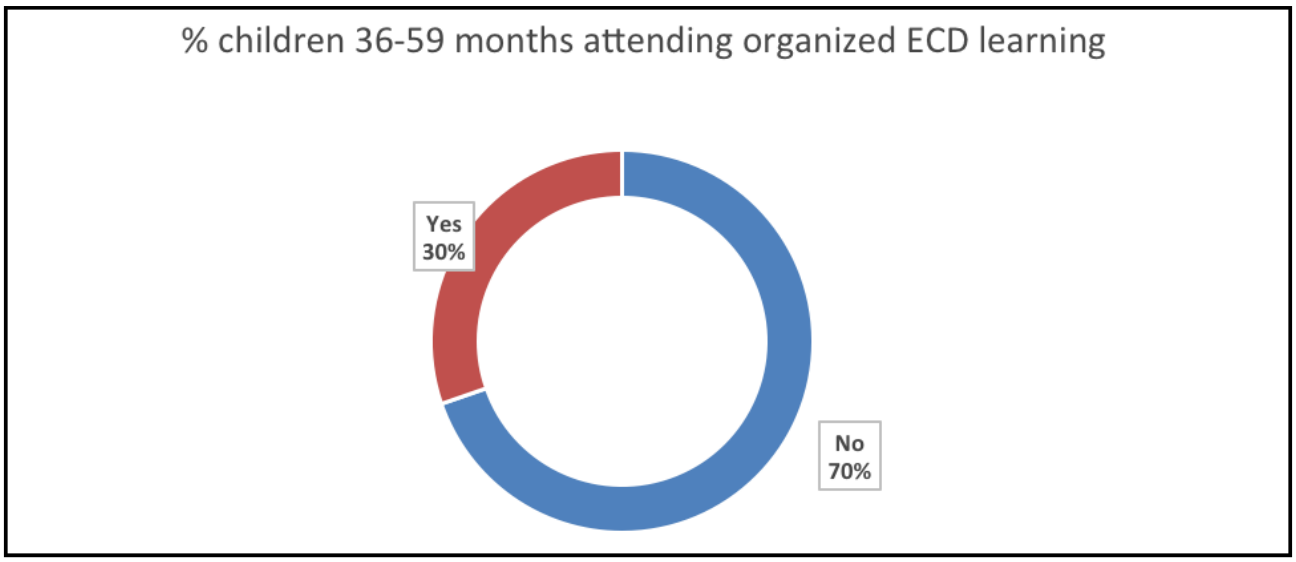


Figure 26: Percentage of children aged 36-59 months attending organized ECD centre

ECD Home Stimulation (Children 36-59 months)

Home stimulation for children enhances leaning and is an important aspect in the cognitive development of children. Who provides stimulation and what methods are used at home were assessed.

From the results in table 79, the majority (71.8%) stimulated their children by singing songs while reading books was the least used method (46.2%) of simulating children. In addition, the mother was more involved in home stimulation for all the methods (reading books, telling stories, singing songs, taking the child outside, playing with the child, naming/counting) as compared to the father who featured very little in stimulating the child. Despite the role of the mother in stimulating the child, the category of (Other) was more involved in home stimulation of the child as compared to both the mother and the father. The research was limited in probing the specification of the others however based on early definitions of other from the caregiver survey, it can be assumed that 'other' in this case refers to grandparents or family relatives.

Table 78: Method of child stimulation (percentage)

Stimulation type	Engaged child YES %	IF YES, Who engaged child?		
		Mother %	Father %	Other (%)
Read books	46.2	13.2	3.3	25.9
Told stories	60.2	20.8	3.8	31
Sang songs	71.8	24.6	3.9	37.1
Took outside	63.7	15	5	38.8
Played with	68.4	10.9	3	50.1
Named/ counted	57.1	17.2	2.2	31.7

Early Childhood Development Index Score

The ECD Index score assesses the developmental status of children aged 3-5 years with respect to four domains: literacy-numeracy, physical, social-emotional and learning. From the results in table 79, the national score for Namibia is 0.67 which is classified as below average. The score means that only 67% of the children aged 3-5 years are able to meet the recommended thresholds of holistic early childhood development.

The score was derived from the four domains; literacy-numeracy, physical, social-emotional and learning. The results shown in figure 27 indicate that of the children assessed, they performed poorest on the literacy-numeracy index (22.2%) while they performed better and met the threshold for being on track with regard to the socio-emotional wellbeing (67.1%), physical (94.3%) and learning (96.8%) indices.

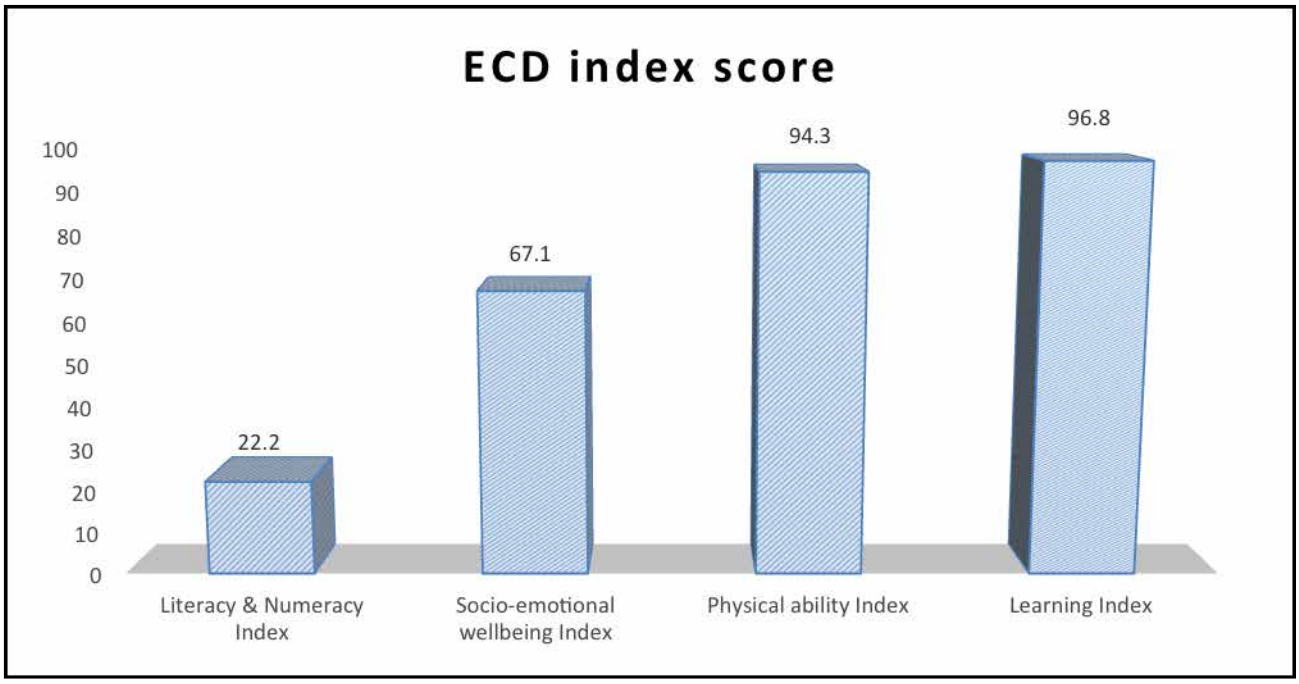


Figure 27: ECD Index Score for all four domains

However, when the ECDI score is disaggregated into the zone and regional levels, the results show that zone 2 had the lowest ECDI score (61%) while zone 4 had the highest score (75%). Whilst the results at regional level are not statistically representative it is of note that Ohangwena had the lowest ECDI score (38.7%) while Oshikoto and Khomas performed well attaining scores of 84.6% and 81.6% respectively, and the difference between regional scores was deemed statistically significant (p=0.04, 95% C.I). This is shown in the table 80 and figure 29.

Table 79: ECD index score by zone (percentage)

Zones	ECD Index score
Zone 1	64%
Zone 2	61%
Zone 3	66%
Zone 4	75%
National	**67%**

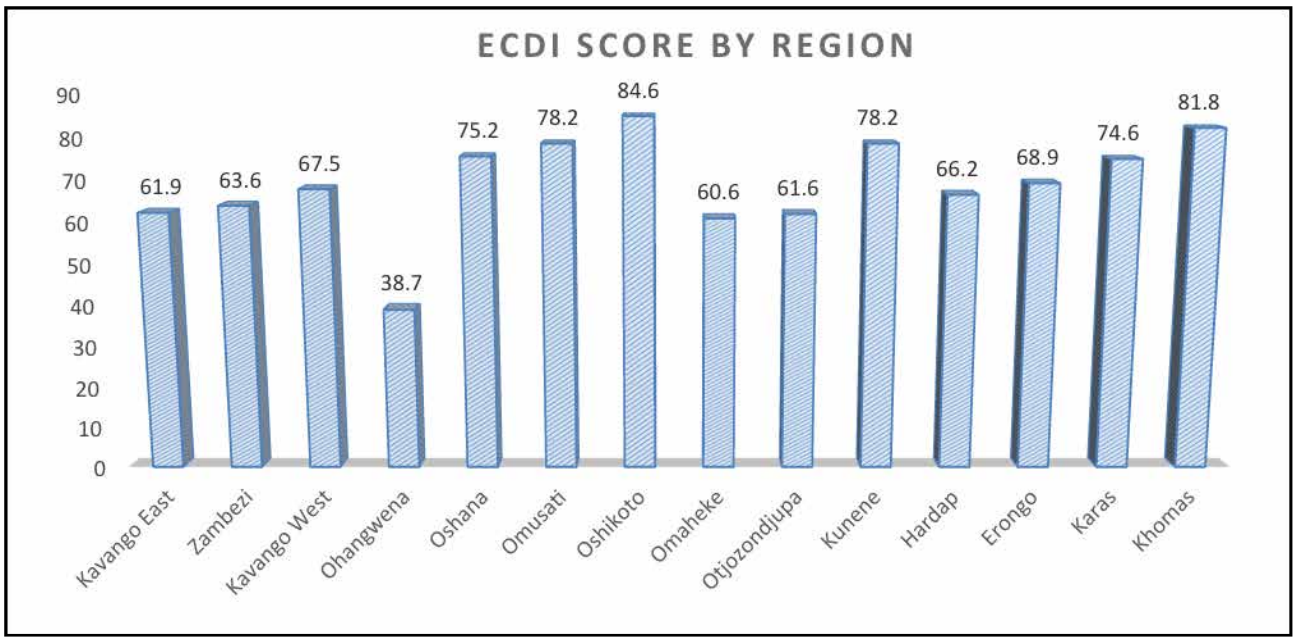


Figure 28: ECD Index score by region

ECD Index by Demographics

The ECD index was disaggregated by various demographic indicators which included the caregivers' age and education level, and residency and gender of the child. From the results in table 81, the children whose main caregiver is aged >60 years have a lower ECDI score (0.56) compared to the younger caregiver age groups which was statistically significant (p=0.01, 95% CI). Children whose main caregiver has no education scored slightly higher on the ECDI as compared to children whose caregiver attained primary or secondary level education. This was attributed to the children of caregivers with no education attaining proportionally higher scores for the socio-emotional wellbeing component of the index (81.4%) compared to the educated caregivers score (64.3%).

In addition, children staying in urban areas attained higher ECDI scores (72.6%) compared to their rural counterparts (63.1%). In terms of gender predisposition, female children have a slightly higher ECDI score (70.2%) than male children (63.8%).

Table 80: ECDI by demographics of caregiver (percentage)

Demographics		Met ECD Index Score (%)
Caregivers age	18-29	72.4
	30-59	70.9
	60+	56.3
Education level	None	73.9
	Primary (1-6)	60
	Secondary (7-12)	68
Residency	Rural	63.1
	Urban	72.6
Gender	Male	63.8
	Female	70.2

Socio-emotional Index

In order to determine if the socio-emotional index was influenced by other factors, further analysis was carried out using 2 other variables; namely, the caregivers' engagement in paid work and the child's attendance at an ECD centre. The results show that there was a slight difference in the socio-emotional well-being index

with regard to caregivers' engagement in paid work. More children who had caregivers engaged in paid work attained higher scores on the index (73 %) compared to children whose caregivers were not engaged in paid work (64.6 %).

With respect to attendance at ECD centres and meeting socio-emotional wellbeing, children attending ECD centres attained a slightly higher socio-emotional wellbeing index score (74.3%) compared to children not attending ECD centres (64 %). The differences in socio-emotional index score for children whose caregivers were engaged in paid work or for children attending ECD centre, were not statistically significant.

In order to understand the influence of attending ECD centres on the ECD index, an additional assessment of the quality of ECD learning provided by formalized or organized ECD providers is necessary. Such as assessment was beyond the scope of this study.

Table 81: Relationship between caregiver's engagement in paid work and attendance at ECD centre and socio-emotional component of the ECD index score

		Met Socio-emotional Index (%)	p value, 95% CI
Engaged in paid work	Yes	73	0.47
	No	64.6	
Attended ECD centers	Yes	74.3	0.217
	No	64	

Organized ECD learning by demographics

The attendance at organized or formal learning centres was disaggregated by various demographic indicators which included the zones, residency and caregivers' education level. From the results in table 83, a higher proportion of children in Zone 4 (44%) attend organized ECD learning centres as compared to the other zones. More children whose main caregiver has secondary education (38.2%) attend ECD learning as compared with children whose caregivers attained primary level or no education with 22.4% and 11.1% respectively (p=0.001, 95% CI). The results also show a higher proportion of children living in urban areas (42.4%) attend organized ECD learning as compared to their rural counterparts (22.4%) which was statistically significant (p=0.007, 95% CI). In addition the results show that a higher proportion of children whose caregivers are engaged in paid work (45.8%) attend organized learning centres as compared to children whose caregivers are not engaged in paid work (p=0.001, 95% CI).

Table 82: Attendance at organized / formal ECD centre by demographics

Demographics		Attends Organized ECD learning (%)
Zones	Zone 1	30
	Zone 2	20.9
	Zone 3	27.5
	Zone 4	44
Education level	None	11.1
	Primary (1-6)	22.4
	Secondary (7-12)	38.2
Residency	Rural	22.4
	Urban	42.4
Paid work	Yes	45.8
	No	23.6

ECD Home Stimulation for learning by demographics

Early childhood home stimulation of children aged 3-5 years was disaggregated by various demographic indicators which included the zones, residency and caregivers' education level. In terms of home stimulation for learning, the results in table 83, show that zone 4 and 2 performed better as compared with the other

zones for almost all of the home stimulation methods that included reading books, telling stories, singing songs, taking children outside to play and naming/ counting while Zone 1 performed better in stimulating the children through play. More children from urban areas were stimulated using all methods of home stimulation compared to the children living in rural areas. More children whose main caregiver had secondary level education received home stimulation as compared to children whose caregiver had primary level education and no education. Therefore, children living in urban areas and children whose caregiver has attained at least secondary level education, are more likely to be engaged with at home using home stimulation methods such as reading books, telling stories, singing and playing, and naming and counting.

Table 83: Home stimulation methods by demographics (percentage)

Demographics		Read books (%)	Told Stories (%)	Sang Songs (%)	Took outside (%)	Played with (%)	Counted with (%)
Zones	Zone 1	39	56.7	67.8	60	75.6	50.3
	Zone 2	47.2	60.2	75.8	64.2	65.6	60.3
	Zone 3	37.8	55.7	61.9	59.4	62.6	54.2
	Zone 4	56.6	66.1	76.3	68.9	68.4	61.4
Education level	None	15.3	28.1	46.3	37	43	31.1
	Primary (1-6)	50.7	64.4	73.6	70.3	71	57.1
	Secondary (7-12)	56.8	64.4	76.3	66.4	73.2	62.9
Residency	Rural	40.4	55.7	69	59.9	67.2	55.7
	Urban	55	66.9	76.1	69.4	70.4	59.3

Discussion on Early Childhood Development in Namibia

Due to the multi-faceted nature of early childhood development and based on the results presented above, a holistic multi-sectoral response is required in order to improve early childhood development indicators in Namibia.

