

UNIVERSITY OF THE WESTERN CAPE

Faculty of Community and Health Sciences

**THE PERCEPTIONS OF MOTHERS AND CAREGIVERS ABOUT THE FACTORS
AFFECTING LOW UPTAKE OF MEASLES IMMUNISATION AMONG
CHILDREN UNDER 5 YEARS IN THE NYANGANA DISTRICT, NAMIBIA**

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A mini-thesis submitted in partial fulfilment of the requirement of the Degree of Master of Public Health, in the School of Public Health, Faculty of Community and Health Sciences,

University of the Western Cape

The logo of the University of the Western Cape, featuring a classical building facade with columns and a pediment, rendered in a light blue color. Below the building, the text "UNIVERSITY of the WESTERN CAPE" is written in a serif font, with "of the" in a smaller, italicized font.
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Supervisor: Dr Ruth Stern

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KEYWORDS

Immunisation

Vaccination

Morbidity

Coverage

Herd immunity

Measles

Low uptake

Perceptions

Knowledge

Mothers

Caregivers



ABBREVIATIONS

BCG	Bacillus Calmette Guerin
CRS	Congenital Rubella Syndrome
DPT	Diphtheria, Pertussis and Tetanus
EPI	Expanded Programme of Immunisation
GAVI	Global Alliance for Vaccine and Immunisation
ICF	International Classification of Functioning Disability and Health
MDG	Millennium Development Goal
MoHSS	Ministry of Health and Social Services, Namibia
MR vaccine	Measles Rubella Vaccine
MVCV	Measles Virus-containing Vaccine
NIDs	National Immunisation Days
OPV	Oral Polio Vaccine
PHC	Primary Health Care
RED	Reach Every District
RMT	Regional Management Team
SIAs	Supplemental Immunisation Activities
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
WHO	World Health Organization

DEFINITIONS OF TERMS

Coverage	Refers to the number of people immunised against a particular disease as a proportion of the population estimated and eligible to have received the vaccine.
Caregiver/caretaker	A caregiver or caretaker is defined as a person who takes care of a child in the absence of a mother.
Immunisation	Refers to the process of making an individual resistant to an infectious disease through the administration of a vaccine specific for each particular infectious disease.
Health Passport	A health passport is a booklet that is carried by an individual when attending hospitals or other providers of health and disability services.
Herd immunity	Describes a type of immunity that occurs when the vaccination of a portion of the population provides protection to un-vaccinated individuals.
Low uptake of vaccination	The extent to which a vaccine is not widely accepted by mothers/caregivers and where rates of uptake are lower than that required for protection of the target population. The rate of uptake of vaccination in a community is calculated by verifying the date of administration of the vaccination, which should be documented on the child's Health Card.
Vaccination	refers to the injection of a killed microbe in order to stimulate the immune system against the microbe, thereby preventing disease.

ABSTRACT

Immunisation is considered to be amongst the most successful and cost-effective disease prevention interventions available. The Expanded Programme on Immunisation (EPI) in Namibia was established in 1990 to ensure that the immunisation of children takes place within the prescribed age frame. However, continued measles outbreaks, particularly in the Kavango region, are evidence of poor EPI progress, with vaccination coverage being below 80% per district. The reasons for the low uptake of measles immunisation in the Nyangana district in the Kavango region are not clearly understood.

The aim of this study was, therefore, to investigate the perception of mothers/caregivers of factors that impact on the uptake of measles immunisation in the Nyangana Health District, with a view to improving measles immunisation coverage.

Methodology

A qualitative exploratory study design was used to collect data from the study participants. In-depth interviews were conducted with 10 mothers of children under 5 years of age, for both children who received, and those who did not receive measles vaccination. Data was audio-taped and transcribed verbatim. The recorded interviews were translated from the Gciriku language to English. Data was analysed through the use of the Thematic Content Analysis approach. The transcribed interviews and narratives from the research assistant's notes were organised into codes, sub-themes and main themes. In the final phase, themes were integrated and interpreted, by identifying facilitating factors for those who took their children for immunisation, and barriers for those who did not take theirs. The researcher facilitated assistance to children who did not receive their measles dose, to receive it. Ethical requirements were adhered to throughout the research study process.

Results

The study showed that mothers had both positive and negative perceptions about immunisation. The findings revealed that information, and past experience of measles, irrespective of the level of education, support from a spouse or family members, availability of services and convenience of time schedules, increased the uptake of immunisation on the part of mothers/caregivers. However, it also emerged that supply-side factors, such as lack of information sharing between health care providers and mothers, hindered effective communication. Additionally, inconvenient time schedules and time constraints, staff shortages, health care providers' attitudes, inaccurate data being kept of children immunised at other health facilities, inadequate outreach services and perceived lack of supervision in the health facilities all contributed to the low uptake of immunisation. Demand-side factors that affected the uptake of immunisation included: socio-economic constraints that led to an inability to pay transport costs to access immunisation services; lack of support from a spouse; other family members and other support structures in the community also impacted on immunisation uptake, despite the reported awareness and willingness to use immunisation services.

Conclusions and recommendations


The study concludes that the relationship between health care providers and mothers/caregivers, and support from other social structures, should be good, in order to motivate mothers to use immunisation services. The study recommends that the following aspects be addressed, as they have the potential to improve the low uptake of measles immunisation: patient/provider relationship, information sharing, and supervision in the health facility, access to services, availability of outreach services, improved data tracking and active involvement of all stakeholders. Laziness was overwhelmingly offered as an explanation for missing measles immunisation, although there are suggestions that there might be underlying causes for what is perceived as laziness, which require further exploration, especially in terms of socio-cultural barriers to immunisation. It is recommended that an in-depth look at the perceptions of health care providers and key informants should be conducted to search for further understanding of contributing factors.

DECLARATION

I, Alice Njahi Lifalaza, declare that *The Perceptions of Mothers and Caregivers about the Factors Affecting Low Uptake of Measles Immunisation among Children under 5 years in the Nyangana District, Namibia* is my own work, that it has not been submitted before for any degree or examination at any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

Alice Njahi Lifalaza

Signature:



.....
Date:

January 2016

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DEDICATION

This thesis is dedicated to the memories of my late father, Cain Lifalaza, late mother, Pumulo Lifalaza and my late brother Denys Lifalaza, for their inspiration that motivated me to work hard to reach this far; may their souls rest in peace.

I also wish to dedicate this work to my daughters, Cyrilla Mpule, Anthea Njalabi, Marcelline Minsozi, and to my nephews and nieces. Let this accomplishment be a source of inspiration to motivate you for future studies.

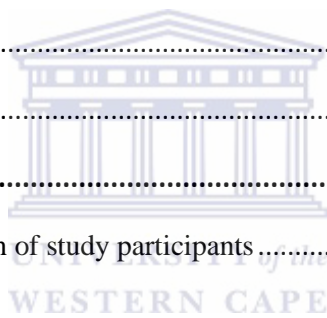


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CHAPTER 1 - INTRODUCTION

1.1 Background information

Immunisation is a proven mechanism for controlling and eliminating life-threatening infectious diseases such as measles. The World Health Organization (WHO) (2013) stated that immunisation prevents an estimated 2 to 5 million deaths worldwide annually. Hill (2013) further stated that immunisation is the most effective public health intervention in the world for saving lives and for promoting good health. Immunisation is also an intervention that saves money. The Expanded Programme on Immunisation (EPI) Fact Sheet (WCDoH, 2005: 2) states that, “According to WHO every dollar spent on vaccine saves seven dollars in medical costs and 25 dollars in overall costs related to vaccine preventable diseases”.

The EPI Programme was initiated by the World Health Organization (WHO) in 1974 to provide protection against six childhood diseases, namely polio, diphtheria, tuberculosis, pertussis (whooping cough), measles and tetanus (Vlok, 2003). The aim of the EPI is to reduce morbidity and mortality for six vaccine-preventable childhood diseases. It was an initiative that aimed to build on the success of the WHO Smallpox Eradication Programme, and to assist national immunisation programmes in developing countries that faced challenges. According to WHO (2009), it is recommended that a child receive one dose of Bacillus Calmette-Guerin vaccine (BCG), three doses of Diphtheria Tetanus, Pertussis vaccine (DTP) and Inactivated Polio Vaccine (IPV) and one dose of measles virus-containing vaccine (MVCV). The success of any immunisation programme, such as childhood immunisation programmes, depends on meeting the herd immunity for the purpose of preventing local and endemic outbreaks and epidemics for its targeted diseases.

Progress has been noted in developed countries where immunisation coverage is 90% or above, and recorded highest at 94% in the European region (WHO, 2012). However, despite improved interventions and a history of success, progress on full vaccination is reported to remain low and irregular in Sub-Saharan Africa, including in Namibia.

According to UNICEF/WHO (2005), the immunisation coverage is defined as poor when it is below 80% per health district. It is reported that, with a recorded 80% immunisation coverage, there is a perceived 20% of children who might be unimmunised or under-immunised, and who should be reached (WHO, 2011).

It is thus crucial that the uptake of vaccines for diseases such as Mumps, Measles and Rubella (MMR) meet the recommended herd immunity of 95% for the targeted population in order to prevent disease outbreaks of these diseases (Salisbury, Ramsay & Noakes, 2006).

The Balcha, Masresha, Fall, Eshetu et al. (2011) outline on measles and smallpox vaccination indicates that the two vaccines were introduced in Africa during the 1960s as part of the Smallpox Eradication and Measles Control Programme. The first dose of measles-containing vaccine (MCV) for infants under 1 year of age was introduced through routine health services. All 46 countries in the African Region (AFRO) are reported to provide routine measles vaccinations. It is recommended that, in order to prevent a measles epidemic, the population immunity be maintained at 93% - 95% in all districts. In mortality reduction settings, achieving and maintaining it at or above 90% MCV coverage nationally, and at or above 80% in each district, is recommended. As measles vaccination is a key strategy in reducing child mortality, stronger political and financial commitment is needed to control and prevent this deadly disease.

According to the World Health Assembly (2010), an estimated 10.7 million deaths were prevented from 2000 to 2011 due to immunisation against measles (UNDP, 2013). The disease is reported to have killed 158, 000 people, mostly children under 5 years, which is far less than the estimated 548, 000 measles deaths in 2000. However, these deaths could have been prevented, since measles can be prevented with two doses of a safe and inexpensive vaccine. Measles routine coverage is used as an indicator because of its likelihood to reduce mortality among children and the consideration of measles vaccination coverage as a marker of access to children's health services. Thus, measles mortality reduction is an important step towards achieving Millennium Development Goal 4 (UNDP, 2008).

In the continuing recent measles outbreaks, the vast majority of cases have occurred in specific groups of unvaccinated persons (religious groups or other groups who reject vaccination) in specific geographic areas, such as indigenous communities, in large cities and in rural areas with inadequate access to health care (WHO, 2012).

Studies by Lyimo (2012) and Kamanda (2010) have revealed that household factors played a role in shaping the uptake of measles vaccination, pointing at the need to revisit the health education sessions during routine Reproductive and Child Health services relating to vaccine-preventable diseases, and to identify gaps to be addressed. In studies conducted in Namibia, Tjiveze (2012) has revealed that immunisation rates of children increased with higher levels of education and client friendly services; it was also revealed that children from ethnic groups with a more traditional way of life are immunised less often. The challenges related to easy access to health care facilities, to adequate financial support to pay for transport and to long distances to health care facilities were identified by Tjiveze (2012) and Shikongo (2010). Thus, [in this research context, specific studies were to be undertaken in order to improve the low uptake of measles vaccination in the Nyangana district.

The challenges such as immunisation awareness, demands for immunisation, level of trust in the health system, human resources adequacy, access, and timeliness of vaccinations, service delivery, poor infrastructure, and immunisation monitoring are faced by most African countries. Challenges related to civil conflict, weak health systems, geographical, cultural and economic barriers to reaching certain population groups and inadequate monitoring and use of data for action were identified as challenges that affected regional progress towards achieving and sustaining high vaccine coverage (Cutts, Lessler & Metcalf, 2013). This therefore necessitates evidence-based interventions (Machingaidze, Wiysonge & Hussey, 2013).

In recent years, parents have also been reported as being critical of childhood immunisation (Harmsen et al., 2012). The authors state that different studies have revealed reasons as to why parents are critical and why they sometimes refuse vaccination for their children. These reasons are related to anxiety about side effects, to the perception that vaccine-preventable diseases are not serious and to a lack of trust in herd immunity. However, these factors vary between different groups of parents in different circumstances and in different contexts. Hence, to determine the perceptions of parents on childhood immunisation, studies to explore factors that affect the low uptake of vaccination, including measles, should be context specific.

1.2 Context

Health services in Namibia are provided through the public health sector and the private health sector, the latter being comprised of services provided for– profit and for non-profit organizations (Ministry of Health and Social Services (MoHSS), 2008).

According to MoHSS, 2010), the health system is dominated by the public sector, both in terms of coordination, financing and service delivery. Thus, due to the vastness of the country, the sparse distribution of the population and lack of access to permanent health facilities in some communities, outreach services are provided across the country.

The goal of the health care sector reform for Namibia is to improve the quality of the health services provided to communities. The Ministry of Health, as one of the ministries that provide services to communities, had adopted a PHC approach to the delivery of health services to the Namibian population. This approach reflects eight components of PHC, with immunisation against the major infectious diseases being one of them (MoHSS, 2010).

Immunisation services in Namibia form part of an integrated basic health package that is provided at health facilities and through outreach points to populations living outside a 15-kilometre radius from a fixed health facility and extending further to widely dispersed populations that are within the catchment areas of specific health facilities, while outreach services are conducted by outreach mobile teams to ensure availability of immunisation services (MoHSS, 1998).

The EPI Programme on immunisation in Namibia was established to strengthen routine immunisation with a focus to achieve and maintain an immunisation coverage that is above 90% in each district (MoHSS, 2008). The National Immunisation Days (NID) review discovered constant challenges related to reaching children under the Reaching Every District Approach in both urban and very remote settings, indicating the need for more efforts in advocacy and social mobilization in order to reach unimmunised and under immunised children (WHO, 2012).

The measles administration rates performance for Namibia was $\leq 80\%$ from 1980 to 2012, and for the first time Namibia reached the rate of 82% in 2013 (WHO/UNICEF, 2013).

The findings of the Health Facility Survey have revealed that recent epidemics of measles have been reported in Namibia, mainly in regions bordering Angola. Kavango is one of these

regions (MoHSS, 2010). The Kavango region coverage for DPT 3 was 86.9 compared to 55% of measles, indicating a drop-out rate of 31.9% (MoHSS, 2006-07:136). The high drop-out rate between DPT 3 and measles raises questions about uptake, as it can be reasonably assumed that the low uptake of measles immunisation would precede epidemics of measles.

It is thus assumed that the low performance on measles coverage might have contributed to ongoing outbreaks in the previous years in Namibia, including the year 2013. Kavango region was the most affected, with Nyangana district being one of the three affected districts in the Kavango region (MoHSS, 2014).

The Nyangana district is the third largest of the four districts in the Kavango region (situated now in Kavango East in the new region demarcations), in the north-east of Namibia, and one of the regions bordering Angola (MoHSS, 2010). It is situated south of the Kavango river and covers a surface area of 1 5000 km². It is a rural setting with more of a concentration on subsistence agricultural activities. It is predominantly occupied by the Gciriku people and other smaller ethnic groupings, e.g. Nyemba, San and Mbukushu. The region is densely populated along the Kavango River, with fewer people scattered in the inland. Fishing and commercial farming are some of the agricultural enterprises.



1.3 Problem statement

According to WHO/UNICEF (2010), insufficient vaccination, both a low first dose and delayed supplemental activities, is the underlying cause of measles outbreaks.

The uptake of measles immunisation at Nyangana district of the Kavango region is the lowest compared to the other three districts. Measles vaccine coverage was reported to be 65% for 2012 and 2013 respectively (Appendix 7), indicating that it is below the threshold of the expected level of 90% to 95% (Kavango region health Directorate report unpublished). There are no documented studies that have been carried out to investigate the reasons for the low uptake. Thus the reasons why the uptake of the measles vaccine administered at nine months is low are not clear; hence this study will investigate the mothers' perceptions in an attempt to understand the factors that are inhibiting or promoting uptake of measles vaccination.

1.4 Rationale

The national immunisation days (NID) review revealed that Namibia is still facing challenges related to reaching children in both urban and very remote settings (WHO, 2011). Nyangana is still one of the districts that has had recent measles outbreak in 2013, which is worrisome. The purpose of the study is to identify factors that affect the uptake of measles vaccination at Karukuta clinic, Nyangana district, Kavango region, Namibia as perceived by mothers /caregivers, and to use these findings about perceptions to inform programme managers to implement interventions that will help to improve measles immunisation coverage. Parents are reported to be critical of childhood immunisation (Harmsen et al., 2012). It is thus crucial to explore the mothers and caregivers' perceptions in order to derive meaning from their worldview for the purpose of identifying priority areas, in an attempt to improve the uptake of immunisation services. There is a research gap on factors that are inhibiting or promoting the uptake of measles immunisation in the Nyangana district, Kavango region; evidence based studies are needed to inform programme managers.