Children 24-59 months

ECD Education and Stimulation

With regard to ECD education and stimulation at home for children aged 2-5 years the results show that a majority (80%) do not have children's books while 17% have less than 10 books and only 3% have more than 10 books. This shows that early childhood development with regard to cognitive stimulation through books is poor. When the results are disaggregated by various demographic indicators, which include zones, residency and the gender of the child, a higher proportion of children from zone 4 have access to children's books/ picture books for both categories of <10 books and >10 books as compared to the other zones (p=0.001, 95% CI). In addition, a higher proportion of children living in urban areas own children's books/picture books as compared to their rural counterparts (p=0.000, 95% CI). There was no difference in access to books/picture books based on gender.

In terms of the caregivers level of education and access to children's books, educated caregivers are more likely to provide children's books/picture books compared to caregivers with low or no education (p=0.000, 95% CI). Caregivers engaged in paid work (p=0.000, 95% CI) are also more likely to provide children's books and picture books to their children. These results suggest that caregiver's education level and engagement in paid work influences children's' access to books/picture books. The results also indicate that more effort is needed in zones 1, 2 and 3 and in rural areas with regard to increasing children's access to children's book/ picture books.

Infants and children learn through play. Play is a major component of early childhood stimulation and central to good mother/caregiver-child interaction, and it is through play and other activities such as reading and singing to children, playing with them outdoors that early learning, physical and socio-emotional development occurs. From the results regarding home stimulation, 69.9% of children played with household items/ objects from outside, 60 % played with shop bought toys and 50.7% played with homemade toys. The results also showed that more children use objects (e.g. sticks, stones, plastic bottles, etc) from the household/outside as toys compared to shop bought toys. When disaggregated by zones and residency, the results showed that children in one 4 and in urban areas have shop bought toys compared to the other zones where homemade toys and household objects are used as toys.

ECD Care

Early childhood stimulation and care is essential for children aged 2-5 years. Caregivers ideally should be providing care and stimulation to promote the health, nutrition, emotional, social, language and intellectual development of the child. However, the results show that 19% of children had been left alone for > 1 hour in the past week. Similarly 35.1% had been left alone with a child aged <10 years in the past 1 week. This highlights a critical issue regarding child care, whereby young children are being left alone or in the care of another child, which predisposes such children to vulnerability and lack of proper socio-emotional care and stimulation. When disaggregated by various demographic indicators including the zones, residency and the gender of the, a higher proportion of children in zones 1 and 2 were left alone or in the care of children <10 years for more than an hour in the week prior to the survey (p=0.021, 95% CI). More children in rural areas are left alone and in the care of children <10 years compared to their urban counterparts. This highlights a critical issue regarding child care in rural areas and specifically zone 1 (Kavango East & West, Zambezi) and zone 2 (Ohangwena, Oshana, Oshikoto, Omusati).

Children 36-59 months

ECD Education

For children aged 3–5 years, organized or formalized early childhood learning centres not only improve school readiness but also school attainment. In turn, children who remain and succeed in school are more likely to earn higher incomes as adults, and to provide better nutrition, health care, stimulation, and educational opportunities to their own children. From the results, a majority (70%) of children aged 3-5 years were not attending any organized learning or early childhood education program. Of the 30 % who were attending, 20.5% reported attending for an average of 14.3 hours in last 7 days. When the results are disaggregated by various demographic indicators i.e. zones, residency and caregivers' education level, a higher proportion of children from zone 4 (44%) attend ECD learning centres compared to the other zones, while more children whose main caregiver has secondary education level (38.2%) attend ECD learning compared with children whose caregiver has primary level or no education with 22.4% and 11.1% respectively (p=0.001, 95% CI).

In addition, a higher proportion of children living in urban areas (42.4%) attend organized ECD learning compared to their rural counterparts (22.4%). These results suggest a need to increase caregivers' knowledge of the importance of ECD learning and a need to increase attendance at ECD centres especially in rural areas and zones 1, 2 and 3. Zone 4, being predominantly urban in composition and with more educated caregivers, the attendance to ECD learning centres is higher. The results indicate that a caregiver's educational attainment level determines attendance in organized ECD centres.

ECD centres can provide an environment for early learning that complement home stimulation and play. These results suggest that participation in organised early learning activities is low especially in rural areas and by children whose caregiver has little or no education. While the benefits to be gained from attending ECD centres is dependent on the quality of the learning experience, it was beyond the scope of this study to assess the quality of ECD centres and therefore it is recommended that this be undertaken sometime in the near future.

ECD Home Stimulation

Home stimulation enhances leaning and is an important aspect in the cognitive development of children. The results showed that the majority of children (71.8%) were stimulated by caregivers singing songs while reading books was the least used method of stimulation (46.2%).

Someone 'other' than the mother or father was the predominant person engaging in play and home stimulation activities with children. The classification of 'other' was not determined due to limitations in the

study questionnaire, however based on similar responses to other sections of the caregiver survey, where other was specified, other referred to the grandmother, aunt, cousin or other family relative. When the results were disaggregated by demographic indicators such as zones, residency and caregivers education level, the results show that more children from zones 4 and 2 were exposed to a range of stimulation methods while children in zone 1 were engaged in play with a caregiver more than the other methods of home stimulation. The caregivers' educational attainment was shown to be associated with home stimulation. Caregivers with a higher level of education were found to stimulate their children at home more than caregivers with primary level of no education.

3.3 Social Protection

Social protection is a set of public and private policies and programmes aimed at preventing, reducing and eliminating economic and social vulnerabilities to poverty and deprivation. Social protection is essential to UNICEF's commitment to the realization of the rights of children, women and families to an adequate standard of living and essential services. Social protection strengthens resilience, accelerates equity, and human and economic development.

Social protection programmes are seen as increasingly relevant across the region and globally and are receiving greater political attention than ever. Some of the key reasons for this are the persistence of inequality and exclusion, the effects of increasing price volatility at a macro and household level, the threats to sustainable development posed by climate change, and changing population trends. Blessing M. et.al. (2014) highlights that the need for social protection arises from the realisation that there is always a degree of inequality and limit to opportunities for some households in any economy.

UNICEF advocates for integrated social protection programmes that are also child sensitive since childhood is a critical window of opportunity due to the ongoing physical, cognitive and psychological development that occurs. Social protection has positive impacts on children's nutritional status, health, education and protection, which all contribute to a healthy and productive adulthood. The issues that social protection strategies aim to address include persistent inequality and exclusion across regions and within countries leading to uneven progress towards achieving the MDGs and the newly adopted Sustainable Development Goals (SDGs); increasing economic risks and instability leading to lack of employment, high food prices, austerity measures and instability disproportionately affect those already vulnerable, e.g. women, youth and children; population trends and demographic changes, migration and urbanization patterns and changing family and support structures. At the household level, social protection protects against shocks and supports productive investments and labour market participation.

Namibia situation analysis

Namibia has a variety of legislations that provide for social protection in the country. It has a number of social protection measures, including housing and living expenses allowances for vulnerable groups, means-tested cash transfers, food-for-work programmes, and free access to primary healthcare and basic education. Among contributory schemes, the government institutions pension fund and private pension funds are provident funds, while the rest are defined benefit funds. The existing different types of social safety nets in Namibia are shown in Table 1 below which highlights the non-contributory social protection schemes. The Old Age Pension / Basic Social Grant, Disability Grant and Funeral Benefit are administered by the Ministry of Labour and Social Welfare; the Place of Safety Allowance, the Special Maintenance Allowance, Maintenance Grant, and Foster Parent Allowance are administered by the Ministry of Gender Equality and Child Welfare; and the War Veterans Grant is administered by the Ministry of War Veteran Affairs. The different schemes are shown below.

Table 84: Social grants in Namibia

Line-Ministry administering the grant	Type of grant
Ministry of Labour and Social Welfare	Social Pension / Basic Social Grant Disability Grant Funeral Benefit
Ministry of Gender Equality and Child Welfare	Place of Safety Allowance Special Maintenance Allowance Maintenance Grant Foster Parent Allowance
Ministry of Veterans' Affairs	Veterans' grant

The following table shows the sample sizes for the Social Protection section of the caregiver survey.

Table 85: Sample size for social protection section

	Unweighted (N)	Weighted (N)
Sample	1,583	326,664

Data Entry and Analysis for the Social Protection Section

The data was entered using an SPSS template already developed by the consultant which coded the specific Social Protection questions from the main caregiver questionnaire. The original SPSS database template was modified to include the Social Protection section from where the questions were entered.

The entered and cleaned data was analysed using the SPSS software (version 20). Since the data was weighted to get the national estimates, the complex analysis function in SPSS was used to conduct advanced statistical tests.

Social Protection Results

Household status

Access to warm and dry clothing was assessed and the results showed that 55 % of the sampled households reported that everyone in the household had clothing sufficient to keep them warm and dry. A significant proportion (44%) did not have access to warm, dry clothing.

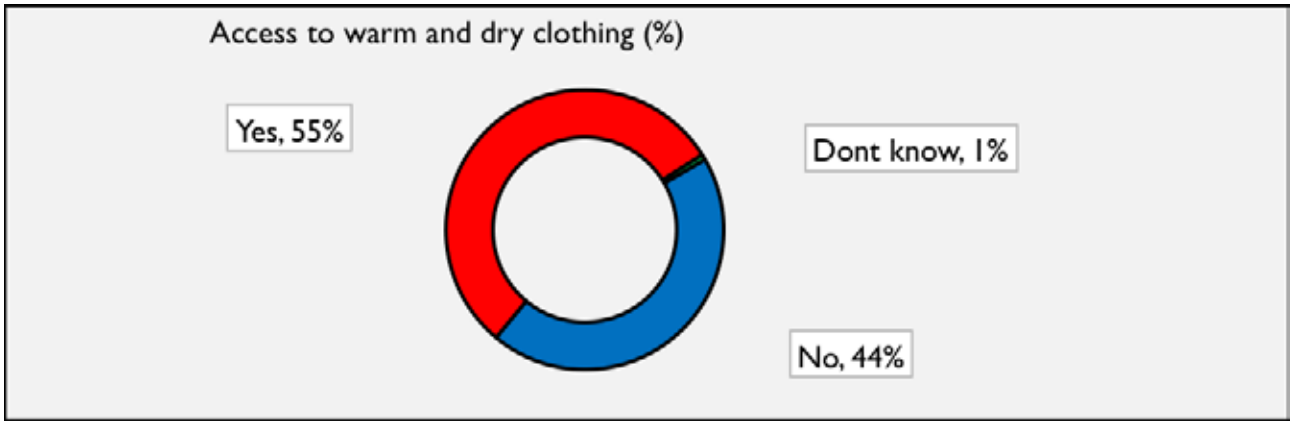


Figure 29: Percentage of households that have access to adequate warm, dry clothing

Healthcare

Questions about affordability of healthcare were asked with respect to ability to afford transport to the health centre, health care fees and the medicines prescribed by the health practitioner. From the results, 45% reported to be able to afford healthcare while 32.3% reported not being able to afford healthcare. 22% of the sampled population reported that they could afford healthcare sometimes or occasionally.

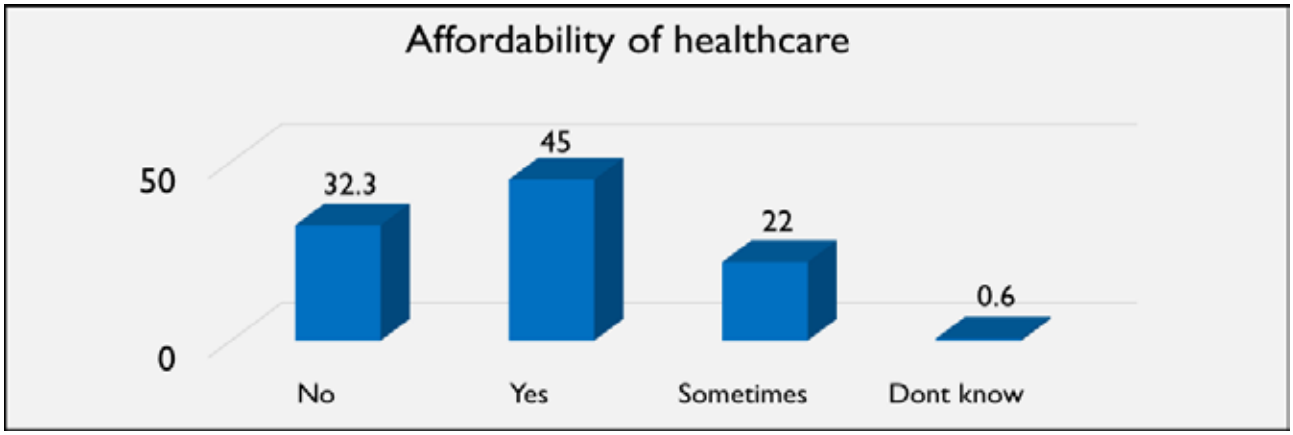


Figure 30: Percentage of households that can and cannot afford healthcare

Housing

Two aspects of housing were assessed; safety and structure of the house of the sampled population. The results show that 68 % of the sampled population have houses that protected them from bad weather (e.g. rain, wind etc.) while 32% do not have protective houses. In terms of the structure of the houses, 60.9 % of the sampled population reported that their houses had separate bedrooms for adults and children while 37.8% reported that they did not have separate bedrooms for adults and children.

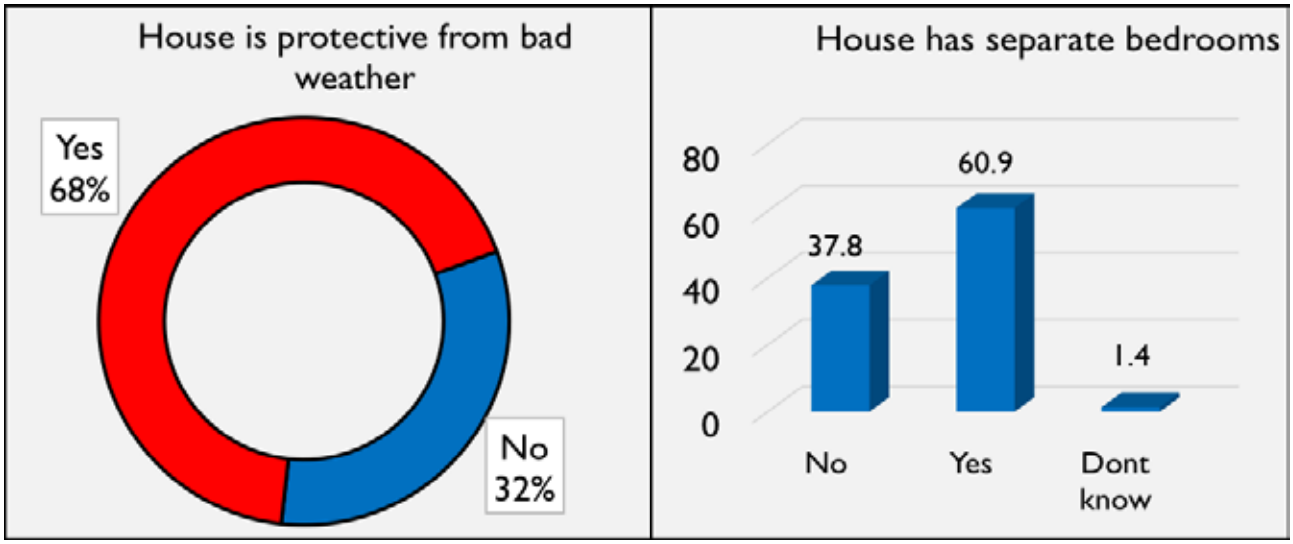


Figure 31: Housing characteristics (percentage)

Access to school uniform and safe places to play

Whether school-aged children had a complete school uniform and whether there was somewhere for children to play safely outside the house was assessed. The results show that the majority of children (48.8%) do not have a complete school uniform while 40.9% reported they do have a complete school uniform. In terms of children's access to safe play grounds, 68% reported that they have access while 30% reported not to have access.

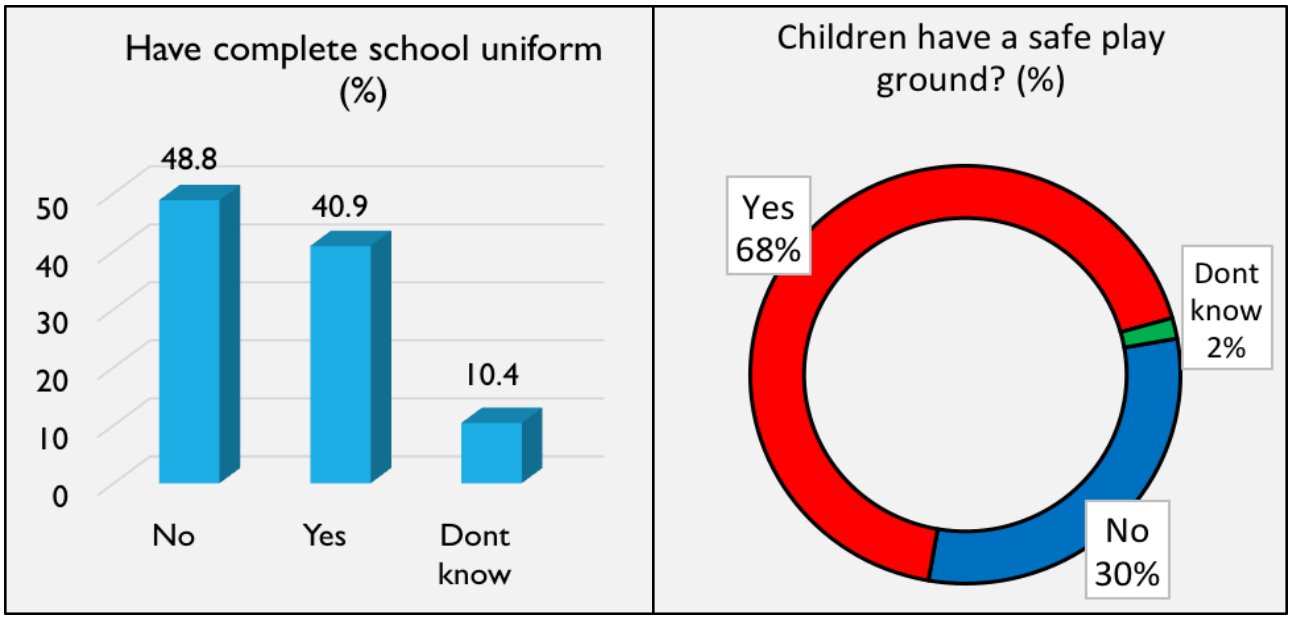


Figure 32: Access to school uniform and a safe place to play

Social Grants

In terms of households receiving social grants, the results show that 58% of the sampled population did not have access to social grants while 42% reported to have access to social grants. Of the 42% who received social grants, the majority (70.1%) reported to receive the old-age pension. The other types of social grants reported to be received included; child maintenance (16.3%), foster care (11.2%), disabled adults >16 years (8.8%), orphans and vulnerable children (5.8%), disabled children <16 years (2.6%) and war veterans (1.7%).

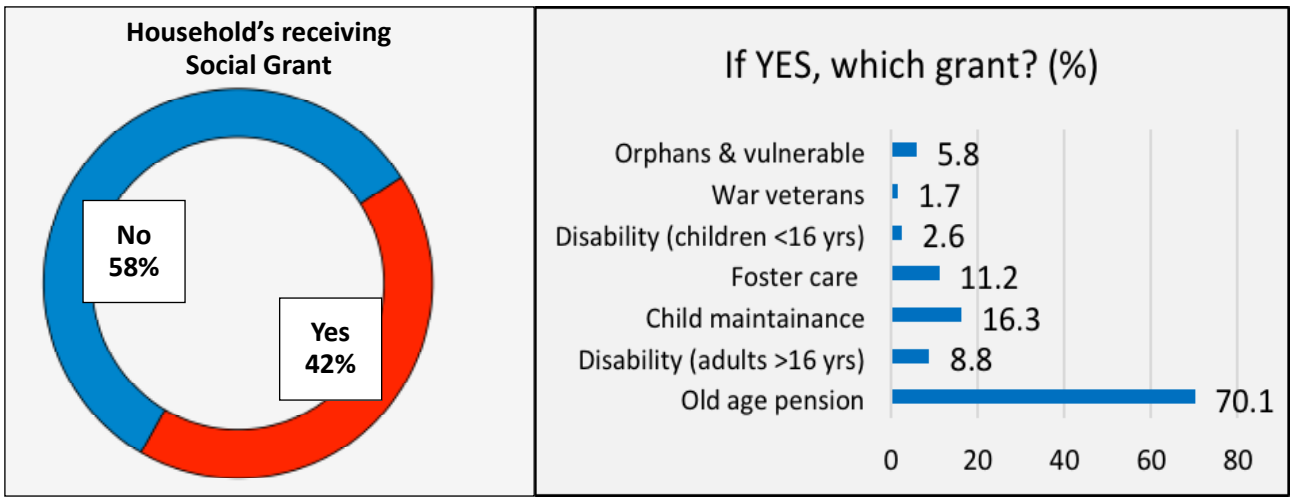


Figure 33: Households receiving social grants and type of grants

Social Protection Indicators by Selected Demographics

On further analysis, the social protection indicators were analysed against demographic indicators such as residency status and zone.

Residency status

When the findings were further disaggregated by residency status, all of the Social Protection indicators performed fairly well in rural areas compared to urban areas. The results also show statistical significance in the difference between the urban and rural populations for the indicators for receivership of social grants (p=0.000, 95% CI), affording healthcare (p=0.000, 95% CI) and protective housing from bad weather (p=0.007, 95% CI).

Table 86: Social protection indicators by residency (urban and rural)

	Rural (%)	Urban (%)
Access to warm and dry clothing	31.2	23.9
Children have complete school uniform	23.4	17.5
House protective of bad weather	41.1	26.2
Affords healthcare	24.4	20.6
Children have safe playgrounds	43.5	24.3
Receives social grant	32.4	10

Zonal Comparisons

When the findings were further disaggregated at the zonal level, the results showed that Zone 2 performed fairly well on a majority of the social protection indicators when compared to the other Zones. In addition, Zone 2 had the largest proportion of households receiving social grants (23.9%) compared to the other zones i.e. Zone 1 (8.5%), Zone 3 (4.7%) and Zone 4 (5.3%). The results also show statistical significance in the difference between the Zones for indicators on access to warm clothing and school uniforms (p=0.000, 95% CI), protective housing and affording healthcare (p=0.000, 95% CI) and on receivership of social grants (p=0.000, 95% CI).

Table 87: Social protection indicators by zones (percentage)

	Zone 1 (%)	Zone 2 (%)	Zone 3 (%)	Zone 4 (%)
Access to warm and dry clothing	5.6	24.7	6.2	18.5
Have complete school uniform	5.1	19.9	3.9	12
House protective of bad weather	9.6	30.9	6.5	20.4
Afford healthcare	4.8	18.8	4.8	45
Safe playgrounds	13.6	26.8	9.3	18.1
Receive social grant	8.5	23.9	4.7	5.3

Discussion for Social Protection Indicators

Household access to adequate clothing to stay warm and dry

At the household level, it was found that 44% of the sampled households do not have access to clothing sufficient to keep them warm and dry. In addition, 32% of the sampled households live in dwellings that do not protect them from bad weather. It was found that 37.8% of households do not have separate bedrooms for children and adults, meaning children and adults are sharing the same room. These findings suggest that the majority of households surveyed do not have access to basic needs such as safe shelter, adequate clothing and sufficient space within the dwelling for children to sleep in a separate room as adults.

When the social protection indicators at the household level are disaggregated via residency status and via zones, the situation is worse in urban areas compared to rural areas where 23.9 % of the sampled households have access to clothing sufficient to keep them warm in urban areas compared to 31.2 % in rural areas. At the zonal level, households in zone 2 and 4 perform better in terms of access to clothing sufficient to keep them warm and have houses that afford protection against harsh weather conditions compared to zone 1 and 3 where the proportion of sampled households is less. These results suggest that there are disparities between urban and rural areas and between zones with respect to these social protection indicators. The level of vulnerability in zone 1 and 3 is thus greater than in zones 2 and 4, which indicates a need for more attention from authorities to social and economic interventions for households within those zones.

Access to healthcare

In terms of access to healthcare, the results highlight disparities with respect to household affordability of healthcare. The cost of health care in this instance, includes the cost of transport to the health centre, the health centre fees, and all the medicines prescribed by the health practitioner. The results showed that 32.3% of the sampled population could not afford these healthcare expenses, while 22 % could afford them only sometimes. If people cannot afford to seek healthcare when they or their family member is sick, this has implications for health and wellbeing, especially for the most vulnerable members of the family such as children and the elderly. If transport and associated healthcare costs are perceived to be, or are in fact unaffordable, this will affect health seeking behaviour of individuals and families, putting them at greater risk for ill health and possibly death. Therefore, what role can social protection mechanisms play in ensuring equitable access to health care for those who need it?

When the results on healthcare access were disaggregated by residency status and at the zonal level, slightly more rural residents 24.4 % can afford healthcare as compared to their urban counterparts (20.6%) while at the zonal level, zone 4 performs better than all the other zones in terms of access to healthcare where 45 % of the population can afford it, whereas only 18.8 % and 4.8 % in zone 2 and zones 1 and 3 respectively can afford it. The higher proportion of households in zone 1,2 and 3 that cannot afford healthcare suggests the need to review the current coverage of health services as a means of reducing the transport related costs or increase the coverage of community based nurses (health extension workers) in those zones most affected. The results also suggest the need for greater promotion to the public about the availability of social protection schemes and grants.

Children and social protection
Two aspects relating to children were considered in the assessment. These included access to a complete school uniform for school-aged children and access to safe playgrounds for children to play outside of the house. The results showed that a majority of school-aged children (48.8 %) did not have a complete school uniform and 30 % of the children did not have access to safe playgrounds.

When the results were disaggregated by residency status and at the zonal level, the results showed that children living in urban areas had less access to a complete school uniform and to a safe playground, compared to their rural counterparts. The implication of children not having access to a complete school uniform is that it might contribute to school absenteeism and therefore poor educational attainment, which ultimately can affect social and national development.

Access to safe places to play is important from a child protection and child development perspective. If children do not have safe places to play, they may be put at greater risk for child abuse if forced to play in unsupervised areas, or they may be at greater risk for physical harm if the space they play in is not safe.

Access to social grants
Social grants are a type of a social protection, which is aimed at poverty-reduction, prevention of vulnerability and exclusion, and protection from shocks. The results indicated that 58 % of the sampled households did not receive any social grant. Of the 42 % who did receive a social grant, the majority (70.1 %) reported receiving the old-age pension grant. Other types of social grants being received included; child maintenance (16.3 %), foster care (11.2 %), disabled adults >16 years (8.8 %), orphans and vulnerable children (5.8 %), disabled children <16 years (2.6 %) and war veterans (1.7 %). When the results were disaggregated by residency status and at the zonal level, more households in rural areas (32.4 %) receive social grants compared to their urban counterparts (10 %). At the zonal level, more households in zone 2 (23.9 %) receive a social grant compared to the zones 1, 3 and 4. This might reflect the high proportion of households in zone 2 classified within the lowest wealth quintile compared to the other zones.

The results suggest a need to focus on identifying vulnerable groups in the population that are eligible for a social grant but might not be receiving it. Nutrition education including information about appropriate complementary feeding practices should be provided to households receiving social grants in order to support them to make informed decisions about food purchases for infant and young child feeding.

3.4 Results of Market Survey

Seasonality of local foods
The market survey questionnaire included a calendar in order to determine availability of foods throughout the year and to assess seasonality of foods in different areas/regions.

From the survey results, almost all of the foods (>98%) were available all year round i.e. from January to December. This was due to the fact that almost all of the respondents (>95%) bought foods from supermarkets, which have an almost consistent supply of different foods throughout the year.

Price of foods
This was achieved by comparing the price of the same food item with the same retail unit with the prices from different retail locations in the country where that particular food item was sold. A standard retail unit for each food item had been agreed upon by the research team before embarking on the market survey.

From the results, it was observed that there was no difference in the pricing of the foods at the zonal level as the same price was used across different retail locations.

Analysis of the foods per unit currency (Namibian Dollar-NAD)
ProPAN software was used to analyse all the foods recorded in the market survey in terms of the cost per unit per specific amounts of protein, micronutrients and the edible portions of these foods in order to determine the nutrient-cost ratio of these foods in terms of their contribution. The micronutrients analysed were calcium, zinc, iron, vitamin A and vitamin C. The following were the results of these analyses.

Price per gram of the edible portion of each food
This output generated the price (ND) per gram of the edible portion of the food. The higher the mean price of the food, the more expensive the food.

From the results, spinach was the most expensive (0.56) while protein sources such as dried caterpillars, (0.5), dried fish (0.3), polony (0.18), and raw goat (0.1) were the most expensive foods with costs exceeding 0.1 NAD/per gram per edible portion.

Cereal products were the least expensive per edible portion e.g. millet flour (0.01), maize flour (0.01), rice (0.02), omaere (0.03), sorghum flour (0.04), which had costs of less than 0.05 NAD/per gram of their edible portion. In addition, the different brands of infant formula had higher prices ranging between 0.12 – 0.16 NAD per gram while some of the fruits and vegetables had lower prices per edible portion e.g. apples (0.02), carrots (0.02), pumpkin (0.02), pears (0.02) and tomatoes (0.02).

Energy (kcal) in 1 unit of currency
This output generated the price (NAD) per energy (kcal) available in foods recorded for the market survey. The higher the value (kcals) or ranking of the food, the more energy amount is available in that food per unit cost. From the analysis, foods with relatively high energy amounts per NAD included; Sunflower oil (473.91kcals), millet flour, (358.79 kcals), brown sugar (316.93 kcals), white bread (302.58 kcals), maize flour (288.68kcals), rice (211.68 kcals), peanut butter (100.3 kcals), and sorghum flour (93.07kcals).

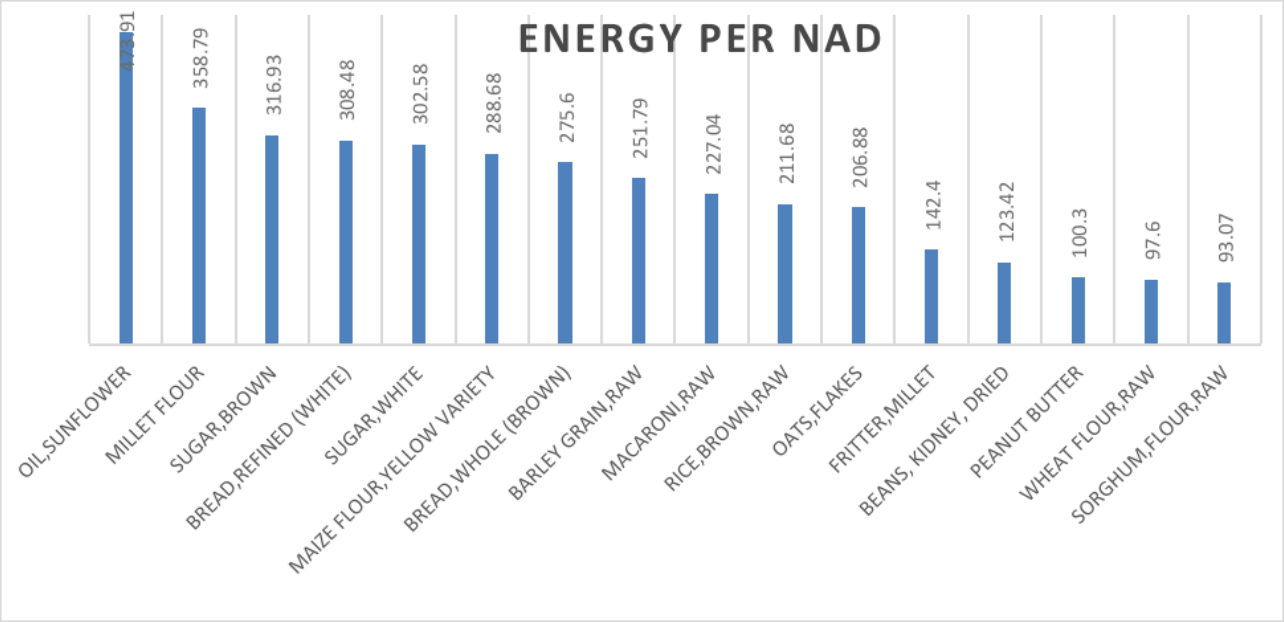


Figure 34: Energy per $1 Namibian dollar

Proteins (g) in 1 unit of currency.
This output generated the price (NAD) per gram of protein available in the foods which were recorded by the market survey. The higher the value (g) or ranking of the food, the more protein amounts available in the food per unit of currency. From the analysis, foods that had relatively high protein amounts per NAD included; brown bread (14.45g), millet flour (10.34g), kidney beans (8.66g), Macaroni raw (7.98g), barley (7.09g) beef liver (5.82g), peanut butter (4.1g), chicken meat with skin (3.71g), eggs (2.41g), and milk (1.93g).