1.5 Outline of the thesis

Chapter 1 introduces the study and includes the formulation of the problem statement and rationale to the research study.

Chapter 2 focuses on reviewing the relevant literature on measles immunisation uptake.

Chapter 3 provides the aim and objectives of the study and explains the research design and methodology used to investigate how the perceptions of mothers or caregivers may affect the low uptake of measles immunisation. It also notes the limitations of the study.

Chapter 4 presents the findings of the study.

Chapter 5 discusses and interprets the findings of the study.

Chapter 6 draws conclusions and makes recommendations for improvements in measles immunisation uptake.



CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction

This chapter discusses the literature on factors that promote or inhibit the uptake of measles immunisation. According to Brink, Van der Walt and Van der Rensburg (2006), once the researcher has identified the study topic, a systematic literature search is to be conducted for the purpose of determining what is known about the topic. A literature review is thus an essential process, since it helps the researcher to know the current developments in research on the topic of interest, for the purpose of building on the existing knowledge.

The literature review focused on the global burden of measles, the burden in Africa and in Namibia in particular, including factors that promote or inhibit the uptake of measles immunisation as perceived by mothers or caregivers.

2.2 Defining terms

The concepts of immunisation and vaccination will be used interchangeably in this study. According to Hornby (2005), immunisation refers to the process of protecting a person or an animal against a disease through the administration of an injection; and vaccination refers to the administration of a vaccine for the purpose of stimulating an individual's immune system to develop immunity; thus vaccination is viewed as an active form of immunisation (Ansong et al., 2014).

2.3 Global focus

It is reported that prior to the EPI programme, less than five percent of the world's children were immunised against six killer diseases of polio, diphtheria, tuberculosis, pertussis (whooping cough), measles and tetanus (UNICEF/WHO, 2011). According to the EPI (SA) Fact Sheet (WCDoH, 2005), prior to immunisation, hundreds of thousands of children were reported to have been infected, while thousands died each year from diseases; furthermore, WHO (2012) indicates that prior to the availability of measles vaccine, measles is reported to have infected over 90% of children under the age of 15 years.

Although countries are reported to have had routine immunisation systems prior to 1980, routine major national and international developments on universal immunisation began in the late 1970s (WHO, 2009). According to an outline by Machingaidze, Wiysonge and Hussey (2013), the global effort to use vaccination as a public health intervention was initiated when the (WHO) launched the Expanded Programme on Immunisation in 1974. Several efforts have been undertaken thereafter over the years to increase EPI coverage, including Universal Childhood Immunisation; the Global Alliance for Vaccination and Immunisation (GAVI); Millennium Development Goals (MDGs); the Global Immunisation Vision and Strategy (GIVS); and lately, the Global Vaccine Action Plan (GVAP). The initiatives combined with specific regional efforts, such as the WHO African Region's EPI strategic plans of action for the periods 2001-2005 and 2006-2009, the Reach Every District (RED) approach and the efforts of national EPIs, have seen an increase in the coverage of vaccines such as DPT 3, while low coverage of measles and outbreaks resulted in the initiation of catch-up and follow-up supplementary immunisation activities (SIAs) and case based surveillance (Machingaidze et al., 2013). The initiative on SIAs between 1996 and 2000 has, according to Machingaidze et al. (2013), saved 24 million children in most countries.

According to UNICEF/WHO (2011), 83 percent of the world's children under one year of age have received these life-saving vaccinations to date. Despite the noted measles outbreaks that continue in other countries (MoHSS, WHO & CDC, 2011), progress on the effectiveness of measles, mumps and rubella (MMR) had led to sustained measles transmission elimination in the United States in the late 1990s. The EPI (SA) Fact Sheet (WCDoh, 2005) indicates that an estimated three (3) million lives worldwide are currently saved through immunisation. Simons et al. (2012) highlighted a decreased estimated global measles mortality rate of 74% from 535 300 deaths in 2000 to 139 000 in 2010. A reduction in measles mortality of more than three quarters was reported in all WHO regions except the WHO Southeast Asia region, with India accounting for 47% of estimated measles mortality in 2010; and the WHO African region accounted for 36% of mortality (Simons et al., 2012). Thus, despite the noted rapid progress in measles control from 2000 to 2007, the delayed implementation of accelerated disease control and the continued outbreaks in Africa is reported to have slowed down progress towards the 2010 global measles mortality reduction goal. The Centers for Disease Control and Prevention (MoHSS, WHO & CDC, 2011) report indicates that the measles disease burden demonstrates that 40% of the countries had not reached the incidence target of less than 5 cases per million by the end of 2010. Hence the improvement is still falling below

the threshold of the herd immunity of 95% of the target population (Salisbury, Ramsey & Noakes, 2006), making countries with low coverage vulnerable to measles outbreaks. Globally, the proportion of Member States meeting the target has not changed significantly from 2003 to first report.

Therefore, to achieve these goals, intensified control measures and renewed political and financial commitment are crucial in order to achieve mortality reduction targets and set the foundation for future global eradication of measles (Simons et al., 2012). According to Bustreo, Okwo-Bele & Kamara (2015), GAVI is reported to have faced limitations related to weak health care systems. These were concerned with both supply-side availability of services and demand-side linked to acceptability and affordability. This was despite remarkable noted progress on vaccines and immunisations. In order to address the limitations, the World Health Assembly has adopted the Decade of Vaccines Global Vaccine Action Plan 2011 - 2020 as the current framework aimed at preventing millions of deaths through more equitable access to existing vaccines for people in all communities (Bustreo et al., 2015).

2.4 Africa focus

The Machingaidze et al. (2013) study findings indicate that despite the significant improvements in the performance of the EPI in Africa from its inception in 1974, a wide range of inter and intra-country differences exist with challenges noted in accuracy of reporting vaccination coverage, suboptimal surveillance and measles outbreaks that continue to be reported in AFRO countries. The authors further state that due to low measles – containing vaccine (MCV) coverage and suboptimal follow-up SIAs, 27 countries had confirmed measles outbreaks between 2009 and 2011.

The coverage levels in Sub-Saharan Africa and Southern Asia have not reached 90 percent. It is reported that measles cases, after decreasing from 2000 to 2008 and remaining constant in 2009, took an upward turn in 2010. Hence, the year 2010 is viewed to have been a challenging year for the Measles Initiative. Africa and Southern-Eastern Asia were among the reported regions with large outbreaks (UNDP, 2012).

According to Balcha et al. (2011), large measles outbreaks were reported in Angola, Burkina Faso, the Democratic Republic of Congo, Ethiopia, Mali, Namibia and South Africa. The number of reported cases ranged between 3, 511 in Ethiopia to 54, 118 in Burkina Faso. Therefore, despite noted progress and an 88% reduction in estimated measles mortality in

Africa (354,900 to 41,400 during the period 2000 -2012), the pre-elimination goal was not reached since large outbreaks occurred in small member states. Measles cases per million of virus genotype B2 were reported during 2011-2012: in Angola 9.4 cases, the Democratic Republic of the Congo (DRC) 23.8 cases, and Namibia 38.8 (Balcha et al., 2011).

The various investigation activities that were undertaken to determine the reasons for these continued outbreaks identified the primary causes to have been related to an accumulation of susceptible older children and adolescents and also to have been due to continued gaps in reaching all children with two doses of measles vaccine at national and sub national levels through routine vaccination or periodic follow-up SIAs (Balcha et al., 2014).

In an attempt to improve stagnating immunisation coverage and effectiveness in Africa, the Reaching Every District (RED) approach was introduced in 2002 by the WHO, the UNICEF and other partners in Global Alliance for Vaccines and Immunisation (GAVI). The implementation of the strategy for Reaching Every District (RED) started in 2003 in 53 developing countries through the Expanded Programme on Immunisation.

According to Otten et al. (2005), seven countries in Southern Africa, namely Botswana, Lesotho, Malawi, Namibia, South Africa, Swaziland and Zimbabwe, were reported to have started measles-elimination initiatives building on the successful strategy that was implemented in the United States. The action plan was based on four components aimed at decreasing the number of deaths due to measles to nearly zero, as a response to the reduction of the measles mortality burden in the rest of African countries.

Thus the action plan has been curtailed by a large number of children who are still not reached, unvaccinated, under-vaccinated and who are still dying from vaccine preventable diseases.

2.5 Namibia focus

The health facility census survey findings by MoHSS (Namibia) and International Classification of functioning Disability and Health (ICF), 2010 revealed that recent epidemics of measles had been reported in a few northern regions in Namibia, mainly in regions bordering Angola. Kavango is one of these regions. A total of 5,000 measles cases and 30 deaths were recorded between August 2009 and February 2011; the largest ever reported outbreak in Namibia. The reservoir was associated with susceptible (unimmunised)

individuals that were related to have accumulated over years (WHO, 2012). According to the Kavango region report (MoHSS, 2012), 627 cases of measles were reported in 2010 compared to 67 in 2009; the incidence rate of confirmed cases was 43/100, 000 compared to 5.5/100, 000 of 2009 with a total of eight measles deaths.

The report (MoHSS, 2014), states that three districts in Kavango region were among the five districts that had measles outbreak during 2013 in Namibia with Nyangana district being one of the three.

The aim of the Expanded Programme on Immunisation in Namibia, as adopted in 1990 (MoHSS, 1992), is to reduce the infant and child morbidity rates. The aim of the EPI Programme in Namibia is for all children to be fully immunised by their first birthday. Measles in Namibia is administered at nine months of age according to the immunisation card (MoHSS, 2000), and 93% of facilities offer child immunisation in Namibia (MoHSS & Macro, 2009). Thus measles coverage for Namibia was reported to be 78% according to 2006/2007 vaccination coverage, indicating that not all children are reached (MoHSS, 2013).

2.6 Disease burden of measles

Measles is viewed to be one of the most dangerous of all childhood diseases since it is highly contagious and easily transmitted from person to person. It is a disease that is caused by a virus that mostly affects children. Measles spreads through respiratory contact via nasal secretions. Initial symptoms appear 10 – 12 days from exposure, with onset of high fever, runny nose, bloodshot eyes and tiny white spots that appear inside the mouth. Measles, if untreated, may lead to serious complications that may include encephalitis, diarrhoea, vision impairment, pneumonia (Weber, 2008). Children affected by measles may experience lifelong disabilities, including brain damage and blindness (UNICEF/WHO, 2012).

Despite the availability of this highly effective vaccine since 1960s, measles remains a leading cause of vaccine-preventable deaths in the world, accounting for more than 40% of the 1.4 million annual deaths due to vaccine preventable diseases. It is reported to be the fourth leading cause of death in children under 5 years in many African countries (MoHSS, WHO & CDC, 2011).

The Millennium Development Goals Report (2012) by the UNDP indicates that accelerated efforts to reduce measles deaths have resulted in a 74% reduction in global measles mortality

from an estimated 535, 300 deaths in 2000 to 139,300 in 2010. However, in spite of these impressive gains, an estimated 19.1 million children, many of whom the poorest and most marginalised who lived in hard-to-reach areas, were reported not to have received MCV1 in 2010.

2.7 Measles immunisation effectiveness

Measles immunisation is reported to be effective if it is given at the age of 12 months, when it is considered to be most effective. However, reference is made to WHO position paper (2009), which states that it should be administered in line with the epidemiology of the country. The countries with a high risk of on-going transmission with high infant mortality administer the vaccine at the age of 9 months, compared to developed countries where it is administered at or after the age of 12 months.

The performance statistics at local, national and international levels are used to monitor trends and levels. Performance Statistics therefore serves as a guide for campaigns to eradicate polio, control measles and eliminate neonatal tetanus (UNICEF/WHO, 2012).

In order for immunisation services to be effective and efficient, according to Ndiritu et al. (2006), the benefits of vaccination must be clearly understood among community members; there should be a readiness to provide vaccination by the health services; and interventions to overcome factors that may hinder access to immunisation services or form barriers should be embarked upon.

2.8 Factors affecting low uptake of measles immunisation in children under 5 years

These factors are categorised as individual factors, socio-cultural factors, socio-economic factors, health system factors and vaccine related factors.

2.8.1 Individual factors

There are various factors that influence the decision for the mother or caregiver to take the child for follow- up measles immunisation. These factors include:

Understanding and beliefs on the benefits of measles immunisation

The understanding and beliefs of a mother or caregiver may affect their perceptions on the benefits of measles vaccination. A study conducted in Ghana found that despite the high level of awareness of vaccination and the National Immunisation Days among parents and caregivers of children aged 1 month to 5 years in Barekese subdistrict, there was poor awareness of the benefits of vaccination and knowledge gaps on the benefits of EPI vaccines for diseases prevention (Ansong et al., 2014). In Nigeria, low demand for immunisation at the family and community level due to lack of understanding are among the cited reasons for the low rates of vaccine coverage. Poor knowledge of (41.6%) was documented among parents with regard to the importance of administration of multiple doses of the same vaccine for child immunity in a study conducted in Saudi Arabia, suggesting that some parents might believe that only the first dose of the vaccine was sufficient to develop immunity and protect the child (Yousif, Albarraq, Abdallah & Elbur, 2013). A pilot study in Nigeria revealed that a number of immunisation decision makers and caregivers in Katsina state stated that only polio immunisation was required to render immunisation of a child against all other childhood illnesses (Ophori, Tula, Azih, Okojie & Ikpo, 2014). Factors such as lack of understanding of vaccine adverse reactions as revealed by the study findings at Opuwo district in Namibia, may discourage some mothers from having their children immunised (Taapopi, 2002). The lack of information together with lack of motivation was identified as obstacles that had an effect on immunisation coverage in Nyala locality, South Darfur State in Sudan (Ismail, El-Tayeb, Omer, Eltahir, El-Sayed & Deribe, 2014). According to a study conducted in Opuwo, Namibia it was found that age was important for understanding particular situations - the findings revealed that 80% of the children whose parents/caretakers were aged between 25 and 34 years had received measles compared to 76% of children whose parents were aged between 15 and 24 years (Tjiveze, 2012).

A study conducted in Nigeria revealed that people who were “least likely to demonstrate high levels of correct knowledge” were those that did not use public health facilities for the treatment of common illnesses, those that could not access public health facilities and the illiterate (Ophori et al., 2014: 72). Further studies based on focus group interviews in two Nigerian states revealed lack of knowledge and negative attitudes about vaccination (Cockcroft, Usman, Nyamucherera, Emori et al., 2014). The lack of knowledge was also revealed by the study conducted in Namibia (19.6) at Mahenene Health Centre in Outapi Health District, Namibia (Shikongo, 2010). A study by Masilani (2010) conducted in

Kawama, Zambia, also revealed that 99% of respondents understood why it was necessary for their children to receive vaccinations. The respondents believed that vaccines had a potential of protecting children from various diseases. Thus, it indicated the willingness of community members to accept and participate in immunisation services as long as they were able to access the health centre or health post.

Education level

The studies featuring parents, mothers or caregivers have identified the education level as having an influence on their decision to immunise or not to take their child for immunisation. Another study conducted in Zambia, Sesheke district revealed that 40 percent of respondents who had never been to school were not knowledgeable; suggesting that the more educated the respondents, the more likely they were to be knowledgeable about measles and vice versa (Cheelo, 2011). These findings are supported by a study conducted in Kacheliba Division in Kenya, which found that mothers or guardians with at least a secondary education were more likely to have fully immunised children compared to mothers with primary or no schooling (Koskei et al., 2014). Studies by Taapopi (2002) and Tjiveze (2012) conducted in Opuwo, Kunene region revealed that the higher the education levels of parents, the higher the vaccination coverage of their children.

Forgetfulness

According to a study in Nigeria by Onyiriuka (2005) as cited by Cheelo (2011), the commonest reported reason for immunisation defaulting by mothers who had sick children was related to forgetfulness to take the child for follow-up dose after recovery from an illness. The study findings in rural Nigeria also indicated that forgetfulness was among the reasons for partial immunisation; mothers were reported to have forgotten the days when immunisation was offered (Abdulraheem, Onajole, Jimoh & Oladipo, 2011; Jegede & Owumi, 2013). The link between education and mothers forgetting the dates when their children were due for their next immunisation was demonstrated in a study in South Western Nigeria (Jegede & Owumi, 2013). The study findings conducted in Benin City, Nigeria, revealed that the vaccine where most defaulting occurred was measles, suggesting that it might be related to long intervals between the third dose of DPT at 14 weeks and the follow up injection at nine months (Onyiriuka, 2005).