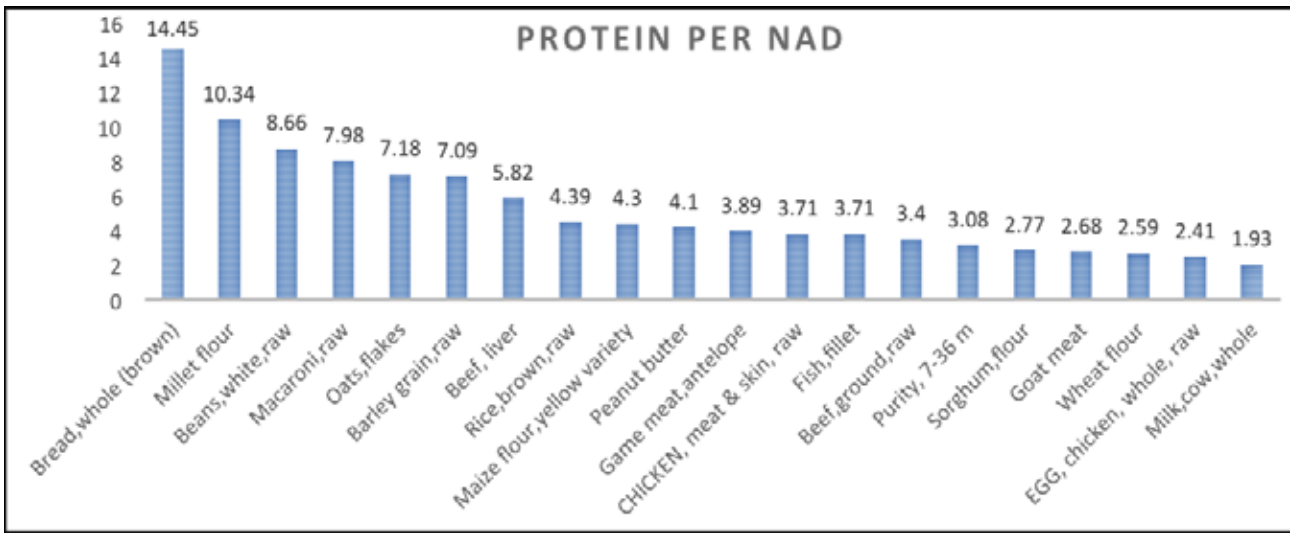


Figure 35: Grams of protein per $1 Namibian Dollar

Figure 35 above shows that bread and millet flour or mahangu flour as it is locally named, are the highest sources of protein relative to the cost. For $1 Namibian dollar, bread and mahangu flour give 14.5 and 10.3 grams of protein respectively, compared to chicken or beef that provide 3.7 and 3.4 grams respectively. While this graph suggests that bread and mahangu flour are better sources of protein for the dollar, the quality of the protein in these cereal foods is inferior to the protein from chicken or beef. Given that infants aged 6-8 months who are breastfed, only need 2.0 grams of protein per day, the use of high quality protein foods such as chicken or beef would be preferable. These protein rich foods also provide other essential nutrients such as iron and zinc.

Iron (milligrams) in 1 unit of currency

This output generated the price (NAD) per gram of iron available in foods recorded by the market survey. The higher the value (g) or ranking of the food, the more iron amount available in the food. From the analysis, foods with relatively high iron amounts per NAD included; white beans (3.87mg), millet flour (3.79mg), Pumpkin leaves (3.29mg), Purity, 7-36 months (3mg), brown bread (2.71mg), and oat flakes (2.32mg). Other iron-rich foods per NAD included barley (1.79mg), and sorghum flour (1.31mg).

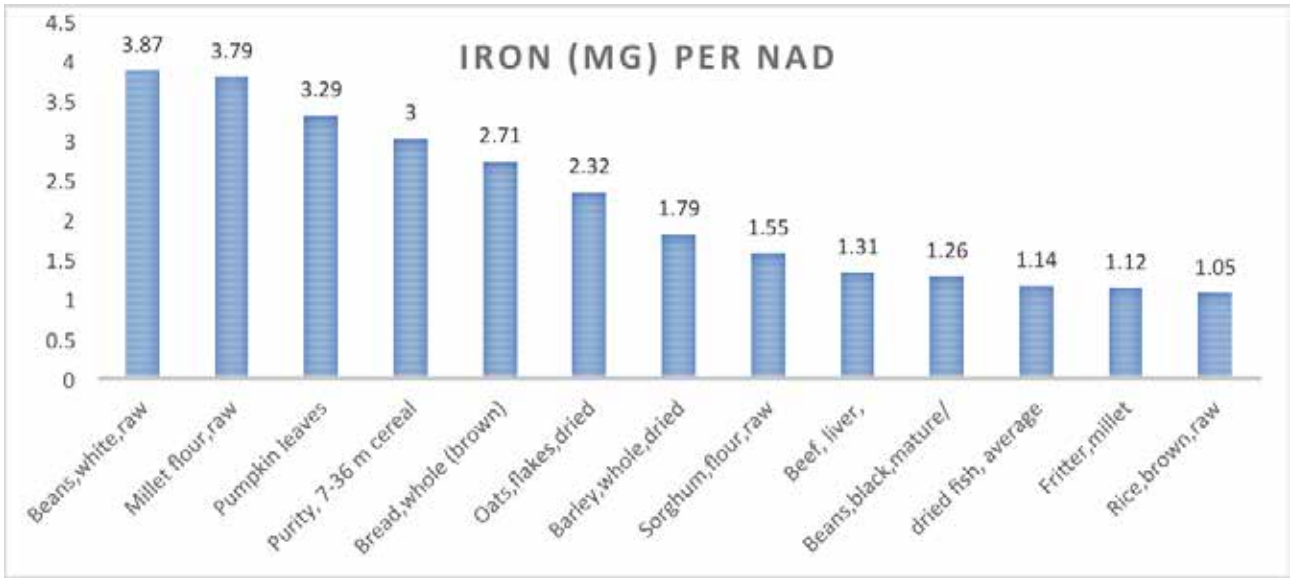


Figure 36: Milligrams of iron per $1 Namibian dollar

Vitamin C (milligrams) in 1 unit of currency

This output generated the price (NAD per gram of vitamin C available in the food which were identified by the market survey. The higher the value (mg) or ranking of the food, the more vitamin C amount available in the food. From the analysis, foods relatively high in vitamin C per NAD included; Oranges (41.01mg), Cabbage (39.85mg), potatoes, raw (16.76mg). Other foods that provided a good source of Vitamin C per NAD included: Lactogen 1(7.57mg), Onion (6.53mg), Purity (5.54mg), pumpkin (3.9mg), banana (3.46mg).

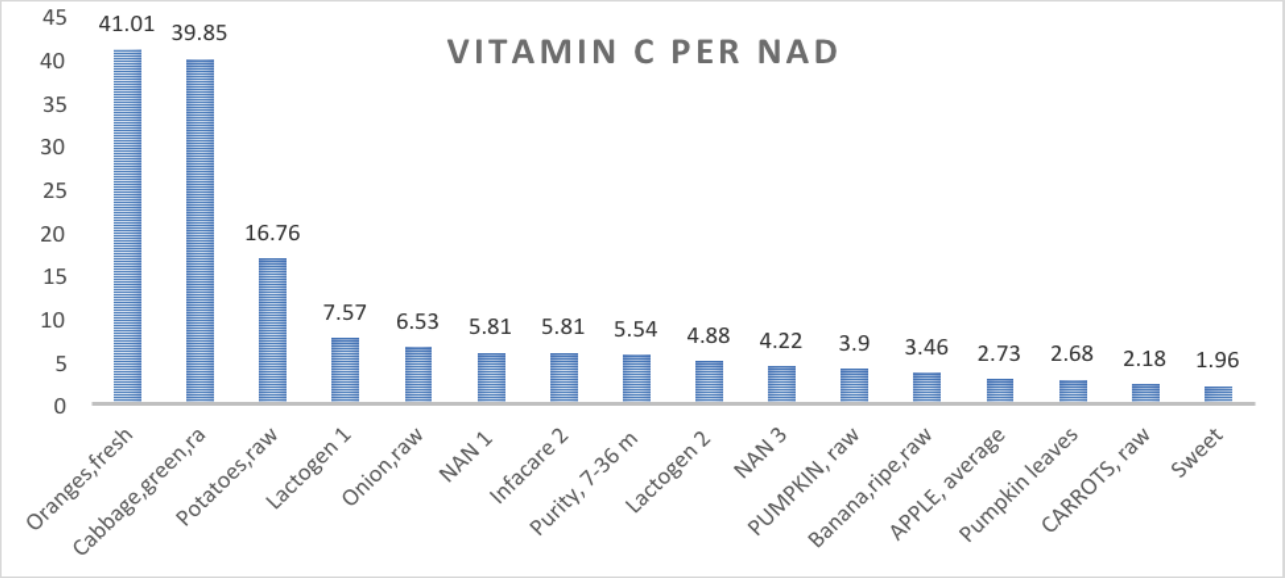


Figure 37: Milligrams of vitamin C per $1 Namibian dollar

Zinc (milligrams) in 1 unit of currency

This output generated the price (NAD) per gram of zinc available in the foods identified by the market survey. The higher the value (mg) or ranking of the food, the more zinc available in the food. From the analysis, the foods with relatively high zinc amounts per NAD included; millet flour (2.53mg), brown bread (2.01mg), oat flakes (1.99mg), barley (1.52mg), and white beans (1.36mg). Other foods that provided a good source of zinc per NAD included rice (1.18mg), beef, liver (1.06mg), macaroni (0.86mg), and sorghum flour, (0.56mg).

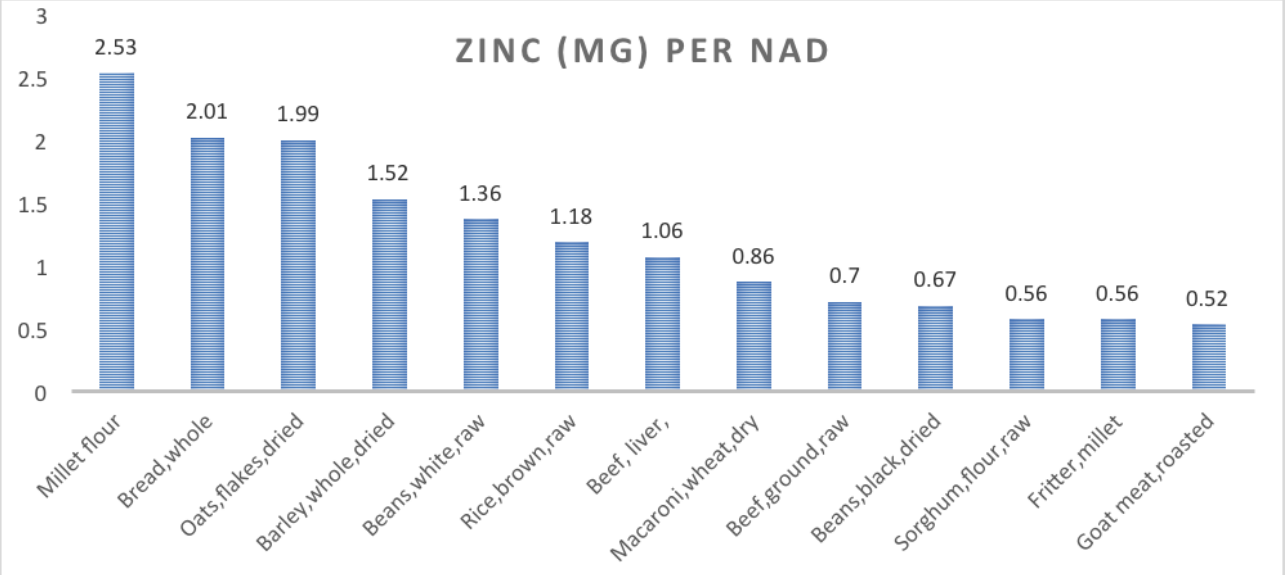


Figure 38: Milligram of zinc per $1 Namibian dollar

Calcium (milligrams) in 1 unit of currency

This output generated the price (NAD) per milligram of the calcium available in foods which had been identified by the market survey. The higher the value (mg) or ranking of the food, the more calcium available in the food. From the analysis, the foods with the highest amount of calcium per NAD included whole brown bread (119.39mg), dried fish (116.23mg), beans (88.95mg) and milk (70.63mg). Other foods that had a relatively high calcium amount per NAD included; Oshikandela (53.38mg), Infant formula- Infacare (53.01), Yoghurt (46.02mg), Omaere (37.21mg).

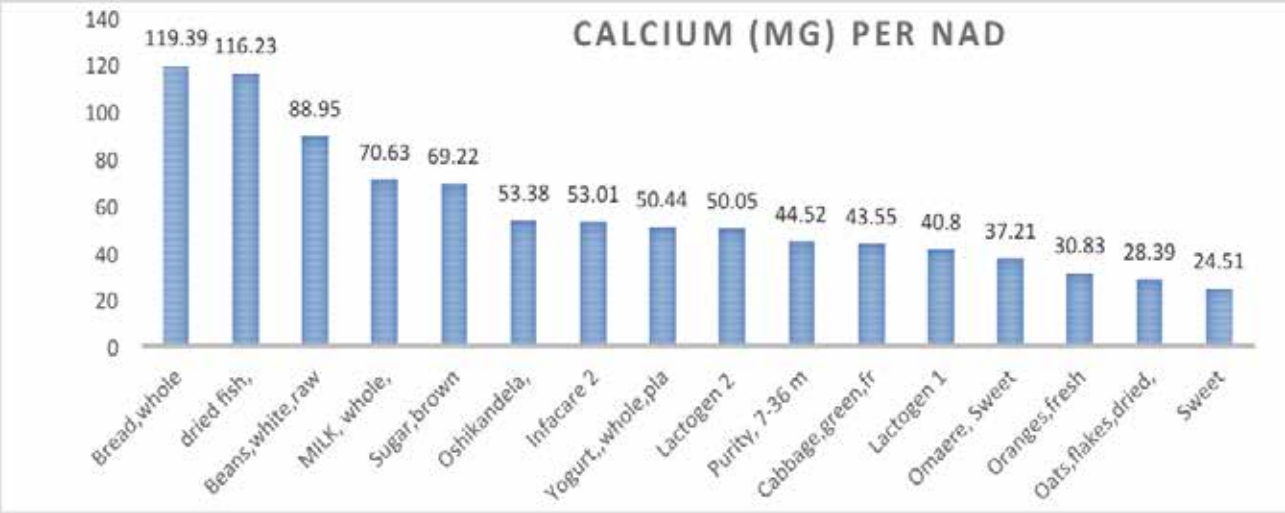


Figure 39: Milligram of calcium per $1 Namibian dollar

Vitamin A (micrograms of retinol equivalents-µg RAE) in 1 unit of currency

This output generated the price (NAD) per micrograms of retinol equivalents of vitamin A available in the foods identified by the market survey. The higher the value (µg RAE) or ranking of the food, the more vitamin A available in the food. From the analysis, the foods with relatively high vitamin A amounts per NAD included; Sweet potato, orange- S.A variety (2093.93 µg RAE), Beef, liver (1891.74 µg RAE), Carrots raw, (1770.71 µg RAE), Purity-7-36m, (203.22 µg RAE), Vegetables mixed (194.48 µg RAE). Other foods that provided a good source of Vitamin A per NAD included: Pumpkin, raw (75.97 µg RAE), Butter (72.65 µg RAE), Spinach (42.2 µg RAE), Milk, whole (27.66 µg RAE), Eggs (12.63 µg RAE).