Travelling

A study that was conducted in South Western Nigeria identified having mothers who travelled often to be one of the reasons for non-attendance at vaccination clinics. These mothers were not against immunisation, but they claimed that they forgot their children's immunisation card at home due to clashing activities (Jegade & Owumi, 2013). The study findings done in Opuwo, Namibia reinforced this, identifying that the children of parents and caretakers who had to travel for one hour or less were usually vaccinated against measles (85%) compared to children whose parents had to travel for more than one hour, where only (46%) were vaccinated (Tjiveze, 2012).

Commitment

Studies have revealed that reasons for defaulting may be related to conflicting activities where other activities in the household had to be prioritised over childhood vaccination (Cockcroft et al., 2014). These include activities such as farming work, which is rated to be more important than taking time to have children immunised, and also clashes of immunisation days with the economic activities of mothers, especially the market days (Jegade & Owumi, 2013). Mothers being too busy, and family problems including adult or child illness, and lack of motivation, were among the obstacles reported by mothers at Nyala locality (Ismail et al., 2014).

Alcohol use

Alcohol is viewed to have damaging physical, psychological and social consequences for adults, authors in one study state that parents who consume alcohol on a regular basis are perceived to be vulnerable to neglecting their responsibility of caring for the wellbeing of their children (Burke, Schmied & Montrose, 2006). Thus, parents' responsibility for addressing the need of taking their children for immunisation is very important for the child's health. The effect of parental alcohol misuse on children' development, family functioning and parenting needs to be addressed prior to the occurrence of damaging effects.

Other factors

The findings from other studies revealed that the mothers whose children were not vaccinated were likely to be influenced by other factors such as laziness, ignorance, or alcohol use.

Ignorance among mothers was reported to be one of the main reasons for dropout or nonimmunisation of children (Yadav, Mangal, Padhiyar, Mehta & Yadav, 2006). A study by Masilani (2010) indicated that ignorance of the value of vaccinations was among the reasons identified for why some children failed to complete immunisations.

2.8.2 Social-cultural factors

Culture is seen as playing a major role in vaccination demand and the lack of in-depth understanding of the role of cultural practices by health workers results in a communication and knowledge gap regarding the use or non-use of vaccines. In other words, community beliefs may influence the acceptance or rejection of vaccination services. A study conducted on measles resurgence in Southern Africa revealed that nomadic population practices in Namibia were reported to have caused suboptimal vaccination coverage which is viewed to have contributed to outbreaks among at-risk sub-populations (Shibeshi et al., 2013).

Another study conducted in Opuwo, Namibia revealed that children from ethnic groups with a more traditional way of life were less likely to be immunised (Tjiveze, 2012) based on these groups' views of immunisation. The findings revealed that Himba children were not completing their immunisation compared to other tribes such as Vambos. The Himba and Herero ethnic group share a common identity related to their love for animals in addition to their nomadic lifestyles; they tend to be mobile in nature and due to the fact that they are always on the move, little importance is attached to immunising their children (Tjiveze, 2012). A study conducted in China also found that 161 out of 253 cases of measles were from the hanging populations who did not have permanent residence cards (Aiqiang, Zijian, Wembo, Lixia, Wanshen et al., 2003).

The context in which vaccinations are given also has an impact on immunisation. According to the findings of a study in southwestern Nigeria, a visit to an immunisation assembly point is an occasion that is viewed to be a social event and most likely to be associated with group movements, singing, dancing and social networking, as nursing mothers meet the people in their neighbourhoods, friends or those who gave birth at the same time. These immunisation centres are viewed to stimulate the interest of nursing mothers to attend it as a social event

while at the same time it is viewed as creating a demand for immunisation (Jegade & Owumi, 2013). However, the authors state that despite the strong active and social demand for immunisation, concerns are still expressed by some parents. The concerns are reported to focus on two issues, namely, the perceived objective of immunisation and the perceived side effects, as it is perceived by some to be a means for “fertility control” (Jegade & Owumi, 2013: 3). A study conducted in southwestern Nigeria revealed that, despite immunisation being permitted in their culture, 5.2% of respondents believed that herbs were good substitutes for immunisation. Furthermore, 70.9% believed that a sick child was not entitled to receive immunisation (Adeyinka, Oladimeji, Adeyinka & Aimakhu, 2008).



2.8.3 Family and social support structures

The responsibility for taking children for immunisation is a societal expectation that is left to women. However, their socially subordinate role does not avail them with the means to get the immunisation services, since they depend mostly on social networks to access them. For example, some mothers in Istanbul, Turkey were not permitted to go out alone (Topuzoglu, Hidiroglu & Gurbuz, 2006). The authors point to the fact that, to access services, they needed support from their relatives or neighbours or to get permission from their spouses or from the older members of the family in order to go out alone. Whereas in other cultures, such as in Ghana/Nigeria, the social structures were cited by the participants, as some of the most influential factors in immunisation decision making, including the support from a spouse and community announcements with a public address system (Ansong et al., 2014). A study that was conducted in Dili, Timor-Leste in Asia, also indicated that mothers of children who were fully immunised were reported to have received financial and moral support from their husbands (Amin, de Oliveira, Da Cunha, Brown, Favin & Cappelier, 2013). Three women in a study conducted in South Western Nigeria indicated that they needed permission from their husbands to take their children for immunisation (Jegade & Owumi, 2013).

2.8.4 Religious beliefs

A study conducted in Saudi Arabia indicated that 56.8% of parents strongly agreed that child immunisation was not prohibited by their religion (Yousif, Albarraq, Abdallah, & Elbur Al (2013). In contrast, in Nigeria it is reported that “the greatest challenge to the acceptance of immunisation is a religious one especially among the northern Nigerian Muslims” (Ophori et al., 2014: 73). This impact is evident in the immunisation coverage, where Christians are reported to have had 24.2% immunisation coverage compared to only 8.8 % for Muslims. The apostolic religious communities’ reluctance to accept vaccinations for faith-based reasons in Zimbabwe, Malawi, Botswana, Swaziland and South Africa are reported to have resulted in sub-optimal vaccination coverage and to outbreaks in measles resurgence in Southern Africa (Shibeshi et al., 2013). An additional study in Zimbabwe also revealed that the majority of measles cases (75%) were from the Apostolic Sect that refused immunisation and western or traditional medicine based on their religious beliefs, and as a result such communities are reported to have missed immunisation during routine and supplementary immunisation activities (UNICEF/WHO, 2010).

2.8.5 Socio-economic factors

The socio-economic status of mothers or caregivers has been revealed to have an influence on the uptake of vaccination. Factors such as employment and poverty are among the determinants of uptake of vaccination. A study conducted in Kawempe division, Uganda by Kamanda (2010) revealed that parents with higher incomes were able to cater for the costs involved in repeated visits, while household with low income and where the parents were not married showed less urgency for them to take their children to complete immunisation schedules. Hence measles vaccination was still a challenge (Kamanda, 2010). Study findings in Malawi indicated that the caregivers were unable to vaccinate their children despite their willingness to do so due to cost (Minetti et al., 2013). A study at Outapi Health District in Namibia by Shikongo (2010) also identified poverty as the leading contributing factor to the inability to pay for transport to take children for immunisation. Other factors cited in this study included factors such as lack of transport and poor road infrastructure. Other studies also cited poverty as a contributing factor. These included a study done in Opuwo, Namibia, which indicated that adequate financial support was one of the requirements for increasing immunisation rates (Tjiveze, 2012). These findings are supported by a study conducted in Uganda; this study states that most women cited support from partners when they took their children for immunisation such as money for transport (Babirye, Rutebemberwa, Kiguli, Wamani, Nuwaha & Engebretsen, 2011). According to a study in rural Nigeria, lack of money was identified as one of the reasons for partial immunisation (Abdulraheem et al., 2011), and that mothers whose spouses did not provide money could not access immunisation services in Istanbul, Turkey (Topuzoglu et al., 2006).

2.8.6 Health system factors

Studies have shown that health system factors such as long distances to health facilities, shortage of vaccine, shortage of staff at health facilities, attitudes of health workers and patient health provider relationship are barriers to immunisation uptake (Ismail et al., 2014; Cheelo, 2011; Shikongo, 2010; Tjiveze, 2012).

Long distances to health facilities

Travelling long distances to health facilities may have impact on vaccine uptake. A study carried out in Malawi revealed that caregivers were willing to vaccinate their children, but due to reasons such as distance, they did not take their children for vaccination (Minetti et al., 2013). A study conducted in Nyala locality in South Darfur State in Sudan indicated that the reasons given by mothers for 78 non-immunised and partially immunised children included obstacles such as the place of immunisation being too far (Ismail et al., 2014). Long distances to the health facility were also reported to be a contributing factor for low measles immunisation coverage by 80% of respondents at Sesheke in Zambia (Cheelo, 2011); this finding is supported by Tjiveze (2012); Abdulraheem et al. (2011); Shikongo (2010) and Adeyinka (2008). A study conducted in Arba Minch town and Zuria district in Southern Ethiopia on EPI coverage and associated factors among children of 12 -23 months on the predictors of immunisation and its coverage, found that the mothers' perception of accessibility to vaccine site and knowledge about the vaccine schedule were among these factors (Animaw, Taye, Merdikios, Tilahun & Ayele, 2014). Furthermore, Animaw et al. (2014) noted that in their study, more than 76.1% of children whose mothers perceived the vaccine site to be accessible to their residential area were fully immunised, compared to only 41.7% for those who perceived them to be inaccessible. These findings are further supported by Shikongo (2010), who identified long travel time to the health facilities as contributing to low EPI coverage.

Availability of services and vaccines

Availability of services and vaccines has an effect on immunisation coverage. The poor coverage of measles between 1998 and 2005 in Nigeria was blamed on vaccine shortage and administrative problems that were related to political problems (Ophori et al., 2014). A study done in Zimbabwe identified a contributing factor to measles outbreak related to cold chain issues where vaccines could not be maintained at correct effective temperature levels, and to lack of funds over a five-year period, which hampered the provision of outreach services to hard to reach areas and communities. Additional reasons for incomplete immunisation given by mothers at the Nyala locality in South Darfur State, Sudan (Ismail et al., 2014) included inconvenient times for the immunisation; the vaccinator being absent and vaccines not being available; immunisation sessions being done fortnightly in Zambia (Cheelo, 2011); long waiting times, lack of vaccine on the appointment days for vaccination, lack of information

about the days for immunisation and the absence of personnel at the at the health facility in rural Nigeria (Abdulraheem et al., 2011; Jegede & Owumi, 2013); and long waiting queues in southwestern Nigeria and Opuwo in Namibia (Adeyinka et al., 2008; Tjiveze, 2012).

Shortage of staff at health facilities

In a study conducted in Kacheliba Division, Pokot County, Kenya the absence of health personnel at health facilities was among the cited reasons for the respondents failing to immunise their children at least twice (Koskei, Tabu, Malalu, Marete et al., 2014). The findings from a study in Kavango region, Namibia identified that staff shortage such as the availability of one nurse per clinic is reported to have contributed to gaps in service delivery and to a high employee burn out (UNICEF/Namibia, (2010). The findings are supported by another study that was conducted at Sesheke in Zambia, 80% of the respondents reported that measles coverage among under 5 was low due to inadequate staff (Cheelo, 2011).

Attitudes of health workers

Effective interaction between health professionals and parents is viewed to be a motivating factor, since it can address concerns for the parents who are willing to vaccinate their children, while poor communication can contribute to rejection of vaccines (Leask et al., 2012).

Study findings in Istanbul identified health care workers' attitudes towards the mothers were very important for improving immunisation services. According to the findings by Topuzoglu et al. (2006), the mothers stated that they were reproved severely by health care workers for having wrong practices, wrong information, or when they asked questions; the attitude was very evident where mothers had missed immunisation sessions. Mothers who had missed sessions were judged, and as a result these discouraged mothers did not want to get the services after missing one session.

However, in the study by Jegede & Owumi (2013), the findings revealed different views from the community members; despite complaints from some mothers who were still discouraged at times by the behaviour of some clinic staff, the blame was shifted from the staff to the government. The cited complaints included clinic staff being rude, not treating them with respect, and not coming promptly to the clinic on many occasions, which in turn contributed to prolonged waiting periods at the clinic and no apologies offered when the clinic staff arrived.

Patient-health provider relationship

The relationship between patient and health provider may influence the immunisation rates. A study conducted on factors that were associated with measles immunisation coverage in Opuwo Health district in Kunene region, Namibia revealed that client friendly services was one of the factors identified as having the potential to increase immunisation rates (Tjiveze, 2012). A lack of a trusting relationship with health professionals is also reported to have had an adverse effect on immunisation decision making (Austin, Campion-Smith, Thomas & Ward, 2008).

2.8.7 Vaccine related factors

Knowledge of vaccine effectiveness and schedule

A study by Lyimo (2012) on the uptake of measles vaccination and associated factors among under fives in Temeke District, Dar es Salaam Region, Tanzania indicated that there was a relationship between low uptake of vaccination and caregivers being not knowledgeable about the month of vaccination and about the importance of supplementary vaccination; thus, it suggests that being knowledgeable about the vaccine has an effect on the health seeking and exposure to knowledge among caretakers.

According to the study that was conducted in Witzenberg sub-district of the Western Cape, South Africa, parents and /or caregivers were positive about immunisation and about their experience within the health service environment. However, their knowledge about the purpose of and contra-indications for immunisation was insufficient, although most parents reported an experience of side effects after immunisation (Dyson, 2011). According to Abdulraheem (2011) only 14.1 % of mothers knew that the vaccination against childhood killer diseases should be completed at the age of nine months with yellow fever and measles, suggesting that most mothers were not aware of the completeness of the childhood vaccine schedule. As a result, the author points to the fact that less than half (37.2%) of the mothers completed routine immunisation schedules for their children by the age of 9 months.

Meanwhile, in Barekuma Community Barekese sub-district in Ghana, knowledge gaps regarding the benefits of the practice and adherence to recommended vaccine schedules were noted through decreased follow up visits for later vaccines, despite universal awareness of immunisation conduct among the participants (Ansong et al., 2014). The author identified that, despite the noted high level of awareness of vaccination and the National Immunisation Days among parents and caregivers in the community, there was inadequate awareness of the

benefits of vaccination and of diseases that were prevented by the EPI vaccines. As a result, it was observed that despite the noted positive attitude of participants, the scheduled vaccine rates were generally very low. Another study in Southern Ethiopia identified that the mothers of 59.3% of children who were not fully immunised did not know the local vaccine schedule compared to 76.1% of fully immunised children whose mothers knew the local vaccine schedule (Animaw et al., 2014).

2.8.8 Vaccine side-effects

The children's reaction to vaccinations may discourage some mothers from taking their children for follow-up vaccination. The findings at Opuwo district in Kunene region, Namibia (Taapopi, 2002) revealed that some contributing factors to low immunisation were possible vaccination reaction which included fever, pain on the injection site and irritability. Findings by Hill (2013), from a study conducted in the United Kingdom (UK), support Taapopi's findings; pain was also identified as a primary factor that influenced the mothers to decide on the number of vaccines that could be received by their children. According to Cockcroft et al. (2014), the findings indicate that many groups blamed side effects from vaccination, such as fever and local soreness, among the reasons why some parents did not take their children for vaccination, while others are reported to have had fear and misconceptions related to vaccination, such as the belief that vaccinations could lead to infertility or even death of their children. The mothers, whose children defaulted on measles immunisation due to illness, are believed to have had misconceptions that minor illness was an absolute contra-indication to vaccination. This is based on the likelihood that they lacked information, education and communication on contra-indications to measles immunisation (Cheelo, 2011). Parents were also reported to have objected, disagreed or to have had concern about immunisation safety in a study in rural Nigeria (Abdulraheem et al., 2011). Another study by Hu, Li, Luo, Lou, Qi and Xie (2013) reported misunderstanding of vaccine side effects and the child being sick during vaccination time to be some of the factors that contributed to low uptake of measles-containing vaccine in East China.

2.9 Health related behaviour

A person's health related behaviour has been linked to the perceived levels of threat, which will in turn influence the action to be taken; for example, if an individual feels that a negative health condition can be avoided, he/she will take the recommended action to avoid it (Ansong et al., 2014).

According to McMurray, Weighall, Schweiger and Mukherjee (2004), an experience of an infectious disease such as measles, or the observation of the negative impact of the disease in terms of morbidity or mortality, was a strong motivator for parents whose children were immunised. The mother or caregiver's past experience with the severity of the measles disease was also revealed in some studies as a motivating factor for the parents whose children were vaccinated.

2.10 Summary

In summary, the review has provided background information with a global focus, an African focus and a Namibian focus on the progress of measles immunisation and on recommendations. The review also highlighted factors that affect low uptake of measles immunisation among children under 5 years of age. The review discussed various individual factors that influence the mother/caregiver's decision to take the child for follow-up measles immunisation, social cultural factors, family and social support structures, religious beliefs that lead parents to reject vaccination, socio-economic factors, with poverty as a main challenge to accessing services, health system factors, vaccine related factors and finally, factors regarding health related behaviour, that may promote or inhibit the uptake of measles immunisation. The level of awareness and acceptability of immunisation is positive; however, there is a knowledge gap on the benefits of immunisation, which leads to a lack of commitment to taking children for later vaccinations, whereby mothers/caregivers due to other competing priorities tend to forget the scheduled measles appointments. The other challenges are related to health system factors, among them long travel distance to health facilities, availability of staff, availability of services and vaccines and attitudes of staff, as well as unavailability of community reminders informing mothers/ caregivers to return for follow-up immunisation. Thus, since there is limited information about active involvement of the community in immunisation activities, this study contributes to a better understanding of factors that can promote or serve as barriers to effective immunisation services on the supply and demand side.

CHAPTER 3 - METHODOLOGY

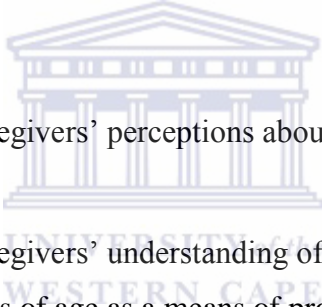
3.1 Introduction

Chapter 3 presents an overview of the methodology used in this study, which includes the aims and objectives, study design, study setting, research population, sample and sampling procedure, data collection and analysis, ethical considerations and study limitations.

3.2 Aim

The aim of the study was to investigate the perceptions of mothers/caregivers of the factors that impact on the uptake of measles immunisation coverage in the Nyangana Health District in the Kavango region.

3.3 Objectives

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- To explore mothers' or caregivers' perceptions about the severity of measles as a childhood illness
 - To explore mothers' or caregivers' understanding of the impact of measles vaccination on children under five years of age as a means of protection against measles
 - To explore mothers' or caregivers' perceptions about the facilitating factors related to the uptake of measles immunisation
 - To explore mothers' or caregivers' perceptions about barriers to the uptake of measles immunisation
 - To explore mothers' or caregivers' perceptions about mechanisms for improving the access to immunisation.

3.4 Study design

This study employed a qualitative explorative design. The rationale for using a qualitative approach was to explore the understanding and knowledge of mothers/caregivers of the factors that affect uptake of measles immunisation, from their perspectives. The qualitative approach is suitable as it allows the researcher to gain an understanding of the social or cultural meanings by which people make sense of their experiences of health and disease

(Baum, 1995); it is also suitable because qualitative designs place more emphasis on the lived experience of participants, in an attempt to understand the phenomenon in totality rather than focusing on specific concepts (Pope, Ziebland & Mays, 2000). Furthermore, the design was preferred since an investigation found no evidence of a previous qualitative study being undertaken in the region.

According to Balcha et al. (2006), an explorative design provides more insight about the nature of phenomena, as it enables greater openness from participants and allows greater flexibility in data collection. This is supported by Baum (2008: 180) who states that: “qualitative research is best suited for studies that aim at exploring health behaviours and gives understanding of how people interpret health and diseases and make sense of their experiences as well as systematic review of the research question that cannot be answered by quantitative methods”. Mathole (2005) further asserts that the most suitable methods to study perceptions and to generate in-depth understanding based on the respondents’ perspectives are qualitative designs. Hence the researcher used a qualitative explorative design to investigate the lived experiences of mothers/caregivers whose children received or did not receive measles immunisation, in order to explore their understanding, knowledge of the disease, beliefs and their perceptions of mechanisms for improving access to immunisation. Mothers/caregivers play a very vital role in describing factors that influence their decisions of whether their children should receive or not receive measles immunisation.

3.5 Description of the study setting

The study was conducted in villages that access immunisation services at Karukuta Clinic in the Ndiyona constituency. Karukuta Clinic is 12 km away from, and west of, Nyangana Hospital along a gravel road. Nyangana Hospital is 100 km away from Rundu town. The catchment population for Karukuta Clinic is 7,079, the third most used out of nine clinics, and with a total of 1 305 (15 %) of the population being children under five years of age.

Unemployment is high at Karukuta village, a rate that is supported by regional comparison findings that revealed that unemployment is highest (70% or more) in Omusati, Ohangwena and Kavango regions (Jauch, 2012).

3.6 Study population

The study population refers to “the total number of units from which data can be collected” Parahoo (1997: 218). According to the author, such population groups may include individuals, artefacts, events or organisations. Burns and Grove (2003) state that the population is all elements that meet the criteria for inclusion in a study. This study population included all adult mothers/caregivers of children under five years in Nyangana District at the selected health facility.

3.7 Sampling

A sample is defined as “a representative portion of the population under study” (Polit & Hungler, 2003: 234); therefore it refers to the elements of the population for actual inclusion in the study. Sampling, according to De Vos, Strydom, Fouche and Delport (2005), is the actual process of selecting a sample from a total population for the purpose of obtaining information regarding a phenomenon, in a way that will represent the population of interest. Qualitative research does not require a large random sample, since qualitative studies seek to describe a range of experiences rather than to collect numbers for statistical analysis (Basset, 2001). In qualitative studies the size of a sample is guided by the purpose of the inquiry. Mays and Pope (2000) describe purposive sampling as a strategy that is used in qualitative studies whereby participants are grouped according to predetermined criteria that are relevant to a particular research question. Purposive sampling, as supported by Holloway and Wheeler (1997), is thus a type of sampling where persons and events most likely to provide information-rich data about the problem, are selectively chosen. According to Robson (2011: 275), the principle of purposive sampling is based on the “researcher’s judgements as to the typicality or interest” in order to satisfy their specific needs in a project. Purposive sampling was used to select participants in this study.

The Primary Health Care (PHC) Supervisor at Karukuta Clinic assisted with identifying the sample using the EPI cohort register. The participants (mothers or caregivers of children) were identified from the records of all immunised children in the EPI cohort register. They were selected based on the following criteria:

- Mothers/caregivers of children under five years of age who received measles immunisation

- Mothers/caregivers of children under five years of age who did not receive measles immunisation

Residents of villages who accessed immunisation services at Karukuta Clinic from 2012 to June 2015 and who lived within a 10-kilometre radius. The eligibility criteria were developed to ascertain that mothers/caregivers had the same circumstances, exposure and experiences with regard to accessing immunisation services at the health facility.

Twenty participants were identified from the EPI cohort register, 10 mothers whose children received measles immunisation and 10 mothers whose children did not receive it. This number exceeded the number of 10 participants to actually be interviewed, to cater for challenges of contact tracing. This proved to be a useful precaution, as the researcher did face several challenges with tracing of mothers/caregivers. Despite an earlier appointment having been made, all the clinic nurses who were scheduled to assist with identifying the sample, unexpectedly had to attend unplanned workshops, and so were not readily available. In addition, the PHC supervisor could not assist much with contact tracing owing to the fact that the EPI cohort register only had information about the villages where the mothers lived, and not the specific family head name; nor did she know the mothers. The process was also cumbersome; some mothers used names at the clinic that were not recognised in the villages, some parents moved away after the death of a child, some relocated to other places, while others agreed to be available for appointments but on the day of the interview were not available.

A further attempt was made to consider alternative means of contact, tracing the mothers to be interviewed. The researcher, in the absence of clinic nurses, had to seek assistance from the available support staff such as the field promoter, cleaner and security guard. The field promoter advised the researcher to seek the assistance of the principal at the school located just across the road from Karukuta Clinic, to identify some mothers through learners, for those mothers who had school-going children. This was achieved by providing a list of names (for the mothers and children) to the school principal, to ask the learners to indicate if they knew any of them.

Following the procedure, a total of 10 participants were identified. Stratification was used to divide the mothers into two categories of five (5) each – mothers whose children had received one dose or more of measles immunisation and mothers whose children did not receive any dose of measles immunisation.

3.8 Data collection

Data collection refers to the precise and systematic process of gathering information relevant to a research problem through the use of questionnaires, interview schedules and guides, field notes and records or artefacts (Burns & Grove, 2005).

In this study, in-depth interviews were used as the primary source of data collection. This data collection method was used for the study, as it is considered to be a relevant tool to use when the researcher seeks to learn about people's feelings, thoughts and experiences (Bowling, 2002). Furthermore, according to Boyce and Neale (2006), in-depth interviews are considered to be useful when a researcher wants detailed information about persons' thoughts and behaviours, or when the researcher wants to explore new matter in depth, as they provide a more relaxed atmosphere in which to collect data.

The mothers who responded to the request reported at the clinic, where they were individually briefed on the purpose of the study (Appendix 1) and asked whether they were willing to participate. These mothers were provided with transport to return to their respective homes and were given appointment dates for an interview in their own homesteads.

A research assistant was recruited and trained to assist with note taking, handling of the voice recorder and to observe clues of non-verbal body language from the participants. The researcher conducted face to face in-depth interviews with the 10 mothers in the language of their choice. Prior to the data collection process, verification was done from the children's immunisation cards shown to the researcher and research assistant, to ascertain whether measles immunisation was received or not. Refreshments were provided: all participants received one loaf of bread, one litre of juice and lolly pops for their children as refreshments for the waiting time, after the in-depth interview.

The researcher and the research assistant had to commute from Rundu to Karukuta (100 km away from Rundu), therefore a field promoter assisted in reminding mothers and verifying that they were ready for the interview. The women were reminded about the appointment a day prior to the interview. A total of ten (10) mothers were interviewed on the agreed dates within a period of one week. The procedure and process of the interview was explained to the participants before the interview. The interviews lasted between 30 and 45 minutes.¹

¹ All interviewed participants were the mothers of the children.

The researcher used an interview guide (Appendix 3); open-ended questions and probes were used to explore more in-depth information from the respondents. This allowed the respondents to describe their lived stories in their own words, about their experiences of the vaccination history and status of their children. This level of information would have been difficult to gather if a quantitative method had been used. The researcher and the research assistant conducted interviews at the respondents' own homesteads, to ensure confidentiality and convenience.

The research assistant took notes and the interviews were audio recorded with the permission of the participants. Audio recording ensures that the researcher does not miss any valuable information; it also allows interviewers to prepare transcripts for analysis, affords maximum validity and allows the gathering of rich data (Polgar & Thomas, 1995). The field notes were treated as valuable information for the analysis of collected data, hence the researcher and the research assistant compared observations and summarised the field notes after each session.

3.9 Data analysis

The tape-recorded in-depth interviews were transcribed verbatim to ensure that no information was missed prior to data analysis, and translated into English as required. Prior to undertaking data analysis, the researcher took note of her personal preconceptions about the phenomenon under study. This process, which is referred to as “bracketing” according to Tesch (1990), involves the suspension of the researcher's meaning and interpretation as much as possible, to enter into the world of the individual being interviewed. Inductive data analysis commenced as soon as the audio recorded interview had been transcribed; it ran concurrently with data collection for which enhanced learning during the research. The researcher used manual data analysis following a Thematic Coding Analysis process; the transcribed interview and narratives from the field worker's notes were coded into main themes and sub-themes (Mkandawire & Stevens, 2010). The process of Thematic Coding Analysis, as outlined by Robson (2011), involves five phases. The initial phase involved familiarisation with the transcribed data to search for meaning. The researcher engaged in repeated reading of data transcripts and repeated playing back of audio-recorded data to grasp what was said by the participants. The second phase was the coding of data into emerging themes, sub-themes, categories and sub-categories. The elements to be coded may include activities/behaviours, events, relationships, interactions and contextual factors, among others (Gibbs, 2007). In this study, information was organised as it emerged, into meaningful ideas based on the observed

similarities or differences, and assigned codes. The third phase identified main themes, which were sorted into categories of meaning as they emerged, and combined into clusters of ideas. This was followed by phase four, namely refining these themes through collapsing similar themes into one, and separating other themes into two. The final phase integrated and interpreted themes, giving explanations that will make sense to other readers.

3.10 Rigour

Qualitative research needs to be conducted with rigour and care (Coffey & Atkinson, 1996). Rigour is of the utmost importance as it ensures that the results and interpretations are credible and trustworthy. In order to ensure that the research is trustworthy, the researcher employed data triangulation. Triangulation of data is regarded as a valuable and widely used strategy involving the use of multiple sources to enhance the rigour of the research (Robson, 2011). Denzin (1988b cited in Robson, 2011), distinguished four types of triangulation, with *data* triangulation being one of the methods. Thus, data triangulation methods for comparing interviews were used to triangulate empirical data from the different interviews conducted. The data from mothers whose children had received measles immunisation was triangulated with mothers of children who did not receive measles immunisation. A member-checking technique was also undertaken to establish confirmation of the collected data and narrative accounts from participants (Creswell & Miller, 2000). Tappen (2011) asserts that findings should be phrased in such a way that participants understand them, so as to give feedback on whether they reflect what was discussed during the interview. In this study, member-checking was done with all mothers whose children had received measles immunisation and with those whose children did not receive it. Data was crosschecked with the research assistant's field notes in order to assess shared understanding and consistency in the collected information, after each interview session. Emerging issues from the interviews, from both the researcher's and field worker's observation notes and reflections were discussed at the end of each in-depth interview. The researcher used the research assistant throughout the process to check on reflections.

An audit trail was used to keep a full record of activities of the study process. According to Creswell and Miller (2000), an audit trail refers to a process where the researcher employs external reviewers to determine validity. The activities included safekeeping of all raw data such as transcripts of interviews, field notes and audio tape recordings (Robson, 2011).

3.11 Limitations

The study results were limited to the study setting, and therefore the results derived from this study cannot be generalised to all mothers/caregivers of other children outside the study setting. The nature of qualitative research is not to generalise, as it is not possible to do so because only a small sample of the population is chosen, and random sample selection methods are not used (Boyce, 2006).

Since the study sample was small owing to limits of time and resources for a minithesis, there was a further limitation for the researcher, as it was not possible to reach the point of data saturation. In addition, the different dialects of language used by participants during the interviews could be regarded as a potential limitation. However, the researcher, with the assistance of a trained research assistant who was conversant in all the dialects within the study area, made all efforts to ensure that there was good understanding, where clarity was required.

3.12 Ethical considerations

Ethical approval for the study was obtained from the University of the Western Cape Senate Research Committee. The letter of approval was directed through the regional director of the Kavango region, the principal medical officer for Nyangana District and the Primary Health Care supervisor for Nyangana District (Appendix 4). Permission to conduct the study was also sought at national level from the Permanent Secretary of the Ministry of Health and Social Services in Namibia, who serves as an accounting officer for the Ministry (Appendix 5).

Ethical principles were adhered to by the researcher. The purpose of the study was explained to the participants (Appendix 1), and written consent forms (Appendix 2) were obtained, prior to the interview, from those who were willing to participate in the study. In accordance with Terblanche, Durkheim and Painter (2007), the purpose of the consent was to ensure that participants understood what was expected from them and that they agreed to take part. The voluntary nature of participation was made clear prior to data collection, informing participants that they could withdraw if they so wished without any consequences, or penalty in future with regard to the use of services at the clinic. The participants were assured that there were no risks to participating, and that they would be informed about the intended benefits of the research. Furthermore, the participants were assured that the information derived from the study would not be shared with anybody who was not directly involved in

the study, and that field notes and audio-tapes would be kept in a safe place. They were also reassured that their identities would not be revealed. To ensure this, codes were used in such a way that participants would remain anonymous. The researcher used number codes (P1 to P5) to identify mothers whose children had received measles immunisation and symbol codes (PA to PE) for mothers whose children did not receive measles immunisation.

The participants who seemed to be uncomfortable about sharing their perceptions were assured of confidentiality. Participants were informed that if they felt emotionally stressed by the interview, a social worker was available for them to talk to for support. Such stress was anticipated to result from emotional harm from past experiences encountered during the process of accessing immunisation services.



CHAPTER 4 - FINDINGS

This chapter presents the findings of this study about the perceptions of a sample of mothers/caregivers of children under five years of age. The participants' comments are presented in italics.

The research analysis will be reported according to the following themes:

- Socio-demographic description of study participants
- Individual factors
- Social- cultural factors
- Socio - economic factors
- Health System factors
- Vaccine factors
- Perceptions on improvement mechanisms from both mothers of children who received vaccinations and those who did not

In Appendix 6, the findings from the participants are tabulated.

4.1 Socio-demographic description of study participants

Participants were mothers of different age groups between 24 and 37 years; there were no caregivers. Table 1 below presents the participants and their characteristics. It is evident from the table that the majority were unemployed.