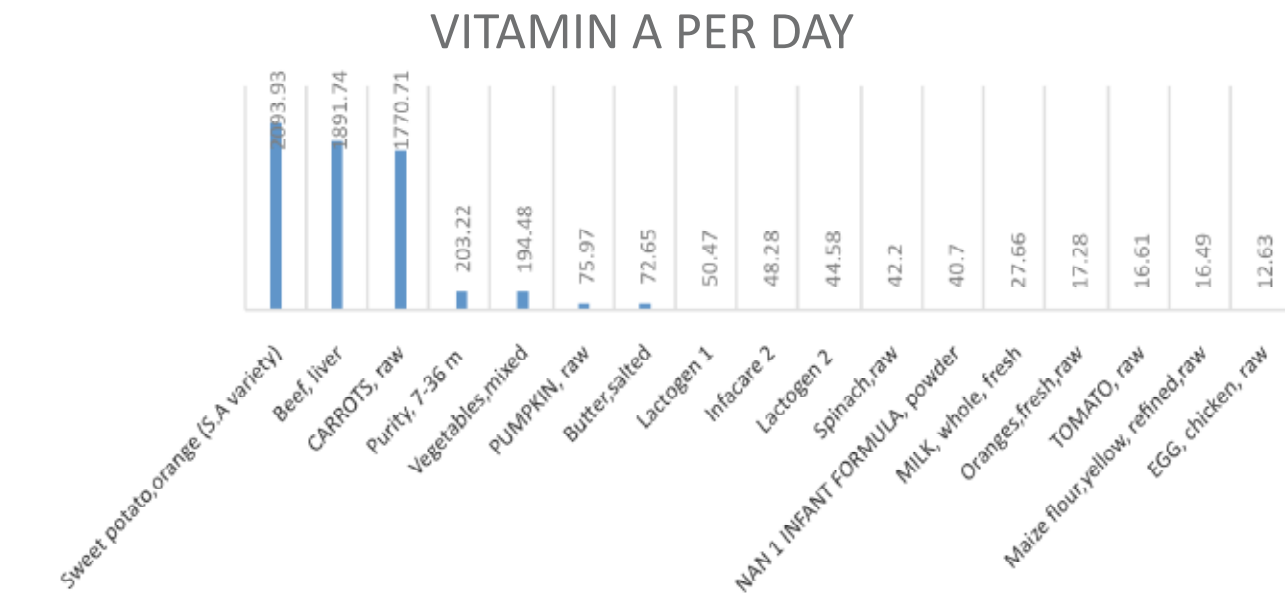


Figure 40: Micrograms of retinol equivalents (RAE) of vitamin A per $1 Namibian dollar

Conclusions from Market Survey results

Based on the results of the market survey it can be concluded that millet flour, bread and beans have the highest energy and nutrient density per unit of currency. The analysis however did not take into account the bioavailability of nutrients or the quality of protein sources. As explained previously, meat and animal source foods such as chicken, fish, eggs and milk are sources of high quality protein compared to the quality of protein in cereal foods, such as millet flour and bread.

Since both millet flour and bread are staple cereal foods that are commonly fed to infants and young children, they can be further enriched by adding vegetables such as cabbage, sweet potato, carrots and meat such as beef liver. Combining low cost staple cereal foods with meats and vegetables rich in nutrients can improve the dietary diversity available to infants and young children while ensuring affordability for caregivers.

Table 88: Energy and nutrient availability in low cost locally available foods

Food	Energy	Protein	Iron	Vitamin C	Zinc	Calcium	Vitamin A
Oil	x						
Millet flour	x	x	x		x		
Maize flour	x						
Bread	x	x	x		x	x	
Pasta		x					
Beans		x	x		x	x	
Pumpkin leaves			x				
Oranges				x			
Cabbage				x			
Potato				x			
Dried fish						x	
Milk, whole						x	
Sweet potato							x
Beef liver							x
carrots							x

Table 89: List of 20 foods frequently given to infants and young children and that are available at supermarkets and markets by zone

	ZONE 1	ZONE 2	ZONE 3	ZONE 4
	ZAMBEZI, KAVANGO WEST, KAVANGO EAST	OHANGWENA, OMUSATI, OSHANA, OSHIKOTO	KUNENE, OMAHEKE, OTJOZONDJUPA	ERONGO, HARDAP, KARAS, KHOMAS
1	Maize-meal	Mahangu	Maize-meal	Maize meal
2	Salt	Traditional Bread	Brown Bread	Mahangu
3	Sugar	Sorghum	White Sugar	Cooking oil
4	Mahangu	Bread	brown Sugar	Sugar
5	Cooking oil	Spinach Traditional	Cooking Oil	Bread
6	Knorr soup packet	Spinach dry	Fresh Milk	Macaroni
7	Onions	Fresh Spinach	macaroni	Tomatoes
8	Tomatoes	Wild Spinach	Spaghetti	Potatoes
9	Macaroni	Fresh Fish	Potatoes	Cooking oil
10	Butter	Five Roses Tea	Omaere: sweet	Roiboos tea
11	Five Roses Tea	White Sugar	Margarine	Salt
12	Rice	Rooibos Tea	Eggs	Onions
13	Fish	Apples	Game Meat	Fresh Milk
14	Chicken	Beef Meat	Mutton	Rice
15	Beef	Traditional Beans	Rice	Beef Meat
16	Cabbage	White dried beans	Beef stew	Omaere
17	Fat cake	Onion	Beef Mince	Chicken
18	Jiggies (chips)	Tomatoes	beef liver	Rice
19	Green Vegetables	Macaroni	Tomatoes	Soup packet
20	Spice	Cabbage	Cabbage	Juice

CHAPTER THREE: RECOMMENDATIONS

Summary of Recommendations

1. Develop a comprehensive communications strategy for IYCF and caring practices that includes but is not limited to the following;
    - Develop region or zone specific nutrition and child care messages for caregivers about breastfeeding practices; early initiation of breastfeeding, exclusive breastfeeding, continued feeding up to 2 years, and feeding the sick child 0-6 months, early home stimulation and hygiene promotion
    - Develop mechanisms for disseminating key messages to caregivers; IEC materials, radio spots, television commercials, social media, SMS and print media.
    - Develop a set of key messages and accompanying training aids for health care workers about breastfeeding practices; early initiation of breastfeeding, pre-lacteal feeding, colostrum, exclusive breastfeeding, continued breastfeeding up to 2 years and feeding the sick child 0-6 months and 6-23 months, early home stimulation and hygiene promotion
    - Develop a set of tools and training aids that integrate key messages about IYCF into maternal and child health services
    - Develop a set of key messages for nurses about complementary feeding practices; when to introduce complementary foods, information on age appropriate type, texture, amount of food and the frequency of meals
2. Analyse the nutritional composition of wild or locally grown indigenous foods/drinks
3. Develop a nutrition composition table for foods commonly given to children 6-23 months
4. Advocate for extension of maternity leave to at least 4 months at full pay
5. Advocate for breastfeeding friendly workplace initiatives and programmes
6. Carry out a market survey in all zones to assess the cost of a standard basket of foods suitable for infants and young children
7. Assess the quality of Early Childhood Development centres services
8. Develop a minimum package of integrated early childhood development services
9. Build capacity of health and social workers in the role of early home stimulation for child development
10. Implement Baby Mother Friendly Hospital initiative in all health facilities

Specific Recommendations relevant to each ideal practice

Ideal practice one: All infants breastfed for the first time within 1 hour of birth

The study found that breastfeeding initiation within the recommended time of one hour after birth occurred for only 58 % of infants. Mothers who reported receiving support and advice from nurses during ANC and at time of delivery are those that reported initiating breastfeeding within the first hour after birth. Mothers who gave birth at home were less likely to initiate breastfeeding within the first hour of birth.

- It is recommended that all hospitals and health centres meet all requirements for being accredited as Baby-Mother Friendly, whereby they have a policy and protocols to follow with regard to early initiation of breastfeeding and nurses are adequately trained to support mothers to initiate early, irrespective of method of delivery; natural or caesarian.

Ideal practice two: All infants not fed anything other than breastmilk during first 3 days of life

It is expected that all infants are not given Pre lacteal feeds; which means they are not fed anything before breastfeeding commences. 12 % of infants were given Pre lacteal feeds due to cultural beliefs, and because of a delay in some mothers' milk 'coming in'. The introduction of infant formula in lieu of breastmilk for mothers who reportedly 'did not have milk' was facilitated by nurses or family members in some cases. It is clear from the semi-structured interview responses that those women who received support and advice from nurses; doctors or nurses to exclusively breastfeed, and therefore not give Pre lacteal feeds, were better positioned to adhere to this ideal practice.

- The influence of nurses was reported by many women to be strong, therefore more effort should be made to strengthen the capacity of nurses to counsel and support mothers to breastfeed. Training nurses specifically as lactation consultants and placing them within maternity health services would be one recommendation to see a decrease in the number of infants receiving Pre lacteal feeds.
- Implementing the national Code of Marketing of Breastmilk Substitutes and subsequent regulations will also strengthen the health systems capacity to decrease the influence of breastmilk substitutes to undermine breastfeeding

Ideal Practice three: All infants are fed colostrum

The caregiver survey found that 88.3 % of infants were fed colostrum and that most of these infants were born in hospitals. Giving colostrum to an infant is an intervention that has been proven to reduce infant mortality.

- While the finding indicates the majority of infants are being given colostrum, not all infants are. In order to increase the number of children receiving colostrum, it is recommended that health facilities have breastfeeding policies in place and protocols to follow and that nursing and medical staff are adequately trained in recommended breastfeeding practices
- Community based Health Extension Workers also need to promote to mothers the importance of giving colostrum to newborns.
- Reasons given for not giving children colostrum relate to cultural and personal beliefs about colostrum or perceptions that it is 'bad milk'. Social marketing and promotion of breastfeeding messages, including the role of colostrum need to be developed and disseminated.

Ideal practice four: All infants and young children breastfed on demand, day and night

On the question of whether a child 0-24 months was breastfed the previous day, only 61.7 % of children were breastfed the previous day. Out of these, only 58 % were breast fed on demand.

The most cited reason for not breastfeeding on demand was the need for mothers or caregivers to return to work or school. In addition to this, many mothers and caregivers admitted not having any knowledge about whether breastfeeding on demand is recommended over feeding on a fixed schedule.

- Advocate for extended maternity leave for at least 4 months at full pay for mothers to remain at home to breastfeed their infants.
- A key recommendation is to include advice and information about feeding on demand at maternal health visits such as ANC and to strengthen nurses capacity to provide this information.

Ideal practice five: All infants less than 6 months exclusively breastfed

52 % of infants were exclusively breastfed. The most common reason given for women not to exclusively breastfeed from birth up to 6 months was the need for many mothers to return to work or school. Another key barrier was limited knowledge by women about how to exclusively breastfeed. It was also a common perception by many caregivers, that breastmilk alone is not sufficient for an infant younger than 6 months.

- It is recommended that a communications strategy be developed that includes key messages about breastfeeding for caregivers and nurses. The messages need to address the barriers identified and the communication channels used should be those identified as the most widely used such as radio and via interpersonal communication with nurses.
- It is also recommended that a social media and mass media campaign promoting breastfeeding be developed, using commercial advertising expertise.

Ideal practice six: All children breastfed through to the age of 2 years old or older

Breastfeeding through to age 2 years is not commonly practiced. Only 22% of children aged 20-24 months were breastfed the previous day.

The majority of caregivers cited no knowledge about the importance of continued breastfeeding up to 2 years of age. Reasons given for stopping breastfeeding before 2 years include; mothers need to return to work or school and beliefs that the child is old enough to stop when he/she can walk or stand.

- It is recommended that a communications strategy be developed that includes key messages about breastfeeding up to 2 years for caregivers and nurses. The messages need to address the barriers identified and the chose communication channels should be those identified as the most widely used such as radio and via interpersonal communication with nurses.
- Implementation and enforcement of national regulations for the Code of marketing of breastmilk substitutes will address marketing tactics that undermine continued breastfeeding.

Ideal practice seven: All infants and young children fed semi-solid complementary foods at the age of 6 months.

Complementary feeding started as early as age 3 months. About 31 % of infants under the age of 6 months received complementary foods. The findings for when children were given semi-solid complementary foods for the first time indicated a significant proportion are having complementary foods introduced too early, before the age of 6 months is reached. The reasons for why this practice is happening are similar to the reasons given for mothers not to exclusively breastfeed.

There is a belief that breastmilk alone is not sufficient to meet the nutritional and fluid needs of an infant less than 6 months and there is the pragmatic reason, that many women return to work or school and therefore choose to introduce other foods and drinks, which are often fed to the child by someone other than the mother in her absence.

- Based on this common perception about breastmilk not being enough, a strong action oriented message needs to be developed to counter this. Caregivers not only need to know that breastmilk is enough from birth to 6 months, they also need guidance on how to exclusively breastfeed and when and how to introduce complementary foods.

Ideal practice eight: All infants and young children aged 6-24 months meet recommended daily energy and nutrient requirements

Overall, only 58 % of the surveyed infants and children receive at least 50% of their daily energy requirements and there are some striking variations across the different regions with respect to consumption of energy and nutrient rich foods.

- Develop key action oriented messages about complementary feeding, focusing on the components of ‘amount, frequency, texture, variety or diversity and associated hygiene messages.
- Promote to caregivers the use of locally available foods for use as complementary foods
- Develop tools and aids for nurses to use during IYCF counselling sessions about age appropriate complementary feeding
- Train community nurses to conduct complementary feeding cooking demonstrations

Ideal practice nine: All infants and young children aged 6-24 months fed nutrient and energy dense foods

None of the children surveyed obtained at least 50 % of his or her requirement for nutrient density.

- Develop key action oriented messages about complementary feeding, focusing on the components of ‘amount, frequency, texture, variety or diversity and associated hygiene messages.
- Promote to caregivers the use of locally available foods for use as complementary foods
- Develop tools and aids for nurses to use during IYCF counselling sessions about increasing dietary diversity

Ideal practice ten: All infants and young children 6-24 months fed recommended number of meals daily

Overall, 79.2 % of infants and children are receiving adequate number of meals per day.

Based on the findings for ideal practice 8, 9 and 10 that assessed the nutritional adequacy of the surveyed children’s’ dietary intakes, it is clear that the majority of children are receiving an adequate number of meals per day, however the nutritional value of those meals is very low. The intake of nutrient dense foods is very low, which is apparent from the list of foods most commonly given to children.

In order to improve the nutrient density of children's meals, there is a need to sensitize caregivers about what foods are locally available that can be used to enrich those meals being given. Caregivers can be taught what foods or ingredients can be added to porridge to increase its nutritional value. It is therefore recommended that;

- Nutritional composition of locally grown and wild foods be analysed and reported
- Implement Module two of ProPAN, testing acceptability of new recipes for complementary foods firstly in regions with the lowest findings for nutrient density and then scale up to remaining regions.
- Include messages about nutritional value of locally grown foods in regional communications strategies
- Strengthen capacity of nurses to give information and advice to caregivers about nutrient dense food choices
- Train health extension workers, community based volunteers or community members identified as a positive role model to conduct complementary food cooking demonstrations
- Promote and support home gardens that focus on growing vitamin A and iron rich vegetables
- MoHSS to collaborate with and support household food security initiatives that focus on improving household access, availability and affordability of nutrient rich foods

Ideal practice eleven: All infants and young children 6-24 months fed by caregiver responsive to the child

The findings showed that 57 % of children are at some point during a main meal, self-feeding. While children should be encouraged to eventually become independent at feeding themselves, children less than 2 years' risk not consuming adequate quantities of food if they are self-feeding most of the time during meals. Very few caregivers understood the concept of responsive feeding and the majority used forceful tactics if they judged that the child had not eaten a sufficient amount at mealtimes.

Caregivers who received information and guidance from nurses and nurses were more aware of positive responsive feeding practices.

- It is recommended that key messages about responsive feeding be included in the package of health messages for delivery by nurses and nurses. It is also recommended that Early Childhood Development teachers and carers be trained on infant and young child feeding practices and that they are provided with appropriate IEC materials to use when counselling parents.

Ideal practice twelve: All infants and young children 6-24 months fed as recommended during and after illness

The findings clearly indicate that caregivers breastfeed less and or give less food and other drinks to infants and young children during illness compared to when they are healthy, and they breastfeed and give other foods more often than normal after illness. The findings indicate limited knowledge of caregivers about how to feed a child who is sick and limited knowledge of health care workers to support caregivers with the right advice and information.

- It is recommended that messages about how to feed a sick child be included in the package of IYCF messages for health care workers and caregivers.
- Attention needs to be given to nurses who have responsibility for attending to sick child visits so they are equipped with training in counselling skills, job aids and IEC materials to provide caregivers correct information and counselling support regarding how to feed a sick child.

APPENDIX 1: SAMPLE SIZE CALCULATIONS AND ALLOCATION

The sample size (eligible children together with their caretakers) is calculated using the simple random sample (SRS) formula and then adjusted to cover for the loss in precision due to clustering since the design is a two stage cluster sample design. This adjustment is based on the design effect (Deff) which is taken as two for this survey. This means the SRS sample is doubled. There was still a problem. How do we get these children and their caretakers for the interviews? To get over this it is necessary to calculate the number of sample households needed to get the expected sample children. This was done using the factor "the number of households needed to get one eligible child" based on the 2011 census data. Then finally the number of households in the sample could be fixed.

All the selected households may not be covered due to various reasons such as respondents not at home, refusals (non-response) etc. This will reduce the expected number of sample children and hence will affect the precision. Therefore, to cover for this loss the sample size (households) was raised using an assumed 10% non-response. However, it should be noted that this adjustment covered only for the loss in precision but not the likelihood of resulting bias. The final sample size in terms of households was reached after all these adjustments.

Initially the sample size was calculated assuming that the domains of estimation were the 14 regions. But it was found that this sample size was too large for the available budget. Therefore the domains were reduced to four zones where each zone contains certain number of regions. The zonal distribution given in table 1 is reproduced here for easy reference.

Zones	Regions
Zone 1	• Kavango East • Kavango west • Zambezi
Zone 2	• Ohangwena • Oshana • Oshikoto • Omusati
Zone 3	• Kunene • Omaheke • Otjozondjupa
Zone 4	• Erongo • Hardap • !karas • Khomas

The first component of the sample size based on SRS was calculated using the following formula.

$$n_{SRS} = \frac{Nk^2pq}{(NE^2 + kpq)}$$

Where *n* = *Sample size*
N = *Population size*
k = *Critical value for the 95% confidence level = 1.96*
p = *Estimated population proportion taken as 50% in the absence of real figures*
q = *1- p= 50%*
E = *Expected margin of error in the estimates = 10% margin of error was expected for each of the zones.*

The col 11in the table below gives the results of this computation for each of the zones.

Adjustment for clustering is compiled as follows.

$$n_{Cluster} = 2 \times n_{srs}$$

Column 13 gives the adjusted sample sizes (eligible children) for clustering.

Sample households were compiled using the factor (number of households needed to get one eligible child) developed on the 2011 census data. The factor is in column 4 of the table and the computed sample households are in column 14 and Column 16 gives the non-response adjusted sample households.

It was decided that the number of households to be selected from each of the sampled PSUs should be 16. Based on this the number of PSUs to be covered is given in column 18 of the table. The budget would not allow reducing this number of households per PSU so that a larger spread of PSUs could be obtained.

Table 1.1 Sample size for 4 domains (4 zones), (minimum requirement per zone to achieve 10% ME)

Region	H'holds	Chidren aged 0-4	Ratio (hhs per child)	p	q	k	k^2	E 10%	E^2	n_{srs}		$n_{cluster}$	Sample h'holds		Sample households (Adjusted for NR)		Sample PSUs (16 hhs per PSU)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Zambezi	21283	12978																
Kavango East	20,797	14601																
Kavango West	14,605	20778																
Zone1	**56,685**	**48,357**	**1.17222**	**0.5**	**0.5**	**1.96**	**3.84**	**0.1**	**0.01**	**95.85**	**96**	**192**	**225.1**	**226**	**251.1**	**252**	**15.8**	**16**
Ohangwena	43723	37985																
Omusati	46698	33706																
Oshana	37284	21497																
Oshikoto	37400	25582																
Zone 2	**165105**	**118770**	**1.39012**	**0.5**	**0.5**	**1.96**	**3.84**	**0.1**	**0.01**	**95.96**	**96**	**192**	**266.9**	**267**	**296.7**	**297**	**18.6**	**19**
Kunene	18495	14280																
Omaheke	16174	10656																
Otjozondjupa	33192	20199																
Zone 3	**67861**	**45135**	**1.50351**	**0.5**	**0.5**	**1.96**	**3.84**	**0.1**	**0.01**	**95.84**	**96**	**192**	**288.7**	**289**	**321.1**	**322**	**20.1**	**21**
Erongo	44116	16240																
Hardap	19307	9420																
//Kharas	20988	8639																
Khomas	89438	36593																
Zone 4	**173849**	**70892**	**2.45231**	**0.5**	**0.5**	**1.96**	**3.84**	**0.1**	**0.01**	**95.91**	**96**	**192**	**470.8**	**471**	**523.3**	**524**	**32.8**	**33**

APPENDIX 2: ALLOCATION OF THE PSUs

Table 1.1 in Appendix 1 gives the minimum number of PSUs needed to achieve 10% margin of error for any estimate at the zonal level. Production of the national level estimates requires that the PSU distribution to be proportional to their population size at least approximately. Hence the total number of PSUs derived above should be allocated proportionally to the zones. This proportional allocation may not yield the minimum number of PSUs for a zone if the population size of the zone is relatively small. Hence a compromise allocation procedure and some adjustments may have to be applied to get a realistic distribution of PSUs so that both requirements would be satisfied to some extent.

Table 2.1 Proportional allocation.

Zone	Minimum number of PSUs	Population size (eligible children)	Number of PSUs based on Proportional allocation	
Zone 1	16	48357	15.19	15
Zone 2	19	118770	37.33	38
Zone 3	21	45135	14.18	14
Zone 4	33	70892	22.28	22
Namibia	89	283154	89	89

The zones 3 and 4 do not have adequate number of PSUs while zone 1 has a number close to the requirement but still less. On the other hand zone 2 has a much larger number than required. This happens because of the skewed population distribution. To address this problem PSUs could be allocated proportional to a size raised to a fractional power of the population size. Also at this stage the subject matter specialists felt that the overall number of PSUs may be too small to represent the regions within the zones and hence wanted to raise the number. But the constraints on the budget made it difficult and ultimately the total number of PSUs was raised to 104. The allocation was done proportional to the population size raised to the power of 0.3. This allocation was then adjusted to get the 33 PSUs required for the zone 4. The adjusted number of PSUs for each zone is found in the last column of the table 2.2 below.

Table 2.2 Adjusted sample PSUs

Zone	Minimum number of PSUs	Population size (eligible children)	Population size raised to the power of 0.3 (eligible children)	Number of PSUs based on allocation proportional to the size raised to the power of 0.3		Number of sample PSUs adjusted
Zone 1	16	48357	25.43	23.58	24	20
Zone 2	19	118770	33.30	30.88	31	28
Zone 3	21	45135	24.91	23.10	23	23
Zone 4	33	70892	28.52	26.45	26	33
Namibia	**89**	**283154**	**112.16**	**104**	**104**	**104**

APPENDIX 3: CALCULATION OF WEIGHT

The weight is calculated as follows:

Sampling stages

First stage – Selection of the PSUs from the national sample frame

Second stage – selected PSU Selection of the eligible household from the prepared list of households within the

Third stage – Selection of one child from a list of eligible children within a household

Probabilities of selection

First stage

Probability of selection of PSUs – p_1

$$p_1 = \frac{M_{hi} \times m_h}{M_h}$$

Where M_{hi} M_{hi} = Size of the ith PSU in the hth stratum
Number of households within the PSU as shown in the national sample frame

M_h M_h = Size of the hth stratum
Total number of households in the hth stratum

m_h m_h = Number of PSUs selected from the hth stratum

Second stage

Probability of selection of household – p_2

$$p_2 = \frac{n_{hi}}{L_{hi}}$$

Where L_{hi} L_{hi}= Listed eligible households within the PSU (i.e. households with atleast one child under the age of five)

n_{hi} n_{hi} = sampled households in the ith PSU in the hth stratum. This is fixed to 16 households per PSU.

If there is a small non response in terms of the households then n_{hi} n_{hi} will be replaced by r_{hi} r_{hi} (responding households in the ith PSU in hth stratum)

Hence, $p_2 = \frac{r_{hi}}{L_{hi}} p_2 = \frac{r_{hi}}{L_{hi}}$

Third stage

Probability of selection of a child – p_3

$$p_3 = \frac{1}{C_{hh}}$$

Where C_{hh} = Total number of children aged 0-4 in the selected households

Inclusion probability of a child in the sample - p_h

$$p_h = p_1 * p_2 * p_3$$

Base weight (design weight) - w_{hi}

Therefore the base weight, $w_{hi} = \frac{1}{p_h} w_{hi} = \frac{1}{p_h}$

APPENDIX 4: CAREGIVER QUESTIONNAIRE

Republic of Namibia
Ministry of Health and Social Services
REGISTRATION FORM FOR THE *CAREGIVER SURVEY* (FORM I-3.1)

CAREGIVER SURVEY for infants aged 0-59months

Good morning/afternoon, my name is _____ and I'm working for the Ministry of Health and Social Services to carry out a study about feeding and care practices of children under 5 years of age. The information collected from this survey will be used by the MoHSS to develop a program to support mothers and caregivers to improve the feeding and care practices of children.

Could you please confirm that you are the mother of a child less than 5 years of age? (If THE CHILD'S CAREGIVER IS NOT PRESENT, STOP THE SURVEY AND RETURN TO THE HOME, UP TO 2 TIMES AT A LATER DATE. If the mother is no longer present in the child's life, interview the main caregiver.)

Could I ask you some questions regarding the feeding of the child less than 5 years of age living in the home? The information that you provide will be 100% confidential. (READ THE CONSENT LETTER, HAVE IT SIGNED AND GIVE THE PERSON A COPY.)

I. IDENTIFICATION

1.	Date survey is applied	Date……..__ __/ __ __ /__ __ __ __ *day month year*
2.	Enumerator code	Code……___ ___
3.	Survey results	Complete……..……..01 Incomplete……..……..02
		Dates of follow up visits: Visit 1……..__ __/ __ __ /__ __ __ __ *day month year* Visit 2……..__ __/ __ __ /__ __ __ __ *day month year*
4.	Child's code	Code……..___ ___ ___ ___
5.	Full Address (WRITE THE REGION, CONSTITUENCY, VILLAGE, STREET, NEIGHBORHOOD, ETC.) GPS Coordinates	_____ _____ ----------
6.	Supervisor's code	Code……..___ ___
7.	Date reviewed by supervisor	Date……..__ __/ __ __ /__ __ __ __ *day month year*

II. INTRODUCTION

10.	What is your name?	_____	
11.	What is the child's name?	_____	
12.	What is your relation to CHILD's NAME?	Mother…….. 01 Father…….. 02 Other, specify: _____77	
13.	Are you the main caregiver of CHILD'S NAME?	Yes……..01 No……02	

III. SCREENING:

20.	Could you please show me an immunization record or birth certificate with CHILD'S NAME's birthdate?	Yes……..01 No……..02	
21.	What is CHILD'S NAME's birth date? (IF UNKNOWN, CALCULATE FROM A LOCAL CALENDAR OF HOLIDAYS OR FESTIVALS.)	Date……. __ __/ __ __ /__ __ __ __ day month year	
22.	How many months old is CHILD'S NAME?	__ __ months	
23.	Is CHILD'S NAME a boy or a girl?	Male……..01 Female……02	

IV. BREASTFEEDING and COMPLEMENTARY FEEDING

Now I am going to ask you some questions regarding your pregnancy, what you fed your baby in the first few days after he/she was born and current breastfeeding and complementary feeding practices. **CIRCLE THE RESPONSE**			
30.	During your pregnancy with CHILD'S NAME, how many times did you visit a health care center for an ANC visit?	Number of visits……..___ ___ Does not knw……..99	
31.	Where was CHILD'S NAME born?	In the hospital……..01 In the health center or clinic……..02 In the home……..03 In the TBA's home……04 Other, specify:_____77 Does not know……..99	
32.	Did you ever breastfeed CHILD'S NAME?	Yes……01 No……02 Does not know……..99	02→50 99→50
33.	How many hours after birth did you breastfeed CHILD'S NAME for the first time?	Within 1 hour after birth……..01 From 1 to 3 hours after birth……02 More than 3 hours after birth……03 Does not know……..99	
34.	Did you feed colostrum (the first breast milk) to CHILD'S NAME? (EXPLAIN THAT COLOSTRUM IS THE BREAST MILK THE FIRST FEW DAYS AFTER BIRTH, IT IS MORE YELLOWISH AND THICKER THAN MATURE BREAST MILK.)	Yes……01 No……02 Does not know……..99	
35.	During the first 3 days after birth, was CHILD'S NAME given anything other than breast milk?	Yes……01 No……..02 Does not know……..99	02→37 99→37
36.	What was CHILD'S NAME given?	Tea……01 Water (includes sugar water) ……..02 Infant formula……..03 Other non-breastmilk milks……..04 Thin porridge……..05 Other, specify:_____77 Does not know……..99	
37.	During the first 3 days after birth, were you offered any practical support or advice to help you start breastfeeding CHILD'S NAME?	Yes……01 No……02 Does not know……..99	

Now I have few questions about breastfeeding CHILD'S NAME since this time yesterday.			
38.	Yesterday, did you breastfeed CHILD'S NAME?	Yes……01 No……02 No longer breastfeeding……77 Age stopped breastfeeding……___ Does not know……99	02→50 77→50
39.	Yesterday, did CHILD'S NAME drink breastmilk from a cup or a bottle?	Yes……01 No……02 Does not know……99	01→50
40.	Yesterday, did you breastfeed whenever CHILD'S NAME wanted or on a fixed schedule?	When the child wanted……01 On a fixed schedule……02 Does not know……99	
Now I would like to ask about feeding solid or semi-solid foods to your child.			
50.	Who mainly decides what CHILD'S NAME eats?	The mother……01 A grandparent……02 A sibling……03 An aunt/uncle……04 A neighbor/friend……05 The father……06 Other, specify:_____77 Does not apply (child does not eat solid foo ds)……88	88→53
51.	Generally speaking, how is CHILD'S NAME's appetite when she/he is healthy?	Eats too much……01 Eats well……02 Eats a little……03 Does not know……99	
52.	At what age did you feed CHILD'S NAME his/her first solid/semi-solid food? By solid or semi-solid foods we mean food that is thick, not a soup, broth or thin porridge.	Age in months ……___ ___ Less than 1 month……00 Does not know……99	
Now we are going to discuss the feeding of CHILD'S NAME since this time yesterday. **CIRCLE THE RESPONSE**			
53.	Are you the person who fed CHILD'S NAME yesterday?	Yes……01 No……02	02→ 67
54.	Yesterday, what liquids other than breastmilk was CHILD'S NAME given? (READ ALL OPTIONS)	None……01 Tea……02 Water (includes sugar water) ……03 Infant formula……04 Other milks……05 Other, specify:_____77 Does not know……99	
55.	Yesterday, did CHILD'S NAME have anything to drink from a bottle with a nipple?	Yes……01 No……02 Does not know……99	
56.	Yesterday, did CHILD'S NAME eat any solid or semi-solid foods?	Yes ……01 No……02 Does not apply (child does not eat solid foo ds)……88 Does not know……99	02→67 88→67 99→67