Table 1: Participant socio-demographic characteristics

Mothers/caregivers of children who received measles vaccination								
Participant	Sex	Relationship	Age	Parity	Marital status	Education level	Religion	Employment status
P1	female	mother	32	2	single	Grade 9	Catholic	unemployed
P2	female	mother	24	3	married	no school	Holy Trinity	unemployed
P3	female	mother	36	5	married	Grade 4	Catholic	unemployed
P4	female	mother	24	4	married	Grade 4	Catholic	subsistence farming
P5	female	mother	25	3	married	Grade 5	Apostolic	unemployed
Mothers/caregivers of children who did not receive measles vaccination								
Participant	Sex	Relationship	Age	Parity	Marital status	Education level	Religion	Employment status
PA	female	mother	37	4	married	Grade 8	Catholic	unemployed
PB	female	mother	Not known	6	married	Grade 3	Faith Apostolic	subsistence farming
PC	female	mother	28	4	single	Grade 11	Catholic	unemployed (assists parents with farming)
PD	female	mother	33	4	single	Grade 9	Catholic	unemployed
PE	female	mother	24	2	single	Grade 7	Catholic	unemployed

Although the majority of participants were married and lived together as husbands and wives, they indicated that in their community the main form of marriage was by custom recognition. This form of traditional marriage system is acceptable in their settlement. Among the married participants, only one participant (PA) had a marriage certificate from church. All mothers

had two to six children; the majority had four children. The mothers were all Christians, Catholic being the dominant denomination. The education level of participants was between Grade 3 and Grade 11; only one participant (P3) had no schooling.

A small number of participants indicated that they did subsistence farming for a living, while others depend on support from their husbands, parents or extended family members.

4.2 Individual factors

4.2.1 Understanding the importance of measles immunisation

A range of individual factors was described about how mothers' understanding affected their awareness and perception of the importance of measles immunisation. The understanding that measles caused fever, affected the eyes and that it was a severe illness leading to blindness, disability and death was considered important. The perceived knowledge and understanding of the severity of measles as a disease and its complications contributed to the understanding that influenced mothers to take or not to take their children for immunisation. In general, mothers were aware of the importance of immunisation but there were knowledge gaps between those who took their children and those who did not.

The information that mothers had about measles was perceived to be important, since it was viewed as a source of encouragement for them to take their child for the repeated measles immunisations. Mothers whose children were vaccinated described being given information either by nurses or by the elderly members of their families.

“We were informed by the nurses to bring our children for measles immunisation ... it is ok ... they will have immunity. We were also informed that if they [children] are coughing, it is not that medicine [vaccination] will cause any harm ... ah-ah (shakes her head). Immunisation is important in order to prevent children from getting diseases.” (P3).

“I was informed by my elders that the disease [measles] can affect the eyes and cause blindness if a child is not immunised.” (P5)

The mother's expectations about having their children immunised to ensure good health and longevity was one of the motivating factors for mothers who took their children for immunisation.

“Measles can cause blindness and disability ... I took my child for follow-up immunisation ... I did not want my child to have measles ... I want my child to have long life.” (P4)

The understanding of the severity of measles as a disease, and the benefits and importance of measles immunisation to prevent this was one of the facilitating factors for mothers to take their children for measles immunisation.

“... it [measles] affects the eyes, rashes all over the body and fever ... we were informed by the nurse to take our children for immunisation ... to prevent children from getting the disease ... if a child did not get measles immunisation is at danger of getting it.” (P1)

Mothers whose children were vaccinated also revealed that they were aware that measles vaccination would build immunity against the measles disease and they were aware of the risks of no vaccination.

“I took my child for vaccination because if a child is not vaccinated ... the child can die from measles disease if he gets the disease from a sick child.” (PA)

By contrast, the limited awareness of mothers who did not take their children for immunisation was demonstrated by their inability to explain the extent of the severity of measles, the benefits of immunisation or to explain their knowledge about the effects of missing a measles dose.

“I only know that measles can affect the eyes ... Hmm ... can you please tell me more about measles ... I mean ... what other signs can help one to know if your child has measles ... I want to know or what can be the effects if a child did not get measles?”
(facial expression of concern) (PB)

“I heard about it (measles disease) ... it causes headache ... if the child is not taken back to receive measles vaccination, the child can get it.” (PC)

The level of understanding was described as influencing the motivation by mothers to take their children for measles immunisation. One of the mothers whose child was vaccinated expressed herself as follows:

“As a mother you must take your child to the health facility to get vaccination ... it is okay for immunity ... to prevent diseases.” (P3)

Several of the mothers who did have their children vaccinated felt that mothers who did not were not motivated.

“... some mothers are ignorant ... they are not serious with the health of their children ... they did not bring back their children despite being informed to bring back [by nurses] ... leave them [do not follow up] because they were informed but they don't want to come back [for follow-up].” (P4)

4.2.2 Other factors affecting mothers' decisions

Education level

The ability to read information on the child's health Health Passport was limited to information about the follow-up date. They all reported that they only concentrated on the follow-up appointment date and less attention was given to the type of vaccine or ideal age for administration of vaccines.

“I cannot read or write ... I (pauses) ... because I did not go to school ... I just know that we were informed at the clinic to take our children for follow-up and I asked the people I am staying with who can read ... to check the due date on the child's 'health passport'.” (P2 - no schooling)

The type of information received on the importance of immunisation doses was shown to be crucial so that mothers who could not read could still respond to the information, as had been the case in this instance. However, the mother was only aware that her child had received all the immunisation doses on scheduled dates without the knowledge that the last dose was for measles immunisation.

“... yes my child was given immunisation for 6 months but I was not informed [the last dose] was about measles immunisation.” (P2)

Most mothers revealed from their responses that they were not aware of the ideal age for measles immunisation, irrespective of their education level.

“... the age for measles immunisation is from baby to 10 years (laughs) ... or 10 months ... I am not sure ... we just check the date [follow-up date] on the child's Health Passport.” (PC - Grade 11)

Forgetfulness

Some mothers cited forgetfulness as one of the reasons that contributed to defaulting, leading to missing a measles dose for their children. This applied especially when they were attending to other activities.

“... you can forget the child's Health Passport because you are in a hurry to go when you attend to other activities such as attending funerals or when you go to a farm ... if there are other health facilities when you go there, you are asked your child's birth date ... and some of us mothers cannot remember ... you will not be helped by the nurses if you cannot remember the birth date and if you don't have the child's Health Passport.” (PD)

However, among the mothers whose children were immunised, there was the belief that it was important to be prepared to handle such competing priorities and deal effectively with the problem of forgetfulness.

“... You need your special bag for emergency travelling ... whereby you will have your particulars like personal documents and your clinic records ... it helps me. If I am to travel even if it is unplanned, I will have them ... that is where I took my child's Passport that I gave you.” (P1)

There was a consensus among mothers, by both those who took their children and those who did not, about the need for the health providers to remind them to come for follow-up immunisation.

“... We need to be reminded as parents ... nurses can encourage us to take our children for immunisation.” (P2)

“They [nurses] can call the mothers to bring back their children [for immunisation] but I have never heard it being done.” (PA)

Some mothers expressed concern about the lack of community meetings with the leaders to inform their members about the need for parents to take their children for immunisation. They

also suggested that radio announcements as a means to remind and encourage mothers would be useful.

“... Community meetings should be held to get information from the leaders ... radio announcements to remind us ... we need information.” (PD)

Commitment

Some mothers who had their children immunised, perceived that those who failed to take their children lacked commitment. This related to competing priorities, lack of self motivation, laziness and ignorance, and they described it as having neglected their responsibility.

Yet even those who believed that it was their responsibility to ensure that their children were immunised found it difficult to ensure this because of the competing activities that they had to attend to, as demonstrated by the following response:

“My child did not get measles immunisation because I went to help my parents at the farm ... it is very far from the health facility and I stayed there for two months ... outreach services should be provided at such places, but for two months they [health workers] did not visit the place.” (PC)

Laziness

The term laziness was given on several occasions as a factor for failing to take their children for measles immunisation. One mother even related this to her awareness of the danger of such actions.

“...we know that if a child is not vaccinated ... it is dangerous (could not elaborate) ... but as parents we are just lazy.” (PB)

Another talked about failing to take her child after being told to return later, when her sick child had recovered.

“I took my child on the due date for follow-up but I was returned back by the nurse due to the fact that my child was sick ... after her recovery ... I was just lazy.” (laughs) (PD)

Laziness was also seen as evidence of a lack of commitment by mothers whose children were not vaccinated, by those whose children were. They believed that these mothers were informed about the benefits of immunisation, yet they did not act on it.

“Some mothers do not take back their children to the clinic for immunisation ... due to laziness ... they don’t care about why it is important for their children to receive immunisation.” (P3)

Alcoholism

Alcohol was viewed as one of the barriers that contributed to low uptake of immunisation at their health facility, especially where there was no outreach point for immunisation services.

“... some parents just want to sit there at drinking places ... they sit at alcohol drinking places ... it is better ... maybe if there were many cars ... for the health workers to go out and provide immunisation at such places ... and outreach services have not been provided for a period of two months that I stayed at the farm ... and they are no other facilities for us to access immunisation services.” (PC)

“Alcoholism is a problem ... some parents just want to sit there at drinking places.” (PA)

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4.3 Socio-cultural factors

4.3.1 Beliefs

There was overwhelming acceptance of the importance of vaccination, as demonstrated by the responses from both the mothers whose children have and have not received measles immunisation.

All participants, seven Catholics, two Apostolic and one Holy Trinity said that their religion did not prohibit immunisation. Therefore, religion was not a challenge for them.

“... No ... our religion does not stop us from using immunisation or any other medicines from the clinic or hospital ... mothers who don’t take back their children at the clinic are just lazy.” (P3)

“... there is no barrier that I am aware of in our community ... we are just lazy ... no (shakes her head) ... people are just lazy.” (PE)

There was an overwhelming response from mothers indicating that they did not believe in using traditional remedies. Once again laziness was used as an explanation for not taking their children.

“No ... we do not believe in traditional remedies ... the uptake of immunisation is low due to laziness of some mothers who fail to take back their children for immunisation ... alcohol abuse by some mothers also leads to less concern for the health of their children.” (PA)

However, one of the participants who was aware that traditional remedies were used in their village in the past, reported that there could still be some mothers/caregivers who have such beliefs:

“I decided to take my child for follow-up immunisation because (pauses) ... I got scared; my grandmother told me that in the past, they treated measles disease at home ... the child was given traditional enema [made up from herbs] and they also applied a mixture of herbs with sand from an ant- hill ... it was applied all over the body of a sick child. It worked well but later on ... one child’s eyesight was affected ... he was blind ... and later died at the hospital. My grandmother told me that all the people in the village were scared since then. I am also very scared ... it is a dangerous disease. I am concerned with the health of my children ... I want them to be protected from diseases and I want them to grow up to old age ... maybe some mothers are still using it ... such mothers need to be informed and encouraged.” (P1)

4.3.2 Support structures

The support from the family can contribute to the commitment to take the child for immunisation. According to one of the mothers, the support from other family members was relied on to help her to take the child for follow-up measles immunisation.

“... I asked the people I am staying with who can read ... to check the due date on the child’s ‘Health Passport.’” (P2)

Support from others such as community leaders, radio announcements and other agencies was reported to be important to encourage mothers/caregivers to take back their children for follow-up immunisation. However, this support was only acknowledged by one participant.

“... our community leader is concerned with the health of his people ... we are being encouraged to take our children for immunisation ... it is good because we are well informed.” (P1)

The majority of mothers, by contrast, reported that the support from such structures was inadequate or missing.

“I am not employed ... I struggle all by myself to take care of my two children.” (PE)

“The leaders are expected to work together with us, the community ... to take up our challenges ... it is not happening.” (PB)

4.4. Socio-economic factors

According to some mothers, socio-economic status can influence their willingness to take the child for immunisation. Poverty arising from unemployment and lack of adequate resources from subsistence farming was described as a challenge for some mothers. This applied to both single and married mothers.

“I am married but we are poor ... we are not working (pauses) ... we are struggling to survive on subsistence farming ... but it is not easy to cope, we don't have money.” (PB)

“... I struggle by all means to get money to access health care services ...” (P1)

The impact of poverty on travelling to the health facilities was highlighted by several mothers. Some came from a significant distance (10 – 15 km away), and were expected to pay the transport cost fee of 20 to 30 Namibian dollars. This was given as a key problem to adhering to follow-up appointments.

“... I tried to take all my children for immunisation ... we need to protect our children from diseases such as measles ... but distance may lead to struggles to take the child for repeat immunisation ... maybe due to distance problem, some mothers may have to struggle to get money to pay for transport in order to go the clinic.” (P4)

“... My wish was to take my child according to the clinic follow-up date on 02 May [2015] for measles immunisation ... is being a single mother of two children ... (pauses) ... I had a challenge ... I am staying far away from a clinic ... you need money

to pay for transport, I am not employed ... I did not have money for transport ... services are not readily available at our clinic...it is better to seek services at the other health care facilities such as Donga Linena clinic or Nyangana clinic ... at Karukuta you pay 10 Namibian dollars, at Donga Linena you pay 15 Namibian dollars and Nyangana - 20 Namibian dollars but you are forced by circumstances.” (PE)

However, despite these difficulties, the importance of finding a way to have their children immunised was noted. The first example illustrates the difficulty, coupled with determination, and the second, a situation where a means to pay for the transport was found.

“I just struggle by all means to get money to access health care services for my children ... I am concerned with the health of my children ... I don't have a job...it is not easy, the cost of living is demanding (facial expression of concern) but it is my responsibility to make sure they stay healthy.” (P1)

“... no, I don't have any challenge with transport even if I am staying far away from the clinic ... my husband who is also concerned with the health of our children gives me money for transport.” (P3)

4.5 Health system factors for all participants

The majority of mothers had similar perceptions about the health facilities, as illustrated in the following comments. This applied to both sets of respondents.

4.5.1 Availability of services

The majority of mothers raised complaints about availability of services at the clinic. Either the clinic was closed or services were not readily available.

This included not being attended to when they took their children for follow-up measles immunisation, or being sent away on more than one occasion, which discouraged them from going back.

“... if you take back your child for immunisation ... you are told to go back but you are not given the reason for being sent back.” (P1)

“I went to the clinic many times ... maybe four times over a month ... I got fed up and I decided not to go back at Karukuta clinic, I decided to take my child to Nyangana

clinic ... I know ... at Nyangana clinic whatever service you need, is provided on time ... we also need good service at Karukuta clinic.” (PD)

A mother of four came up with an alternative plan for immunisation of her child at another health care facility. She explained her concern that she encountered at Karukuta Clinic:

“No, my child received all the immunisation up to nine months (laughs) ... I have four children and all my children have been immunised. I am very serious with the health of my children ... It was maybe not recorded because I got fed up after being returned back at Karukuta Clinic ... I tried many times, may be four times over a period of one month and at times the nurses were not available. If you are sent back for more than one month ... you have no choice but to think of another alternative of care at other health care facilities. I decided to go to Nyangana Clinic where services are always available.” (PA)²

The availability of outreach points in the community was suggested as something that would be very helpful for the areas and farms that are far away from the clinic, but the majority of mothers expressed concern that the services had not been readily offered for some time.

“... outreach services should be provided at such places, but for two months they did not [health workers] visit the place.” (PC)

4.5.2 Staff shortages

The shortage of staff was reported by some mothers to have contributed to the delay in patients and mothers being attended to, resulting in long waiting times to receive services, including immunisation services.

“It was not good to be sent back repeatedly when you bring your child for immunisation ... maybe because we only had one nurse at a clinic ... I think that it is good that they (Ministry of Health) have allocated another nurse to this facility ... it is much better now ... we thank the ministry for additional staff.” (PB)

Some mothers who had bad experiences from inconvenient immunisation schedules and time constraints reported that it could discourage mothers from returning for follow-up visits.

² PA – According to the records at Karukuta Clinic, this mother’s child did not receive measles immunisation, but it was verified on the child’s Health Passport that it was received at Nyangana Clinic.

In addition, the waiting time was long, as the mothers were attended to by only one nurse, who had to provide all other services as well, such as screening of sick patients and family planning, in addition to immunisation services. This contributed to their becoming frustrated, and eventually failing to return for repeat visits for immunisation.

“... from my own observation at our clinic ... some mothers may decide not to take their children back because immunisation services is stopped by the nurse at 10 hours am ... thereafter you will be informed that the others cannot be attended to for the reason that the nurse has to attend to sick patients ... the service is not good ... the Ministry should address this problem.” (PE)

“It is discouraging to access services at Karukuta Clinic because at times ... I have been sent back ... you are sent back without assistance at Karukuta Clinic ... the consultation takes long with the others, for example it may be only three that are attended for immunisation, from 8 am to 10 am only and then the nurse attends to sick patients.” (P4)

4.5.3 Attitudes of staff

Some mothers reported nurses' attitudes as unfriendly and characterised by a lack of empathy and sympathy, and by rudeness. This perceived unwelcoming approach of some nurses was reported to scare some mothers from approaching them.

“I was scared to ask because the nurse's attitude is unfriendly ... just a look at the face [nurse A's face] scares you off.” (P1)

Most mothers were dissatisfied by the unwelcoming and rude attitudes of some nurses. This included several comments about attending the clinics, only to be told to go home again without being given reasons for such decisions by the nurses.