Now I would like to ask some questions about how CHILD'S NAME was fed yesterday during any of the main meals. **CIRCLE THE RESPONSE**			
60.	Yesterday, at any of the main meals, did CHILD'S NAME eat all the food you thought he/she should?	Yes……01 No……02 Does not know……99	
61.	Yesterday, during any of the main meals, did you do anything to encourage CHILD'S NAME to eat?	Yes……01 No……02	02→63
62.	What did you do? (WRITE DOWN WHAT CAREGIVER SAID. CODE ALL RESPONSES AFTERWARDS. MULTIPLE RESPONSES ALLOWED.)	Offered another food or liquid……01 Encouraged verbally……02 Modeled eating (with or without toy)……03 Ordered strongly or forced the child to eat…04 Another person helped feed child……05 Another form of encouragement (specify)….06 Does not know……99	
63.	Yesterday, during the main meal while feeding CHILD'S NAME, did you talk to her/ him?	Yes……01 No……02 Does not know……99	02→65 99→65
64.	What did you say? (WRITE DOWN WHAT CAREGIVER SAID. CODE ALL RESPONSES AFTERWARDS. MULTIPLE RESPONSES ALLOWED.) _____ _____	Ordered child to eat……01 Praised child……02 Asked child questions……03 Talked about the food ……04 Threatened the child……05 Told child that she liked the food……06 Rewarded the child……07 Talked about other things (specify)……08 Does not know……99	
65.	Yesterday, during the main meal, did CHILD'S NAME self-feed **(eat by him/ herself, using hands or utensil**) at any moment during the meal?	Yes……01 No……02 Does not know……99	02→ 67 99→67
66.	Yesterday, during the main meal, did CHILD'S NAME self-feed the whole time, half of the time, or for little time?	All of the time……01 Half of the time……02 Little bit of time……03 Does not know……99	

Now we are going to talk about the breastmilk, liquids and foods you gave to CHILD'S NAME during the last time he/she was sick. **CIRCLE THE RESPONSE**			
67.	The last time CHILD'S NAME was sick, did you offer less, more or the same amount of breast milk as when CHILD'S NAME is healthy? IF THEY RESPOND "LESS" THEN PROBE "WHY?"	Less, because the child did not want it……01 Less, because mother's decision……02 More……03 The same……04 Child never breastfed or child stopped breastfeeding before last illness……05 Child has never been sick……88 Does not know……99	88→80
68.	The last time CHILD'S NAME was sick, did you offer less, more or the same amount of non-breast milk liquids as when CHILD'S NAME is healthy? (IF THEY RESPOND "LESS" THEN PROBE "WHY?")	Less, because the child did not want it……01 Less, because caregiver's decision……02 More……03 The same……04 Child never fed non-breast milk liquids……88 Does not know……99	
69.	The last time CHILD'S NAME was sick, did you offer less, more or the same amount of foods as when CHILD'S NAME is healthy? IF THEY RESPOND "LESS" THEN PROBE "WHY?"	Less, because the child did not want it……01 Less, because caregiver's decision……02 More……03 The same……04 Child never fed foods……88 Does not know……99	88→80
70.	After the illness ended, did you offer less, more or the same amount of food as when CHILD'S NAME is healthy? IF THEY RESPOND "LESS" THEN PROBE "WHY?"	Less, because the child did not want it……01 Less, because caregiver's decision……02 More……03 The same……04 Does not know……99	

V. HEALTH AND OTHER SERVICES

Now I would like to discuss CHILD'S NAME's visits to health facilities in the past 3 months. **CIRCLE THE RESPONSE**			
80.	In the **past 3 months**, since _____ (MONTH), have you taken CHILD'S NAME to a hospital, health center, mobile unit, or any other health service? (READ ALL OPTIONS)	Hospital……01 Health center or clinic……02 Outreach point……03 Mobile unit……04 Private doctor……05 Other, specify _____77 Has not taken child……88 Does not know……99	88→82 99→82
81.	In the past 3 months, at any of these places (health facilities), was CHILD'S NAME measured for: (READ ALL OPTIONS)	Weight: Yes 01, No 02, Does not know 99 Length: Yes 01, No 02, Does not know 99 Mid Upper arm circumference: Yes 01, No 02, Does not know 99	

Next I have a few questions about vitamin and mineral supplements and other nutrition products. **CIRCLE THE RESPONSE**						
			Yes	No	Does not know	
82.	During the **past 3 months**, since _____ (MONTH), did CHILD'S NAME ever take/receive any of the following? [ONLY ASK ABOUT PRODUCTS/ SERVICES LOCALLY PROVIDED. IF PROVIDED, SHOW THE MOTHER/ CAREGIVER THE PRODUCT THAT YOU ARE ASKING ABOUT]	Iron supplement or syrup? (For example, ferrous sulfate)	01	02	99	
		A multi-vitamin and mineral supplement, syrup or powder (such as Sprinkles)?	01	02	99	
		Lipid nutrient supplement, (such as Plumpy Nut)	01	02	99	
		Supplementary food, (such as Corn Soya Blend or FBF or RUSF	01	02	99	
		General food rations	01	02	99	
		Vouchers for food	01	02	99	
		Cash assistance to help purchase food [USE LOCAL PROGRAM NAME]	01	02	99	
83.	During the past 6 months, since _____ (month), did CHILD'S NAME ever take a vitamin A capsule, supplement or syrup?	Yes……..01 No……..02 Does not know……99				

VI. HEALTH COMMUNICATION

Now, I would like to discuss where you receive messages about feeding children. **CIRCLE THE RESPONSE**			
90.	In the past 1month, did you hear or receive any messages or information on child feeding?	Yes……01 No……02 Does not know……99	02→93 99→93
91.	Where or from whom did you receive the messages? (DO NOT READ LIST) (MULTIPLE ANSWERS, CHOOSE ALL THAT APPLY)	Yes 01 - Health facility……01 02 - Community health worker……01 03 - Traditional health providers……01 04 - A family member……01 05 - Neighbor/friend……01 06 - A child who attends school……01 07 - Community gathering……01 08 - Radio……01 09 - Television……01 10 - Internet……01 11 - Mobile phone messaging……01 12 - Printed materials……01 13 - Religious institution……01 14 - Mother-to-mother group……01 77 - Other, specify _____ 01 99 - Does not know/remember……01	
92.	Do you remember what the message(s) said? (IF THE MOTHER/ CAREGIVER ANSWERS NO, ASK HER TO TRY TO REMEMBER, REPEAT THE QUESTION AND WAIT FOR A REASONABLE AMOUNT OF TIME)	Yes……01 Please describe: _____ _____ _____ _____ No……02	
93.	How often do you listen to the radio?	Daily 7 (days a week) ……01 2 to 6 days a week ……02 Once a week……03 Once every 2 weeks ……04 Once a month……05 Rarely……06 Never……07 Other, specify_____ 77 Does not know……99	
94.	Do you ever watch television?	Yes……01 No……02	
95.	Do you (the mother/caregiver) participate in any community organizations or social programs? (MENTION EXAMPLES: MOTHER'S GROUPS, YOUTH GROUPS, COMMUNITY KITCHENS, HEALTH COMMITTEES, RELIGIOUS GROUPS, ETC.)	Yes……01 No……02 Does not know……99	02→100 99→100
96.	In which organizations or programs do you participate? (WRITE ALL THE ORGANIZATIONS AND PROGRAMS THE MOTHER/CAREGIVER MENTIONS)	_____ _____ _____ _____ _____ _____	

VII. FAMILY INFORMATION

Now, I will ask you some questions regarding this family and home. **CIRCLE THE RESPONSE**			
100.	How many people live in the home, including you, young children and elderly? (WRITE THE NUMBER)	Number……..___ ___	
101.	How many of them are less than five years of age? (WRITE THE NUMBER)	Number……..___ ___	
102.	How old are you?	Age……..___ ___ Does not know……..99	
103.	Are you (READ THE FIRST THREE OPTIONS)	Single……01 Married/have a partner……..02 Separated/divorced/widowed……..03 Other (specify)……..77 Does not know……99	
104.	Do you know how to read and write?	Yes……01 No (cannot read at all)……..02 Able to read a little……03 Blind/visually impaired……..04	
105.	What is the highest grade/form/year of school that you completed?	Grade/form/year……..___ ___ Did not study……00 Other (specify)_____77 Does not know……99	
106.	In your household, who usually makes decisions about purchasing food for <u>CHILD'S NAME</u>?	Mother/caregiver……01 Husband/partner or other man in the household……02 Mother/caregiver and father together……..03 Elder person in household/family (e.g. the grandparent of the child)……..04 Mother/caregiver together with the elder person……05 Other person, specify _____77 Mother/caregiver together with this other person……..06 Does not know……99	
107.	In what store or markets do you buy food? (WRITE THE NAME AND APPROXIMATE LOCATION	Name of supermarket _____ _____ _____ Name of open market _____ _____ _____ _____ _____	

Now, I would like to discuss any employment you may have and some questions about accessing health care, provision of safe spaces for children to play. **CIRCLE THE RESPONSE**			
108.	Aside from your own housework, have you done any paid work in the last seven days?	Yes……..01 No……..02 Does not know……..99	02→110 99→110
109.	If yes, what is your occupation, that is, what kind of work do you mainly do?	Vendor……..01 Agricultural worker……..02 Office worker……..03 Service worker……..04 Education/research……..05 Healthcare……..06 Other, specify_____77	
110.	Does anyone in your household grow food? If yes, tell me about all the types of food that are grown. (CHECK ALL THAT APPLY)	Yes (grains, roots, tubers)……..01 Yes (legumes, nuts)……..02 Yes (orange or yellow fruits & veg)……..03 Yes (green leafy vegetables)……..04 Yes (any other fruits & vegetables……..05 Yes (other: Specify)_____77 No……..07 Does not know……..99	
111.	Does this household own livestock, herds, other farm animals, poultry or fish? If yes, tell me about all the types of animals that you have. (CHECK ALL THAT APPLY)	Yes (chickens, ducks, any other birds: For the meat……..01 Yes (chickens, ducks, any other birds: For the eggs……..02 Yes (cows, goats, sheep, pigs or other large mammals for the meat……..03 Yes (cows, goats, sheep for the milk)……04 Yes (rabbits, guinea pigs, other small mammals)……..05 Yes(fish)……..06 No……..07 Does not know……..99	
112.	Does everyone in your household have clothing sufficient to keep them warm and dry?	Yes……..01 No……..02 Does not know……..99	
113.	Do all school-aged children have a complete school uniform?	Yes……..01 No……..02 Does not know……..99	
114.	If somebody is sick in your household, are they able to afford transport to the health centre, the health centre fees and all medicines prescribed by their health practitioner?	Yes……..01 No……..02 Sometimes……..03 Does not know……..99	
115.	Does your house protect you from bad weather (rain, wind etc)?	Yes……..01 No……..02 Does not know……..99	
116.	Do you have separate bedrooms for adults and children?	Yes……..01 No……..02 Does not know……..99	
117.	Is there somewhere for children to play safely outside the house?	Yes……..01 No……..02 Does not know……..99	

118.	Does anyone in your household receive a social grant?	Yes……..01 No……..02 Does not know……..99	02→120 99→120
119.	Which social grants are members of your household receiving? (Check all that apply)	Old age pension……..01 Disability grant (for adults from age 16)……..02 Child maintenance grant……..03 Foster care grant……..04 Special maintenance grant (for children with disability below age 16)……..05 War veterans subvention……..06 Other……..77 Does not know……..99	

VIII. HOUSING

Now I would like to talk about your home. **CIRCLE THE RESPONSE**			
120.	What is the main source of drinking water for members of your household?	Piped water Piped into dwelling……..01 Piped into compound, yard or plot ……..02 Piped to neighbor……..03 Public tap / standpipe ……..04 Tube well, Borehole……..05 Dug well Protected well ……..06 Unprotected well……..07 Water from spring Protected spring……..08 Unprotected spring ……..09 Rainwater collection……..10 Tanker-truck……..11 Cart with small tank / drum ……..12 Surface water (river, stream, dam, lake, pond, canal, irrigation channel)……..13 Bottled water……..14 Other, *specify:*_____ 77 Does not know……..99	01→122
121.	How long does it take to go there, get water and come back?	Minutes:……..___ ___ Does not know……..99	
122.	Do you do anything to the water to make it safer to drink?	Yes……..01 No……..02 Does not know……..99	02→124 99→124

123.	What do you usually do to make the water safer to drink? Probe: ANYTHING ELSE? RECORD ALL MENTIONED	Boil .....01 Add bleach / chlorine .....02 Strain it through a cloth.....03 Use water filter (ceramic, sand, composite, etc.) .....04 Solar disinfection .....05 Let it stand and settle .....06 Other, *specify:*_____ 77 Does not know.....99	
124.	What kind of toilet facility do members of your household usually use?	Flush / Pour flush Flush to piped sewer system .....01 Flush to septic tank .....02 Flush to pit (latrine).....03 Flush to somewhere else .....04 Flush to unknown place / Not sure / Does not know where .....05 Pit latrine Ventilated Improved Pit latrine (VIP) .....06 Pit latrine with slab .....07 Pit latrine without slab / Open pit .....08 Composting toilet .....09 Bucket.....10 No facility, Bush, Field .....12 Other, *specify:*_____ 77 Does not know.....99	

125.	What type of fuel does your household mainly use for cooking?(RECORD MULTIPLE RESPONSES IF MORE THAN ONE MAIN FUEL USED)	Electricity.....01 Liquefied Petroleum Gas (LPG).....02 Natural gas .....03 Biogas .....04 Parafin Oil .....05 Coal / Lignite.....06 Charcoal.....07 Wood .....08 Straw / Shrubs / Grass .....09 Animal dung .....10 Agricultural crop residue .....11 No food cooked in household .....12 Other, *specify:*_____ 77 Does not know.....99	
126.	Does your household have:		

	Yes	No
A) Electricity	01	02
B) A radio	01	02
C) A television	01	02
D) phone (landline or mobile)	01	02
E) A refrigerator	01	02

127.	How do you dispose of children's faeces?	Disposed of in a toilet.....01 Disposed of in a rubbish bin.....02 Disposed of on a rubbish heap.....03 Buried away from house.....04 Buried close to house.....05 Left uncovered .....06 Other, specify.....77 Does not know.....99	

IX. HIV/AIDS AND CHILD FEEDING

Now I would like to talk about AIDS. **CIRCLE THE RESPONSE**			
130.	Have you ever heard of HIV?	Yes.....01 No.....02	02→ ECD questions
131.	Can HIV be transmitted from a mother to her baby: During pregnancy? During delivery? By breastfeeding?	Yes No Does not know During pregnancy 01 02 99 During delivery 01 02 99 By breastfeeding 01 02 99 Other, specify _____ 01 02 99	
132.	Are there any special drugs that a doctor or a nurse can give to a woman infected with HIV to reduce the risk of transmission to the baby?	Yes.....01 No.....02 Does not know.....99	
133.	Have you learned about ways to prevent passing HIV from mother to child during breastfeeding?	Yes.....01 No.....02	02→135
134.	From who did you learn about ways to prevent passing HIV from mother to child during breastfeeding? (DO NOT READ OUT THE LIST) (MULTIPLE ANSWERS, CHOOSE ALL THAT APPLY)	Yes 01 - Health personnel (doctor, nurse, midwife).....01 02 - Community health worker, peer counselor.....01 03 - Traditional health provider (healer, TBA).....01 04 - Family member.....01 05 - Neighbor/friend.....01 77 - Other, specify_____ 01 99 - Does not know.....01	

135.	Were you tested for the HIV during your pregnancy with CHILD'S NAME?	Yes.....01 No.....02 Not applicable.....03 Does not know.....99	

X. EARLY CHILDHOOD DEVELOPMENT (ECD)

Now I would like to ask some questions about how your child plays, and if CHILDS NAME is going to kindergarten. **CIRCLE THE RESPONSE**			
140.	How many children's books or picture books do you have for CHILD's NAME?	None……..01 Number of books……..0_ Ten or more books……..10	
141.	I am interested in learning about the things that CHILD's NAME plays with when he/she is at home. Does he/she play with: A) Homemade toys (such as dolls, cars or other toys made at home)? B) Toys from a shop? C) Household objects (such as bowls or pots) or objects found outside (such as sticks, rocks, leaves, etc)	Yes No Don't know Homemade toys 01 02 99 Toys from shop 01 02 99 Household objects or outside objects 01 02 99	
142.	Sometimes adults taking care of children have to leave the house to go shopping, wash clothes, or for other reasons and have to leave young children. On how many days in the past week was CHILD's NAME Left alone for more than an hour? Left in the care of another child aged 10 years or less, for more than an hour?	Number of days left alone for more than an hour ……..__ Number of days left with other child for more than an hour……..__ Does not know……..99	