“When you bring your child for speciaele [the term referring to immunisation used by the community] ...you are told to go back ... without any reason for sending you back ... it is frustrating (facial expression of anger) ... you keep on coming but yet the nurse is not concerned.” (PD)

“My child was supposed to have received the measles injection in April [2015], I took the child to the clinic but I was returned back on four visits ... I think the attitude of

nurse A is not good... the follow-up visits are being postponed, you can be confused... (laughs) ... it is not good what I did but I just decided not to go back again.” (PB)

Mothers expressed the need for nurses to have patience and good understanding for patients who kept on coming to the facility, but were being sent back without being attended to.

“... the nurse is not doing his work effectively ... he wants a mother to keep on coming but yet he sends you back without attending to you. It is good that we have nurse B ... the new nurse has good understanding ... the nurse is friendly and we are at least assisted on time now.” (P5)

There were also concerns about health care providers who reported late on duty, leading to long waiting hours at the clinic.

“They [health workers] ... they don't open on time ... when the nurse comes all what he does is not to assist us on time ... our nurse's attitude is not good. We all have to wait, which is not good.” (facial expression of frustration) (PD)

4.5.4 Inadequate information on measles immunisation

In general, mothers had similar perceptions about the need for nurses to educate them in order to be concerned with the immunisation status of their children.

“... currently they [nurses] are providing information but we need more ... they need to improve in order for us to be more informed and free [to communicate] ideas related to the development of Karukuta Clinic.” (PD)

They expected nurses to educate and encourage them.

“We as parents we need more education [health education] ... from the nurses ... for us to be concerned with our health care. The nurses ... (pauses) ... they are not doing well ... they don't encourage mothers ... we need them to encourage us ... for us to get health messages ...” (P5)

Instead, they described being afraid and being very hesitant about asking for more information on account of some nurses' unfriendly and disapproving attitudes. They felt that the nurses discouraged them from asking, and they denied them the opportunity to receive useful health messages.

“... when you ask, some nurses will respond but some will just tell you to go back ... I appreciate your interview ... if only it could also be done by our nurses at Karukuta Clinic ... to come and visit us ... to check on our challenges ... related to health care.”
(laughs) (PC)

4.5.5 Lack of accurate information about immunisation services

Several mothers reported lack of information about immunisation services at the facility. They expressed concern about the convenience of the timing of immunisation services. The reported observed problem was immunisation services that were being discontinued while the nurse attended to other clinic services. The mothers seemed not to understand the reasons why it worked well at other facilities but not so well at Karukuta Clinic.

“... the service is not fine ... the Ministry of Health needs to look and organise the delivery of services ... for example, immunisation is only provided from 8 - 10 hours ... thereafter even if you brought your child on the due date for follow-up ... you will be sent back ... and then the nurse will attend to sick patients. We need to know the right timing of services like what is done at other health care facilities ... such as Donga Linena ... to organise services.” (PA)

“... it is good that there is additional nurse B at our clinic ... it is much better maybe they will organise their services now ...” (P1)

Lack of harmonisation between the immunisation services offered at different health care facilities was raised by one of the mothers:

“... I am also concerned that the records at Karukuta Clinic indicated that my child did not receive his measles immunisation ... if health workers are not available, we at times use other facilities such as Nyangana [Clinic].” (PA)

4.6 Vaccine related factors

All mothers reported concerns about side effects from administration of all vaccinations, including measles immunisation. The mothers, according to their responses, perceived it to be one of the contributory factors to low uptake of measles immunisation at their health facility. What follows illustrates the perception of some mothers:

“... some mothers may not take their children for measles immunisation because after vaccination, some children have diarrhoea (pauses) or they may be swelling at the injection site after vaccination.” (P2)

“... children cry a lot after receiving their immunisation ... the whole night until they develop fever ... but yet we are told by the nurses to just observe them and that the fever will finally drop ... it is not good ... it was better if they [nurses] would give us Panado [as pain relief] ... because children cry from pain and irritability at home after vaccination.” (PC)

4.7 Suggested mechanisms for improvement

4.7.1 Support structures

The overwhelming majority of mothers indicated the need for improved communication with support structures. They felt that it was important for them to be well informed and encouraged.

“... the nurses could assist parents not to forget the follow-up dates for measles immunisation ... they can call mothers to bring their children ... but I have never heard of any reminder from the health workers.” (PA)

“We need to get information on time from nurses or our leaders ... we don't get information even through radio announcements or through holding of meetings.” (PD)

It was also felt that other structures in the community were important as a means for information sharing:

“... our community leader is not giving or sharing information with us ... I mean to discuss community development through community gatherings in order to address issues ... (pauses) such as on matters of health care.” (PE)

“... Agencies such as CDC ... can help us ... to send people to encourage us in the community.” (PC)

4.7.2 Staff shortages

As noted above, staff shortages and the absence of staff at the clinic were cited as contributing factors in the low uptake. Mothers who returned several times and were sent home without being attended to, attributed this to the fact that the only available nurse had to attend to sick

patients. It was therefore suggested that other persons could be identified to help the clinic nurse.

“... is it not possible to identify a responsible person to vaccinate at different points, because others [mothers] are staying at far away places at tar road ... the others are willing to help [10 km away].” (PC)

4.7.3 Staff attitudes

The overwhelming perception among mothers about the effect of unwelcoming health workers resulted in their describing the need for nurses with a welcoming attitude that would not scare them off.

“They [health workers] need to help us ... to take back our children for immunisation for them to be healthy ... mothers need to be advised for us not to be scared.” (P3)

The mothers described how they expected to be assisted by nurses and not sent back more than once.

“... if they can change their attitude of working ... to be concerned with us mothers ... I did not have any problems with my other children but with my last child ... when you take the child you are sent back ... you come again you are sent back ... this is not good.” (PB)

The poor staff attitudes that instilled fear among the mothers led to the mothers' suggestion for improved communication.

“We want to have a good relationship with them ... for them [nurses] to come to us ... we need them to encourage us ... we sincerely appreciate your [researcher and research assistant] coming to follow us up in the community on matters related to health care ... it is what we would like to have ... it is really commendable.”

This also led to their being concerned about being victimised. One mother explained:

“... we are scared to raise our concerns for the fear of victimisation ... we need to speak together [with health workers] to solve our problems.” (PE)

4.7.4 Outreach services

Outreach services in the community, or a house to house mechanism, were considered by the mothers to be an easy means get the children immunised. The mothers expressed the need for

these outreach services and the need to identify people in the community who can help. One of the mothers expressed her willingness to help:

“... the Ministry should identify people who are willing to help to provide services such as immunisation at community level ... to help nurses ... I am one of the people who is willing to help ... to help people who are staying far away from the clinic.”
(PC)

The majority of mothers expressed the need for the Ministry of Health to employ more nurses who will be able to provide services at clinics and in the community.

“... if the Ministry can employ more nurses who will go out from this clinic to take services to the community ... to go out, house to house, to vaccinate children ... we need services.” (P4)

Mothers were of the opinion that bringing immunisation services to the community would alleviate the burden of having to pay for transport in order to access such services.

“... to solve the distance problem and the challenge that other mothers are facing ... I mean those who do not have money for transport ... nurses should go from house to house to vaccinate children.” (P4)

4.7.5 Supervision

Supervision of health workers was viewed to be lacking.

“... the Ministry [Ministry of Health and Social Services] ... to check on the health workers' performance ... it should be good.” (PB)

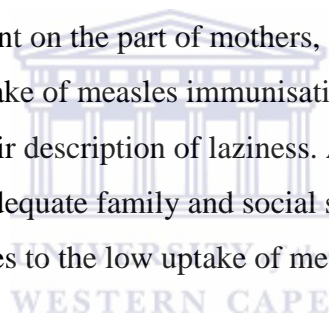
In general, the mothers shared the sentiments about the need for improved services through the provision of enough health workers to cater for both clinic and outreach activities.

4.8 Summary

In summary, the analysis of results revealed that although mothers were aware of the benefits of measles immunisation for their children, the immunisation service was not readily accessible. The results identified several factors affecting the uptake of measles immunisation. A major contributing factor is the health system itself, with the attitudes of the health workers and the shortage of staff being mentioned. These were perceived barriers experienced by all participants - the mothers whose children received measles immunisation and those whose

children did not receive measles immunisation. There is also a perceived lack of information in service provision at the health facility, with all mothers pointing to the need for effective supervision from the Ministry of Health. The information sharing between the mothers and the health care providers is perceived to be an obstacle, resulting in a knowledge gap about the complications, the severity of the measles disease and the implications of missing measles immunisation. All participants expressed concern about the unavailability of outreach services, the lack of reminders or encouragement to go for follow-up immunisation.

The other important barriers to the services were related to individual factors that affected whether there was a demand or reluctance to access immunisation services. Socio-economic factors – the economic constraints of unemployed mothers who could not afford transport costs, the accessibility of services and the mothers' beliefs about immunisation safety – were also important factors. The demand side was also expressed as a matter of concern by both mothers whose children had received and those whose children had not received vaccinations; they reported a lack of commitment on the part of mothers, suggesting laziness as a contributory factor to the low uptake of measles immunisation at their facility, although they covered several factors within their description of laziness. Alcoholism was noted as a contributory factor. The lack of adequate family and social support structures were also perceived to be contributory causes to the low uptake of measles immunisation at the facility.



CHAPTER 5 - DISCUSSION

In this chapter, the findings are discussed in relation to the literature review. The study sought to explore perceptions of the severity of measles as a childhood disease; and the impact of mothers'/caregivers' understanding of the effect of measles vaccination. In addition, it focused on various facilitating factors and barriers which might affect the uptake of measles immunisation, as well as perceptions of improvement mechanisms identified by mothers/caregivers of both those whose children were vaccinated for measles and those whose children were not. Such factors are assumed to help identify challenges, making these findings helpful in identifying priority areas in an attempt to improve the uptake of immunisation at the selected health facility. The discussion focuses on various factors that were identified from the in-depth interviews with mothers whose children had received measles vaccination and mothers whose children had not. Factors include: knowledge and information, impact of past experience, other factors that impacted on their decisions and the mothers' concept of laziness. Also included are suggestions by mothers for improvements of the services.

5.1 Knowledge and information about the benefits of immunisation

The extent of knowledge and understanding of the measles disease and the consequences of missing the vaccination has an influence on the decisions that the mothers take about immunisation. The type of information that they had received determined the decisions taken. Their knowledge about the protection value of vaccination on the immune status of children was found to be a strong motivator for those mothers who took their children for vaccination in this study. The information they had acquired influenced them to believe that immunisation would protect their children and enable them to live longer. This study also found that the mothers that had the information, and therefore took their children for vaccination, demonstrated determination despite the various reported challenges of accessing the services. Understanding of the benefits of measles immunisation, for them outweighed any obstacles to taking their children for repeated immunisation. A study by Masilani (2010) conducted in Kawama, Zambia, revealed that 99% of respondents understood why it was necessary for their children to receive vaccinations, since they believed that vaccines protected children from various diseases. This indicated the willingness of community members to accept and participate in immunisation services, as long as they were aware of the benefits, and were able to access the health centre or health post. A study conducted in the Witenberg sub-district of

the Western Cape, South Africa supported this view, indicating that mothers/caregivers with knowledge were positive about immunisation (Dyson, 2011).

A further important factor influencing mothers was their understanding of the disease. The information that the mothers had received on the impact and potential severity of measles, coupled with the information received from the elderly who had had a past experience of the impact of measles on children, was revealed to be an important determining factor that influenced the mother's decision to take or not to take the child for immunisation.

5.2 Inadequate information

By contrast, there were many examples showing how knowledge and information was either absent or inadequate, resulting in mothers failing to take their children for a complete course of immunisation.

According to Cockcroft et al.'s study conducted in two Nigerian States, a lack of knowledge was among the cited factors that had an impact on low vaccination cover (2014). Similar trends were also noted by Shikongo (2010) in a study conducted at Mahenene Health Centre in Outapi Health District, Namibia, where lack of knowledge was also cited as a factor by the respondents.

The findings by Dyson (2011) also noted inadequate knowledge, in this case about the purpose of vaccines along with their contra-indications, among parents/caregivers who did not comply with the immunisation schedule, confirming that being knowledgeable about vaccines had an influence on the mothers' health seeking behaviour. It emerged from this present study that the experience of side effects reported by some mothers who had taken their children for vaccination, such as fever, pain, irritability and swelling on the injection site, was likely to contribute to discouraging mothers from taking their children for repeated vaccination. These reported reactions to the vaccine are in line with the findings at Opuwo district in Kunene region, Namibia (Taapopi, 2002) and those by Cockcroft et al. (2014) in Nigeria, both arguing that side effects from vaccination, such as fever and local soreness, were reasons for some parents not taking their children for vaccination. This was further supported by Hill's (2013) study in the United Kingdom, where pain was also identified as a primary factor that influenced the mothers' decision on the number of vaccines to be received by their children.

These findings were also noted in the current study. Side effects were noted as a significant reason for some mothers not taking their children for immunisation. Mothers' having the information about these potential side effects is therefore essential to prepare the mothers for possible side effects, to avoid side effects becoming a barrier to vaccination. Health care providers, according to Abdulraheem et al. (2011), accounted for 72.2% of the information received about immunisation, including side effects, and it is thus crucial for the staff to be aware of their influence and to recognise the value of information sharing.

Lack of understanding of the severity of the measles disease, along with the benefits and impact of measles immunisation, was also found to be a significant factor in this study. This lack of awareness was clearly demonstrated when mothers requested information about measles during the interview process. The failure to have children immunised was described by those who *did* take their children to be immunised as partly the result of ignorance: these mothers described mothers who did not take their children as being ignorant of their responsibility to taking care of their children's health. Ignorance was cited as a factor in other contexts as well. According to the findings in a study by Mahyavanshi, Nagar, Patel, Nagar, Purani and Kartha (2013), ignorance accounted for about 64% of the main reasons for children not being immunised in Surendranagar in India, and for 80% in urban slums of Jamnagar city in Gujarat, India (Yadav et al., 2006). This finding was also supported by Masilani (2010) in a study conducted in Zambia, where ignorance of the value of vaccinations was among the identified reasons for why some children failed to complete immunisations.

The importance of information about the need for repeat vaccinations and for following the recommended schedules has also been noted. In a study conducted in Berekuma community, Berekese district in Ghana, knowledge gaps with regard to benefits of vaccination and adherence to recommended vaccine schedules were identified (Ansong et al., 2014). The findings in this present study concurred, with only one mother being aware that the schedule was to be completed at nine months, while the others reported to have simply followed the nurse's instructions with regard to follow-up dates, without understanding their significance. These findings are in line with those reported by Abdulraheem et al. (2011), who revealed that only 14.1% of mothers knew that the vaccination against childhood killer diseases should be completed at the age of nine months, when the child received yellow fever and measles vaccinations. Their study suggested that 37.2% of children did not complete the routine schedule by the age of nine months.

In light of the above findings, it is evident that knowledge and understanding of the severity and impact of measles, along with the benefits, side effects and procedures of vaccination are very important factors in influencing the mother's decision to take or not take the child for immunisation.

5.3 Other impacting factors

Several additional factors were identified as barriers that contributed to the low uptake of measles immunisation. These have the potential to hinder access to immunisation services and to influence the mothers' level of motivation to take decisions about whether to immunise their child or not. Some of these applied to this study, while others differed.

5.3.1 Age of the mother

A study conducted at Opuwo in Namibia demonstrated that the age of the mother was an important factor for understanding particular situations; the children whose parents were aged between 25 and 34 years had received measles immunisations, while children whose parents were aged between 15 and 24 years had not (Tjiveze, 2012). However, the findings in the current study could not be related to age difference diversity, since all mothers whose children had received measles immunisation were aged between 25 and 32 years, and the mothers whose children did not receive measles immunisation were aged between 24 and 37 years. Therefore, it is not possible to judge the influence of age in this district in the current study.

5.3.2 Impact of past experience

In this study, a significant factor that impacted on the likelihood of the mothers taking their children for immunisation was related to the experiences that they had had on previous occasions and what they had heard from others. Information about the negative impact of measles, such as the loss of life arising from measles complications, was found to be a strong motivator for taking the child for immunisation. These findings are in line with those reported by Ansong et al. (2014), who state that a person's health related behaviour has been linked to the perceived levels of threat. The findings in this study also correlate well with the findings by McMurray, Weighall, Schweiger and Mukherjee (2004), who point to the fact that the past experience of an infectious disease such as measles is a strong motivator for parents to have their children immunised.

5.3.3 Socio-cultural beliefs

The mothers in this study reported that although immunisation was permitted in their culture, some mothers who had not taken their children for follow-up immunisation might have been influenced by their beliefs in traditional remedies. An example was provided of a traditional remedy involving the use of sand from an anthill mixed with herbs, which was reported to have been used in the past to treat measles. The possible influence of socio-cultural beliefs is also supported by Adeyinka, Oladimeji, Adeyinka and Aimakhu, (2008), who argued that despite immunisation being permitted in the culture in South Western Nigeria, herbs were seen among the respondents as good substitutes for immunisation.

Religious beliefs in this study did not influence the acceptance of vaccination among mothers. This is in line with a study conducted in Saudi Arabia in which it was found that parents strongly agreed that child immunisation was not prohibited by their religion (Yousif, Albarraq, Abdallah & Elbur, 2013). However, in contrast were the findings by Shibeshi et al. (2013), which showed that Apostolic religious communities in Zimbabwe, Malawi, Botswana, Swaziland and South Africa were reluctant to accept vaccinations, for faith-based reasons; even so, the Apostolic religious mothers in this present study accepted the vaccination.

The socio-cultural norms and expectations did however influence the mothers' commitment to adhering to scheduled immunisation follow-up dates. Mothers who were loyal to their cultural traditions and beliefs, including expectations of attending to activities related to helping their parents and adhering to societal expectations, did not take their children for repeat immunisation if this clashed with these other responsibilities. Attendance to such activities was found to be of higher priority among mothers whose children were not vaccinated. These findings correlate with the findings in studies conducted in Dili, Timor-Leste in Asia (Amin, Real de Oliveira, Da Cunha, Brown, Favin & Cappelier, 2013) and in Nigeria (Cockcroft et al., 2014); in these studies, caregivers were found to be too busy with cultural gatherings, agricultural purposes such as seasonal migration during rainy season, or with attending to employment and domestic duties to give attention to preventive health services.

It was also revealed from this present study that some mothers expected support from social structures, such as information sharing on health care messages through community meetings and gatherings, and through the use of radio announcements for reminders. These findings are supported by Ansong et al., (2014) who found that, among other reasons, in some cultures, such as those in Ghana and in Nigeria, the social structures are viewed to be most influential

in the decision by mothers to take their children for immunisation. This included the support of a spouse, media methods through radio or television, and community announcements with a public address system.

The role of traditional leaders, another significant influence, is regarded as very important in other communities in Nigeria. The active involvement of traditional leaders is most likely to have the potential to increase immunisation uptake; this view is supported by what was proven to be the influential role of traditional leaders, who as a result of the respect they commanded in their culture, influenced people in their communities who had refused immunisation, to accept it (UNICEF, 2012).

Alcohol abuse was another finding that was reported as hindering the uptake of immunisation services in this study. In view of the alcohol challenge to responsibility, it is possible to infer the effect of parental alcohol misuse on children's development, family functioning and parenting. However, in this study, understanding the impact of alcohol as a contributory barrier was limited to reporting by mothers, who perceived it as a contributing factor in other mothers not pursuing their children's vaccination; no detailed explanation was found as to why it was a challenge.

5.3.4 Socio-economic factors

The financial factors expressed by mothers as challenges in this study are important as most mothers/caregivers whose children were receiving immunisation services at this clinic had limited education, and some had never attended school; were all unemployed; and, for some, their source of income was their spouses, or subsistence farming.

Literacy levels have been viewed as having an effect on decisions to attend immunisation and to be one of the reasons for delayed immunisation. Additionally, previous studies are reported to have linked full immunisation to parents with higher levels of education (Cheelo, 2011; Koskei et al., 2014, Taapopi, 2002; Tjiveze, 2012). Ansong et al. (2014), however, argue that their study set in Nigeria demonstrated higher rates of compliance among parents with primary education, which they argue arose from awareness of the risks, complications and benefits of the vaccine, rather than the level of education. These results, they argue, are inconsistent with previous studies on the impact of illiteracy levels (Ansong et al., 2014). The levels of education in this study also suggest a minor influence, although it was noted in this study that mothers who could not read or write adhered to the immunisation schedule through the support of other family members who were literate.

Some of the mothers in this study had primary school education and one, whose child was immunised, had no schooling at all. This can be seen in Table 1 (Chapter 4). Similar findings were evident in the study conducted by Shikongo (2010) in Outapi Health district, Omusati region in Namibia. The author argues that the level of secondary and tertiary education cannot be justified” as the basis for a barrier to successful immunisation, as the findings in that study indicated that 70.6% of the respondents who missed immunisation had high literacy levels, suggesting that they would have been able to understand the schedule.

The financial circumstances of the mothers were a very important factor, and poverty was a commonly reported problem among the mothers, including both those who took their children for measles immunisation and those who did not. In this study, all the mothers were unemployed, indicating that they all faced income challenges.

It was noted in this study that there was a diversity of financial support among married mothers who stayed at a distance from the health facility. Most mothers who took their children to be immunised indicated that they were supported financially with transport costs by their spouses, while those who did not, in particular single mothers, expressed concern at having to struggle all by themselves. These findings are supported by a study conducted in Dili, Timor-Leste in Asia, which indicated that mothers of children who were fully immunised received financial and moral support from their husbands (Amin, Real de Oliveira, Da Cunha, Brown, Favin & Cappelier, 2013). A study conducted in Uganda also found that mothers cited support from partners, including money for transport, as important in taking their children for immunisation (Babirye, Rutebemberwa, Kiguli, Wamani, Nuwaha & Engebretsen, 2011). The present study may indicate a contributing factor in the finding that the majority of mothers whose children were immunised were married women, even though they had other challenges.

Financial difficulties, particularly lack of money for transport, were also cited by mothers as a major reason for not returning for follow-up immunisation visits. Again, most of these were single mothers. These findings are in line with those reported in Kawempe division, Uganda by Kamanda (2010), where it was found that parents with a higher income were able to cater for the costs involved in repeated visits, while households with low income, and where the parents were not married, showed less urgency in taking their children to complete their immunisation schedules. These findings are also supported by a study that was conducted in rural Nigeria where lack of money was identified as one of the reasons for partial

immunisation (Abdulraheem et al., 2011). According to a study by Minetti et al. (2013) conducted in Malawi, it was highlighted that the caregivers were unable to vaccinate their children despite their willingness to do so, as a result of cost. In studies conducted in Namibia at Outapi Health district by Shikongo (2010) and in Opuwo by Tjiveze (2012), poverty was identified as a contributing factor, with its impact on the inability to pay for transport being noted.

5.4 Health service factors

5.4.1 The influence of the attitudes of health care providers

According to Tjiveze (2012), client friendly services are among the highlighted reasons for increased immunisation rates. The value of good health professional advice is also described by Hill (2013), who demonstrated that health professionals are seen as a trustworthy source of information, and that parents are reported to actively seek their advice to inform their decision about whether to immunise their children or not.

Yet, the mothers in this study expressed their concern about the unwelcoming and rude attitudes of some nurses. They argued the need for a good relationship with nurses, which they perceived to be extremely important, basing it on the fact that a poor relationship can negatively affect the uptake of immunisation. This was shown by the fact that all mothers whose children were not vaccinated expressed their lack of satisfaction with nurse/provider relationship experience at Karukuta Clinic. The impact of the negative attitudes of health workers on vaccination was highlighted by Cockcroft et al. (2014), pointing to its impact on immunisation uptake. The mothers also stressed the importance of health professionals, recognising that providing information about immunisation was part of their role. This view is supported by Nagaraj (2006) who indicates that a lack of adequate information from health professionals was one of the reasons that contributed to defaulting. This was also argued by parents in a study in Opuwo in Kunene region, Namibia, who suggested the need for improved health education by health care providers (Tjiveze, 2012). It became apparent from this study that the attitude of health care providers had an influence on the mothers' decisions to immunise their children.

5.4.2 Access to services

Some mothers raised concerns about the inaccessibility of immunisation services, such as inconvenient schedules and time constraints. The current study findings are in line with additional reasons that were given by mothers at Nyala locality in South Darfur State, Sudan

(Ismail, 2014), which included inconvenient times for immunisation, the vaccinator being absent and the unavailability of vaccines. Factors such as long waiting times, in a study conducted in Zambia (Cheelo, 2011), the absence of personnel at the health facility, in rural Nigeria (Abdulraheem et al, 2011; Jegede & Owumi, 2013), and long waiting queues, in South Western Nigeria (Adeyinka et al., 2008) and Opuwo in Namibia (Tjiveze, 2012), have been noted, which reflect similar trends to this study's findings. Other factors, such as distance, transport and money to pay for transport, as noted above in this present study, were also highlighted as barriers to accessing immunisation services in a study in Namibia (Shikongo, 2010; Tjiveze, 2012); in Sesheke in Zambia (Cheelo, 2011); and in Nigeria (Adeyinka et al., 2008). The challenge of transport costs to accessing immunisation services at the clinic was expressed by both mothers who took their children and those who did not. While some mothers in the current study managed despite the constraints because they were so committed, others indicated their willingness, but dropped out owing to financial challenges.

5.4.3 Staff shortages

This study found that all mothers were concerned with the staff shortages and the absence of staff at the clinic, with some mothers claiming that it contributed to the low uptake. Some mothers dealt with this by seeking alternative immunisation services at other facilities, although this meant they had to pay higher transport costs. Others, however, said that they were unable to do so as they could not afford the transport costs. In a study by Koskei et al. (2014) in Kachelichaba Division, Pokot County, Kenya, the absence of health personnel at the health facilities was also highlighted by the respondents among the reasons that contributed to failure to immunise children. Similar trends were noted in Kavango region in Namibia, where the availability of one nurse per clinic is reported to have contributed to gaps in service delivery (UNICEF/Namibia, 2010); and a study by Cheelo (2011) in Zambia revealed that 80% of respondents had reported that measles coverage was low as a result of inadequate staff.

5. 5 Laziness

An interesting observation was the use of the term *laziness*, which was used on several occasions as an explanation for why mothers did not take their children to be immunised. This was also noted by Masilani (2010), who noted that laziness was cited by mothers as one of the reasons for failing to complete the immunisations of their children. However, although the mothers used the word *laziness* in this study, the interpretation of their responses suggests that

other factors were most likely to be the underlying cause. The narratives pointed to other underlying factors, which might be linked to socio-economic, socio-cultural, individual or health system factors. While this cannot be clearly understood in the current study because of the limited sample size, it was an interesting observation, as it implied a lack of clarity among some respondents about the reasons for their actions.

5. 6 Perceptions of improvement mechanisms from both sets of mothers

The mothers suggested improvements from their past experience, basing this on what they perceived would be the most likely strategies to address the current barriers to immunisation at Karukuta Clinic.

5.6.1 Improvement of immunisation services

The mothers suggested that there was a need for the Ministry of Health to appoint a number of health care providers who will respond to their needs. A study by Amin et al. (2013) identified that the health system factor related to inadequate resources for outreach services was among the cited problems that contributed to low immunisation coverage.

The rude attitude of nurses was perceived as a major obstacle that had discouraged some mothers from accessing immunisation services. All mothers noted that health care providers would have to change their attitudes in order to facilitate a better relationship between the mothers and the nurses. They expressed the need for information sharing, a relationship where they would be free to seek clarity and to ask questions without any fear of victimisation. Effective interaction between health professionals was identified as a motivating factor, since it can address the concerns of parents who are willing to support the vaccination status of their children and influence them to accept vaccination, while poor communication can contribute to rejection of vaccines (Leask et al., 2012).

Study findings in Istanbul, Turkey revealed that attitudes of the health care workers towards the mothers were very important for the utilisation of immunisation services. According to the findings of Topuzoglu et al. (2006), the mothers reported severe reproach by health care workers when they engaged in the wrong practices, based decisions on wrong information, or when they asked questions that showed lack of information; this was very evident in the current study when mothers had missed immunisation sessions.

Those mothers who had missed immunisation sessions felt that they were judged, and as a result, these discouraged mothers did not want to return to the services after missing one session. Ironically, mothers in this study claimed to have been sent back home without their child being immunised more than once, but *they* were too scared to approach a nurse to ask questions or to have their concerns addressed. A lack of a trusting relationship with health professionals was reported to have had an adverse effect on immunisation decision-making (Austin, Campion-Smith, Thomas & Ward, 2008). This study's findings concur, and suggest a need for improved information sharing between the health care provider, other significant community members and the mothers/caregivers, to ensure improved understanding of the benefits of immunisation, the severity of measles and the impact of measles immunisation.

The availability of outreach services was reported to be unreliable as none had been provided over the previous two months, especially in *hard to reach* areas such as farms in the interior. This study pointed to the need for functional outreach services through community points and house to house strategies that would enable all mothers to easily access immunisation services. Similarly in the literature, lack of outreach in Zimbabwe was identified as a contributing factor to a measles outbreak related to lack of funds over a five year period, which hampered the provision of outreach services to *hard to reach* areas and communities (UNICEF/WHO, Zimbabwe, 2010). A study by Tjiveze (2012) reported that parents suggested strengthening outreach services as well as constructing more clinics in that district, findings that are in line with this study's findings and are also supported by Shikongo's (2010) study.

The mothers also expressed the need to strengthen supervision by the Ministry (Primary Health Care supervisors and programme managers), which was perceived to be ineffective. There was also expressed a requirement for the Ministry to harmonise services to ensure continuity of services, for example, to trace children who received immunisation at other health care facilities and to issue reminders to encourage all mothers to take their children for immunisation services. The need to supervise technical support was also expressed by the respondents in a study in Zambia, where it was reported to happen once per quarter (Masilani, 2010).

5.6.2 Influence of support structures

The mothers in this study expressed concern over lack of support. Single mothers were of the opinion that they struggled all by themselves. The felt need to be supported is in line with the

findings in Istanbul, Turkey, pointing to the fact that in order to access immunisation services, mothers needed support from their relatives or neighbours (Topozoglu, 2006). The mothers were convinced that if they were supported by their community leaders through holding meetings to inform them on matters related to immunisation or by using radio announcements, the immunisation uptake could be improved. A study by Ansong et al. (2014) indicates that in other cultures, such as in Ghana and in Nigeria, social structures are still essential, as most of the influencing factors that assist mothers' decisions to take their children for immunisation are in the form of support from a spouse, or community announcements with a public address system. The use of radio announcements as reminders and encouragement was also pointed out by the mothers in the present study as something that could help more mothers/caregivers complete their children's immunisation.

5.6.3 Improvement through community empowerment

Some mothers demonstrated readiness to volunteer to serve at identified vaccination points within the community, while also taking into consideration the need to reach out to those who would just stay at alcohol drinking places, and those with financial challenges. These mothers recognised that mothers/caregivers needed to have a good understanding of the reasons why all children under five years of age should receive measles immunisation, and that improved immunisation services would also stimulate mothers to come for repeated visits. This recognition is in line with the study findings by Jegede and Owumi (2013), which indicated that immunisation centres are valuable in stimulating the interest of nursing mothers to visit health services as a social event, while at the same time creating a demand for immunisation. Leask et al. (2012) state that interaction with health professionals provides a focal point for parents to address their concerns, and that it is crucial that communication during these interviews should be effective. The community should be empowered through improved information sharing, to equip them with knowledge that will ensure good understanding of the value of immunisation.

5.7 Summary

This chapter discussed the findings of this study in relation to what has been reported in the literature on the topic.

The findings of this study are consistent with findings from the literature related to supply challenges, lack of information sharing between patients and health care providers, ineffective

and inefficient immunisation service delivery and staff attitudes. The demand side challenges identified as contributing to low uptake of measles immunisation were varied; they included lack of knowledge, understanding and information about measles and immunisation, the impact of past experience, the challenge of competing priorities versus societal expectations, socio-economic constraints such as lack of money to pay for transport to access immunisation services, as well as other reported factors that impacted on the mothers' decisions, such as *laziness*.

The mothers (who had no platform to express their opinions) were able to report on their past experience; they expressed the need for effective communication between patients and health care providers. Finally, mothers suggested mechanisms to address both the demand and supply side barriers to measles immunisation.



CHAPTER 6 - CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Based on the research findings, this study managed to explore the perceptions of mothers about the factors affecting the uptake of measles immunisation and their perceptions on mechanisms for improvement. The mothers described several interrelated factors that are thought to facilitate uptake and those that are contributing to the low uptake of measles at the selected health facility in the Nyangana district.

The major facilitating factors for the mothers who took their children for vaccination were their past experiences of the disease, their understanding and knowledge of the severity of the disease and the benefits and impact of measles vaccination, and the support of the spouse or other family members. These were revealed to be motivating factors that influenced the determination of those who took their children for immunisation despite the obstacles that they faced.

A number of barriers were identified as determinants of measles immunisation uptake. The barriers emerged from the interrelationship between the following factors: individual, socio-cultural, socio-economic, health system and vaccine factors. Individual factors related to lack of understanding/ knowledge and information on the severity and impact of the disease, and challenges related to alcohol abuse were found to be negatively impacting adherence to immunisation schedule. Although mothers highlighted barriers related to laziness, ignorance and lack of commitment, the study findings revealed that there could be a number of underlying interlinking contributing factors.