143.	Check Age of child.	Child aged 2 years to 5 years……..01 Child aged below 2 years……..02	01→144 02→End survey
144.	Does CHILD's NAME attend any organized learning or early childhood education program, such as kindergarten or community child care?	Yes……..01 No……..02 Does not know……..99	02→146 99→146
145.	Within the last 7 days, about how many hours did CHILD's NAME attend?	Number of hours……..___	
146.	In the past 3 days, did you or any household member over 15 years of age engage in any of the following activities with CHILD's NAME If yes, ask; who engaged in this activity with CHILD's NAME **CIRCLE ALL THAT APPLY** A) Read books to or looked at picture books with CHILD's NAME B) Told stories to CHILD's NAME C) Sang songs to or with CHILD's NAME D) Took CHILD's NAME outside the home E) Played with CHILD's NAME F) Named, counted, or drew things to or with CHILD's NAME	Mother Father Other No one Read books A B X Y Told stories A B X Y Sang songs A B X Y Took outside A B X Y Played with A B X Y Name/ counted A B X Y	

I would like to ask you some questions about the development of CHILD's NAME. Children do not all develop and learn at the same rate. For example, some walk earlier than others. These questions are related to several aspects of your child's development.			
147.	Can CHILD's NAME identify or name at least 10 letters of the alphabet?	Yes.....01 No.....02 Does not know.....99	
148.	Can CHILD's NAME read at least 4 simple popular words?	Yes.....01 No.....02 Does not know.....99	
149.	Does CHILD's NAME know the name and recognize the symbol of all numbers from 1 to 10?	Yes.....01 No.....02 Does not know.....99	
150.	Can CHILD's NAME pick up small object with two fingers, like a stick or a rock from the ground?	Yes.....01 No.....02 Does not know.....99	
151.	Is CHILD's NAME sometimes too sick to play?	Yes.....01 No.....02 Does not know.....99	
152.	Does CHILD's NAME follow simple directions on how to do something correctly?	Yes.....01 No.....02 Does not know.....99	
153.	When given something to do, is CHILD's NAME able to do it independently?	Yes.....01 No.....02 Does not know.....99	
154.	Does CHILD's NAME get along well with other children?	Yes.....01 No.....02 Does not know.....99	
155.	Does CHILD's NAME kick, bite, or hit other children or adults?	Yes.....01 No.....02 Does not know.....99	
156.	Does CHILD's NAME get distracted easily?	Yes.....99	

END OF SURVEY

(THANK THE MOTHER/CAREGIVER. IF HER CHILD IS 6.0 MONTH OR OLDER, ASK HER IF IT IS POSSIBLE TO CONTINUE THE INTERVIEW WITH SOME QUESTIONS ABOUT WHAT THE CHILD ATE YESTERDAY (24-HOUR DIETARY RECALL).

IF NOT, ASK IF IT WOULD BE POSSIBLE TO RETURN ANOTHER DAY (AT HER CONVENIENCE). IF SHE AGREES, ASK WHAT WOULD BE THE MOST CONVENIENT DAY AND TIME, AND WRITE IN OBSERVATIONS BELOW.

IF THE MOTHER IS THE PRIMARY CAREGIVER AND THE ONE YOU INTERVIEWED, ASK HER IF SHE IS WILLING TO PARTICIPATE IN AN IN-DEPTH INTERVIEW IN THE NEAR FUTURE (WITHIN THE NEXT WEEK). IF SHE IS, RECORD THIS AND NOTIFY YOUR SUPERVISOR FOR FOLLOW UP.

IF YOU HAVE ANY OBSERVATIONS REGARDING HOW TO LOCATE THE HOME OR ABOUT THE ANSWERS GIVEN BY THE INFORMANT, PLEASE WRITE THEM ALSO IN THE SPACE PROVIDED BELOW.)

170. **Observations:**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX 5: MATRIX OF SEMI-STRUCTURED INTERVIEWS

Semi-Structured Interview Guide

This is a conversation guide. Therefore, the questions should not be posed verbatim as they are in a survey. To conduct a more fluid and natural interview, the Field Worker should be familiar with the topics and questions so that when needed he/she can adapt them to the child's age group.

Good morning (afternoon), my name is _____ and I come from _____. As you may remember, I am here to talk with you about young children's eating patterns.

I. General information
(If possible, this section should be completed before the interview.)

1. Child's code

2. Child's name

3. Child's age (in months)

4. Caregiver's name

5. Date of interview (dd/mm/yyyy)

6. Date notes completed (dd/mm/yyyy)

7. Field Worker's name and code

II. Questions to ask caregivers of children 0–5.9 months old

Ideal practice 1. All infants are breastfed for the first time within the first hour after birth

8. How long after birth was the baby breastfed for the first time?

- [IF IT TOOK MORE THAN 1 HOUR] Why did it take that long?
- [IF IT TOOK MORE THAN 1 HOUR] Would it have been possible to breastfeed within the first hour after birth?
- What would have needed to happen to make it possible for the baby to be breastfeed for the first time within the first hour after birth?

Ideal practice 2. All infants are not fed with anything other than breast milk in the first 3 days of life

9. Was the baby given (by you or anyone else) anything to eat/drink before he/she was first breastfed?

- [YES] What was given to the baby?
- Why was it given to her/him? [ASK FOR EACH FOOD/DRINK THAT WAS GIVEN TO THE BABY]
- How did they give her/him this? [UTENSIL USED; ASK FOR EACH FOOD/DRINK THAT WAS GIVEN TO THE BABY]
- Who advised you to give this to the baby? [ASK FOR EACH FOOD/DRINK THAT WAS GIVEN TO THE BABY]
- If a friend told you she was not going to give [NAME ANY PRELACTEAL THAT CAREGIVER OR SOMEONE ELSE HAS GIVEN TO THE BABY] to a baby before first breastfeeding, what advice would you give your friend?

Ideal practice 3. All infants are fed colostrum

10. When did you first get your first milk [COLOSTRUM]?

- Did you give that first milk to the baby?
- [YES] Why?
- [NO] What did you do with that first milk?
- Why didn't you give it to the baby?
- If you cared for another child, would you give her/him colostrum?
- Is there something that would help you do this?

Ideal practice 5. All infants less than 6 months old are exclusively breastfed

11. What do you think about feeding a baby with only breast milk (without water and other liquids) for the first 6 months of life?

- If you were to care for another baby, would you be willing to only feed her/him breast milk for the first 6 months of life (that is, until she/he turns 6 months old)?
- What would make it easy for you to do this?
- What would make it hard for you to do this?
- What advice would you give to a friend who wanted to do this?

Ideal practice 7. That all infants are fed semi-solid complementary foods beginning at 6 months of age.

12. Have you given any food to your baby?

- How old was your baby when you gave him/her food?
- Why did you think your baby needed food?
- What was the first food you gave your baby to eat?
- Why did you decide to start with this particular food?
- At what age would you advise a friend to start feeding her baby food?
- What food or foods would you recommend?

Ideal practice 12. All infants and young children 6.0–23.9 months old are fed as recommended during and after illness

13. How do you feed the child when he/she is sick?

- Would you encourage the child to breastfeed more when he/she is sick?
- If yes, how would you do this?

III. Questions to ask caregivers of children 6.0–23.9 months old

Ideal practice 4. All infants and young children are breastfed on demand, during the day and night

14. Are you currently breastfeeding the baby?

- [YES] How often do you breastfeed?
- Do you breastfeed 1) on a fixed schedule or 2) each time the baby asks to be fed?
- [IF 1:] Why? What conditions would be necessary for you to breastfeed only when the baby wants to feed and not on a fixed schedule?
- [IF 2] Has anyone recommended that you breastfeed on a fixed schedule? Who?

Ideal practice 6. All children are breastfed up to 2 years of age or more

15. Until what age do you plan to breastfeed the baby?

- Why that age?
- IF LESS THAN 2 YEARS OF AGE: If you decided to breastfeed until the baby is 2, would you be able to do it? Why? Why not?

16. At what age did you stop breastfeeding?

- Why did you stop at that age?
- Is there anything that would convince/permit/help you to be able to continue breastfeeding until the baby turns 2 years old?

Ideal practice 7. All infants are fed semi-solid complementary foods at 6.0 months of age (180 days)

17. Have you given any food to the baby?

- What was the first thing you gave the baby to eat?
- Why did you decide to start with this particular food?
- How old was the baby when you gave her/him this particular food for the first time?
- [BEFORE 6 MONTHS] Did you know that giving only breast milk, not even water, for 6 months would prevent the child from getting some diseases?
- If you decided to only give breast milk to a baby for the first 6 months of life what would make it easy for you to do it?
- [AFTER 6 MONTHS] Did anyone tell you that at 6 months of age the child needs to begin eating foods?
- If you had another baby, would you consider to begin giving food to the child at no later than 6 months of age? Why/why not?

Ideal practice 8. All infants and young children 6.0–23.9 months old meet their recommended daily energy requirements

18. If you realized it was necessary to increase the amount of food that you give the child, would you be able to do this?

- What difficulties would you have? What would help you to do this?

Ideal practice 9. All infants and young children 6.0–23.9 months old are fed nutrient- and energy-dense foods

19. Do you prefer to feed the child foods that are more liquid or more solid (thicker)?

- [IF PREFERS "MORE LIQUID" FOODS] Do you think thicker, more solid, foods should be given to small children in some situations or at some age? When?
- What would you say to a friend who is giving, or thinking of giving, thicker, more solid foods to a 6-month-old baby?

Ideal practice 10. All infants and young children 6.0–23.9 months old are fed the recommended number of meals daily

20. How many times a day do you feed the child? [ASK ABOUT MAIN MEALS AND SNACKS]?

- [IF THE FREQUENCY IS LESS THAN THE RECOMMENDED FREQUENCY FOR THE AGE GROUP] If a health professional asked you to increase the number of times you feed the child each day, and you agreed with this, would you be able to do it? What difficulties would you have? What would help you to do this?
- [IF THE FREQUENCY IS MUCH MORE THAN THE RECOMMENDED FREQUENCY FOR THE AGE GROUP] If a health professional asked you to decrease the number of times you feed the child each day, what would be your reaction?

Ideal practice 11. All infants and young children 6.0–23.9 months old fed by caregiver responsive to child

21. If the child stops eating, and you think he/she is still hungry or did not eat enough, what do you do?

IF THE MOTHER ANSWERS: "I WOULD MOTIVATE HER/HIM TO EAT":

- How would you motivate her/him to eat?
- What could you do so that the child has someone to help or motivate her/him eat at every meal?
- What difficulties would you have in doing this?

IF THE MOTHER DOESN'T SAY SHE WOULD MOTIVATE:

- Why wouldn't you motivate?

Ideal practice 12. All infants and young children 6.0–23.9 months old are fed as recommended during and after illness

22. How do you feed the child when he/she is sick?

- Do you breastfeed more, less or the same as when he/she is healthy?
- Do you give more food, less food or the same amount as when he/she is healthy?
- Do you give the child more, less or the same amount to drink as when he/she is healthy?

IF MORE:

- How do you get the child to breastfeed more when he/she is sick?
- How do you get the child to eat more when he/she is sick?
- How do you get the child to drink more when he/she is sick?

IF LESS:

Why?

If you thought the child needed to breastfeed/eat/drink more, when he/she is sick, can you think of a way to make the child to breastfeed/eat/drink more?

23. How do you feed the child in the week after he/she has been sick?

- How do you get/would you get the child to eat more in the week after he/she has been sick?

IF THE MOTHER ANSWERS: "I WOULD MOTIVATE HER/HIM TO EAT":

- How would you motivate her/him to eat?
- What could you do so that the child has someone to help or motivate her/him eat at every meal?
- What difficulties would you have in doing this?

IF THE MOTHER DOESN'T SAY SHE WOULD MOTIVATE:

- Why wouldn't you motivate?

APPENDIX 6: 24-HOURS DIETARY RECALL FORM

REGISTRATION FORM FOR THE 24-HOUR DIETARY RECALL (FORM I-4.1)

Explain the questionnaire to the caregiver before beginning. Help her/him to remember the previous day, based on the times when the child woke up, the activities the child had, etc. Go slowly, do not rush.

Ask the caregiver: Please tell me everything that the child ate and drank yesterday. After the child woke up, what was the first thing you gave to him/her to eat or drink? After that, what other food or drink did you offer the child?

Write all the foods or preparations consumed the day before that the caregiver mentions. Do not forget to ask: What is the name of that meal time (for example, breakfast, lunch, dinner, snack)? Write down the quantities of each food and beverage mentioned. Use the photos of foods and utensils to help the caregiver to quantify the amount given to the child.

Meal time as defined by caregiver	Name of food or preparation	Estimated quantity of food or preparation

APPENDIX 7: MARKET SURVEY FORM

MARKET SURVEY FORM (Form I-5.1)

1. Name of retail location: _____

_____

2. Address / location: _____

_____

_____ Supervisor name: _____

_____

5. Supervisor Code: _____ 6. Survey date: __/__/__

7	7a.	8	9	10-12 Prices			13	14	15	16	17	18	19	20	21	2	23	24	25
Food Code	**Food Name**	**Retail Unit**	**Net Weight (g)**	**1**	**2**	**3**	**All year**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**

APPENDIX 8: NUTRITIONAL REQUIREMENTS FOR CHILDREN 6-23.9 MONTHS

Table 2. Recommended daily nutrient intake and complementary food nutrient density for infants and young children, by age group and breastfeeding status

Nutrient	Age group (months)	Intake		Density of complementary foods (per 100kcal)d	
		Breastfed ab	Not breastfed c	Breastfed a	Not breastfed
Protein (g)	6.0–8.0 9.0–11.0 12.0–23.9	2.0 3.1 5.0	9.1 9.6 10.9	1.0 1.0 0.9	1.5 1.4 1.2
Iron (mg) Low bioavailability Medium bioavailability	6.0–8.9 9.0–11.9 12.0–23.9 6.0–8.9 9.0–11.9 12.0–23.9	20.8 20.8 11.8 10.8 10.8 5.8	21.0 21.0 12.0 11.0 11.0 6.0	10.3 6.8 2.2 5.3 3.5 1.1	3.4 3.1 1.3 1.8 1.6 0.7
Zinc (mg)	6.0–8.9 9.0–11.9 12.0–23.9	4.2 4.3 5.8	5.0 5.0 6.5	2.1 1.4 1.1	0.8 0.7 0.7
Vitamin A (µg RE)$_e$	6.0–8.9 9.0–11.9 12.0–23.9	13.0 42.0 126.0	350.0 350.0 400.0	6.0 14.0 23.0	57.0 51.0 45.0
Vitamin C (mg)	6.0–8.9 9.0–11.9 12.0–23.9	0 0 8.0	25.0 25.0 30.0	0 0 1.5	4.1 3.6 3.4
Calcium (mg)	6.0–8.9 9.0–11.9 12.0–23.9	336.0 353.0 196.0	525.0 525.0 350.0	166.0 115.0 36.0	85.0 77.0 39.0

a Assuming average breast milk intake
b (WHO, 1998) (Table 26)
c (WHO, 1998) (Table 25)
d Recommended daily nutrient intake x 100 / recommended daily energy intake (Dewey and Brown, 2003a) (Table 1)
e RE: retinol equivalent

Table 3. Recommended daily complementary food energy intake[a] for infants and young children[b] by age group and breastfeeding status

Age group (months)	Breastfed		Not Breastfed	
	kcal	kcal/kgc	kcal	kcal/kgc
6.0–8.9	202.0	25.3	615.0	76.9
9.0–11.9	307.0	34.5	686.0	77.1
12.0–23.9	548.0	49.8	894.0	81.3

a Amount required to maintain ideal body weight (8.0 kg, 8.9 kg, and 11.0 kg for children 6.0–8.9, 9.0–11.9, and 12.0–23.9 months, respectively)
b (Dewey and Brown, 2003a) (Tables 1 and 2)
c Recommended kcal/day / ideal body weight

(Footnotes)

1 Household count are from 2011 Population and Housing Census

2 Children aged 0-4 years are from 2011 Population and Housing Census

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