The cultural beliefs related to role expectations led to conflict for mothers as they were expected to attend both to other responsibilities and to the immunisation of their children, which led to defaulting, as they prioritised their other culturally expected responsibilities regardless of their willingness to adhere to the immunisation schedule. The belief in the use of traditional remedies may still be an underlying cause concealed under laziness or ignorance. Since this study included only a small sample, there might be some mothers experiencing this

challenge in the community, given the fact that the respondents reported it to have been used in the past.

The absence of supporting structures from spouses, other members of the family and from social structures such as the public system and agencies was also found to influence defaulting. The socio-economic constraints due to high levels of unemployment among the interviewed mothers and which were linked to poverty and an inability to get hold of funds for transport to access immunisation services, were also found to influence defaulting, although immunisation is one of the free packages offered by the Ministry of Health in Namibia. Married mothers were found to default less, due to the financial support they received from their husbands, even if they were all not employed.

Health system factors were also found to contribute to immunisation defaulting. Amongst those noted were staff shortages and staff attitudes, which linked to challenges related to access of services such as inconvenient schedules and timing of immunisation services, long waiting times, perceived lack of organization, absence of nursing staff at the clinic, inadequate out-reach services, lack of harmonization of proper record keeping between health care facilities and lack of information sharing between health care providers and mothers, long queues and the turning away of mothers without attending to them, while the misapprehension of vaccine side effects was reported to have discouraged some mothers from returning for measles immunisation.

Mothers suggested improvement mechanisms related to addressing issues of staff shortage, staff attitudes, availability of outreach services, and for the ministry of health to strengthen supervision, which was perceived to be inadequate. The participants suggested that effective communication was needed between the mothers and the health care providers, to share information on immunisation services and address issues of concerns, such as any fears that they may have on vaccine side effects. The need for support structures was highlighted, to address the socio-economic challenges for struggling mothers; for community leaders to hold community gatherings on immunisation health matters; and the need to use public address systems such as radio announcements and the use of reminders that would encourage mothers to take their children for immunisation.

The findings thus point to several interrelated factors that were found to contribute to the low uptake of immunisation at the selected facility between the supply side— the health system, and the demand side – mothers/caregivers and support structures.

In view of the findings from this study, which it is apparent are supported by literature from other studies, the programme managers should utilise these findings to improve the uptake of immunisation for children under five years. The researcher is of the opinion that active participation by all stakeholders can address the demand and supply side challenges, as it appears to be a strong interlinking approach which can facilitate the sharing of information, knowledge and experience on strategies that may improve the uptake of measles vaccination.

6.2 Recommendations

Based on the above conclusions, the following recommendations are made about mechanisms for improving access to immunisation services.

6.2.1 Information sharing

The study revealed that although mothers were aware of measles immunisation, there was an understanding/knowledge gap pointing to the need for information sharing. There is a need to strengthen social mobilization for information dissemination, both at individual and community levels, to address the value of immunisation services.

Campaigns to raise awareness about the importance of immunisation services are recommended. Various methods such as health education sessions at the health facility, community gatherings, posters, flyers, radio announcements, as suggested by some mothers, are forums that can be utilized to clear any misconceptions and fears related to measles immunisation.

The importance of herd immunity as a means of protection from the highly infectious measles disease, and its benefit in reducing measles outbreaks, should be clearly understood by all mothers/caregivers as something which will reduce morbidity and mortality from measles disease complications. A better understanding will help mothers/caregivers make informed decisions about the immunisation of their children. In light of this understanding, peer pressure influence from those who took their children to be immunised might be a useful mechanism to motivate those who did not take their children.

6.2.2 Staff shortage

It was noted that staff shortage was one of the major barriers to uptake of immunisation. The Ministry of Health and Social Services should address the staff shortage. The mothers suggested the appointment of adequate staff that would be able to cater to immunisation services at the Clinic and in outreach services. The adequate numbers of staff would ensure

that immunisation services were readily available on a daily basis, and would thus serve as a facilitating factor in the uptake of immunisation.

The programme managers can strengthen the appointed health extension workers and use them to keep immunisation registers in the community, and they can also be used to trace children who have missed their doses and children who might have received vaccination at other health care facilities, to ensure accurate record keeping and harmonization of services.

6.2.3 Staff attitudes

The attitudes of the staff need to be addressed. The patients have a right to be treated with dignity, according to the human rights principles as outlined in the Public Service Charter of Namibia (Simataa, 2004).

Nurses need training in customer care in order to address the negative attitude that was identified in this study.

A trusting relationship between mothers/caregivers and health staff is highly encouraged, in order to motivate mothers/caregivers to support and participate actively in immunisation activities.

6.2.4 Access to immunisation services

This study identified access to immunisation services to be one of the factors that affect the uptake of immunisation. The mothers reported to have visited the health facility more than once and being turned away, or the health facility being closed for a week or more when all the nurses had to attend to unplanned workshops. There is an urgent need to address this problem, in order to improve the uptake of immunisation at this health facility; immunisation services are to be readily available on all working days (Monday to Friday).

The outreach services should be available and consistent, since their absence was reported to be a major contributing factor to defaulting. Effective outreach services will address the socio-economic constraint of lack of funds to access immunisation services, since the provision of immunisation services will be easily accessible within the community and help realize the RED approach to immunization, which is one of the strategies adopted in Namibia.

The programme managers for the Ministry of Health and Social Services should monitor that outreach services are efficiently and effectively conducted on a monthly basis to reach all children, including those in hard to reach areas such as farms in the inland.

6.2.5 Supervision

The Ministry of Health and Social Services should improve the supervision of immunisation services to ensure that there is efficient and effective implementation at the health facility and at community outreach points. The programme managers should strengthen the supervision of immunisation services and ensure that the services provided by health care providers (nurses and health extension workers) are harmonized and integrated to facilitate continuity of services.

Concern was expressed about the unavailability of services owing to nurses having to attend unplanned workshops, and to inconvenient scheduling of immunisation services, pointing to the need for harmonization of plans between the health facility and the programme managers.

6.2.6 Inter-sectoral collaboration

An integrated approach by all sectors will enhance the effort to improve the uptake of immunisation.

Other line ministries, such as Ministry of Poverty Eradication, can assist in addressing the socio-economic constraint barrier, through sponsoring of community income generating projects that will help the community to have funds to access immunisation services from self-employment.

Non-Governmental Organizations (NGO) can also assist with information dissemination, for example, agencies such as Red Cross, Total Control of Epidemics (TCE) and other church organizations as suggested by mothers, such as Catholic Aids Action.

The community leaders should be sensitized to take an active role in working together with health care providers to improve the uptake of immunisation; the mothers suggested information sharing on immunisation through community gatherings.

The support from community members that are willing to assist should be encouraged, to enhance ownership of health programs such as immunisation services, in order to reach every child. The value of increased uptake of measles immunisation in promoting the herd immunity of 90% and above should be clearly understood by all community members, since it supports the potential of protecting children and reducing the risk of contracting the highly infectious measles disease.

6.2.7 Programmes to address alcohol abuse

The alcohol problem should be addressed through multi-disciplinary team approach. The Ministry of Health and Social Services social workers should coordinate programmes that will address alcohol problems. It would be appropriate to establish programmes such as coalition towards responsible drinking and the use of groups such as Alcoholics Anonymous, where peer influence can be used, and to use motivational speakers to educate others on the consequences of alcohol on the health of the child, particularly as related to immunisation status. The Ministry of Health and Social Services should take the advocacy role in order to involve local community leaders, religious denominations and politicians to address this problem.

6.3 Recommendations for further research

In order to develop a wider understanding of the factors affecting the uptake of measles immunisation in children under five years at Karukuta in Nyangana district, further research is required to investigate the perceptions of all stakeholders at Karukuta and other health care facilities in Nyangana district. This kind of research is likely to offer broader views as to why immunisation uptake is low and how it can be improved.

It is also crucial to investigate through mothers/caregivers, health care providers and community leaders the factors affecting the uptake of measles immunisation.

In line with the study findings, the researcher recommends that further research be conducted into the following issues:

- In-depth look at the health care providers and other key informants and their perceptions on factors affecting the uptake of measles immunisation of children under five years of age at Karukuta Clinic, Nyangana district.
- The effectiveness of supervision on immunisation services should be researched.
- The socio-cultural barriers to immunisation should be explored further to search for more meaning from other key informants in the community.
- Similar studies to be conducted at all health care facilities in Nyangana district, to establish whether the findings can be generalized to other contexts.

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APPENDICES

APPENDIX 1: PARTICIPANT INFORMATION SHEET (ENGLISH VERSION)

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E-mail: rstern@uwc.ac.za/alifalaza@gmail.com

Project Title: *The perceptions of mothers and caregivers about the factors affecting low uptake of measles immunization among children under 5 years of age in the Nyangana district, Kavango region, Namibia*

What is this study about?

This is a research project being conducted by Alice Lifalaza at the University of the Western Cape. We are inviting you to participate in this research project because you have been selected to participate in this study because of your experience and the information about your child's immunization status is relevant for this study. The purpose of this research project is to investigate the perception of the mothers/caregivers about the factors that are promoting or inhibiting the uptake of measles immunization coverage in the Nyangana Health District, with the aim of improving measles immunization coverage.

What will I be asked to do if I agree to participate?

You will be asked to give information on what you know about measles, on how the child can get measles, the age for the child to receive measles, your opinion on the reasons as to why some caregivers do not bring their children for measles immunisation as revealed from the health facility register, on what you know about the child who gets measles and your thinking on what would help to get a better response to measles immunisation. The study will be conducted only in the community and villages that are part of the population that is getting immunisation services for their

children under 5 years at Karukuta Clinic, in Nyangana Health district. The interview will take 30 – 45 minutes.

Would my participation in this study be kept confidential?

We will do our best to keep your personal information confidential. To help protect your confidentiality, all the collected data will be kept in a safe and locked up filing cabinet and further information will be kept in a password – protected computer files. Your name will not be included on the study and other collected information. A code which is the respondent number will be allocated on the questionnaire and through the use of this code; the researcher will be able to link your answers to your identity. This identification code will not be shared by anyone outside this study, only the researcher will have access to the identification code. If we will write a report about this research project, your identity will be protected. We will only disclose to the programme manager’s information that comes to our attention for the children who are at the disadvantage of receiving measles immunisation and who if not immunised may have the potential of acquiring the measles disease.

What are the risks of this research?

There are minimal risks associated with participating in this research project related to emotional harm. As a participant you may fear that you may be followed by the Ministry of Health and Social Services programme managers for providing information on measles uptake. Given the confidentiality explained above, you need to be assured that there will be minimal risks associated with participating in this research project. However, if you are feeling emotionally stressed by the interview, a social worker will be available for you to talk to for support.

What are the benefits of this research?

The benefits to you include *informing programme managers on the need to address inhibiting factors that are to be addressed in order to promote the health of children, which includes your child.*

This research is not designed to help you personally, but the results may help the investigator learn more about promoting or inhibiting factors to the uptake of measles immunization. We hope that, in the future, other people might benefit from this study through improved understanding of collected information on inhibiting factors which will inform programme managers on the effectiveness of the current measles immunization uptake in order to introduce improvements.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be negatively affected in any way.

There are no undesirable effects in participating in this study, but in unlikely events, the assistance that can be offered can be either counselling or referral for care at the clinic.

What if I have questions?

This research is being conducted by *Alice Lifalaza a student at the University of the Western Cape*. If you have any questions about the research study itself, please contact Alice Lifalaza at: P.O Box 211, Rundu, Namibia, Telephone number: 066 – 265500, cell phone number: 0812442330, E-mail address alifalaza@gmail.com

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Director:

Prof Helene Schneider
School of Public Health
University of the Western Cape
Private Bag X17
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hschneider@uwc.ac.za

Dean of the Faculty of Community and Health Sciences:

Prof Jose Frantz
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This research has been approved by the University of the Western Cape’s Senate Research Committee and Ethics Committee.

PARTICIPANT INFORMATION SHEET (GCIRUKI VERSION)



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Shiparatjangwa sha Shirongwa shino: Maghayadaro gha muvareti ashi vinke nani vyarenkitango shi shivaro shashididi shiri sha vanuke ovo vavendwangwa vendwa ntitiko yaKankwenyenye pa vipangero vya Karukuta na Nyangana, ruha rwaKavango muNamibia

Shirongwaa shino nani shakuhamena kunke?

Shino shirongwa osho ana kuruwana Alice Lifalaza pankurushure yaWestern Cape. Atwe kuna kukumuna uhanene muno mushikurongwa mukonda ya uyivi ghoye wa kuhamena kuvendwa tintiko yino. Shitambo shashikurongwa shino, tuna shana kuyiva maghayadaro gha vareti ndi vapakeli mbili vavanuke ashi vininke munke vyava renkitango shi vadire kutwara vana kuvendwa tintiko yaKakuti muruha rwa shipangero sha Nyangana, nashitambo shetu shi tuvuhure kukorangeda vakurona vayite vanuke kuvendwa tintiko yino ya Kakuti.

Vinke ngavampura niruwane ntjene tupu nivitambura shi name nihamenemo?

Ove ngava kupura utape ukenu yira; ovyo wayiva vyakuhanema kukakuti, weni omo dakara vendwa davanuke dakukandanapo Kakuti, mwaka davanuke ovo vawapero kuvendwa vendwa yino, maghano ghoye shi morwa vinke vya renkitango vakurona vadire kuyita vana vavo kuvendwa tintiko, vinke wayiva vya kuhamena kwa mwanuke ogho awano vendwa tintiko yino ntaninka na maghayadaro ghoye shi vinke tuvuhura kuruwanao mukuvhukita shivaro shavantu ovo vayitango vana vavo kuvendwa tintiko ya Kakuti. Shirongwa shino ngashi karera mumukunda ndi dimukunda odo dayitirango vanuke vavavendwe vendwa davo pa shipangero sha Karukuta ruha rwashipangero kurono sha Nyangana. Mapuraghero ghano kuna kugha ngungungunyikira shi ghaghupe shirugho shakutika kudimunute murongo tantu.

Likuhantiro mushirongwa shino ngavihorama ndi?

Ngatushetekerako omo twa hulira mukuhoreka ukenu wakuhamena koye. Mukukuvatera shi tuhoreke ukenu wakuhamena koye, ushili nauntje ogho katuwana kuvahameni vetu ngavaupaterera mushimbangu osho ngava patururanga nkwandi natjapi. Lidina lyoye kapi ngatulitura pashimbapira ndi mushikurongwa shino. Ngaturuwanita nomora oyo ngawana kehe uno muhameni mo ntani nka oyo nomora ndjo ngatutjanga pashimbapira shavipuraghera. Nomora yo, ndjo ngaturuwanita mukuyiva shi muhameni munke ve. Yivashi nomora yino kwato oko ngatuyitapa, ene ngoli ngayi kara tupu kwa muna rongwa washikurongwa shino. Atwe ngatutapa tupu ushili kwampititi wavendwa tintiko yino ntjene tupu ngatukugwanekera na mwanuke adiro kuwana vendwa dendi ndi ogho vadira kavyutako, ogho ana karo shi ntjene tupu kumushuvilira hana kuwana vendwa yino kuvhura ngakawane lihamba lino lyaKankwenyenye.

Vinke pamwe vyavidona vya kuhamena kushirongwa shino?

Kwato vinke vyavididi vya kushoroka mukuhamena mushikurongwa shino. Muhameni kuvhura ukare naghoma shi vampititiri vaumenisteli wa ukanguki na undjewa-ndjewa shi kuvhura vakukwamakwame mukonda ya kutapa ukenu wakuhamena kuvendwa tintiko yaKankwenyenye. Ene ngoli mukutwara kevi tuna ghamba vya kuhamena kuhoreka shipa shoye, kara tupu na mukumo shi kwato vyavidona ngavikushorokero. Ene ngoli ntjene pamwe una kara shi kapi una kara nankondo dakukwata mutjima mukonda yamapuraghero ghano, tuna kara na muruwani wa undjewa-ndjewa papepi ogho ngavuhura kutimwitira naye.

Mauwa munke nani gha karomo mushikurongwa shino?

Mauwa kukoye kuna kara shi, ngavuhura kutantera yayenditi valikukwamo lino vya kuhamena kevi vvavhura kuruwana mukurenkita shi ukanguki vawanuke uyende kumeko, rambangako nka na monoye.

Shirongwa shino kapi vashitambitira shi shitape mauwa kwa muntu umwe, nani ngoli vitundwamo vya shikurongwa shino, ngavivhura kuvatera munashirongwa shino ayive shi vinke nani vyarenkitango vakurona vadire kuyita vana vavo kuvendwa tintiko ntani nka vinke vya kuruwana mukukorangeri vakurona vavangi vatwarange vana vano kuvendwa tintiko yaKankwenyenye. Tuna huguvara shi kumeko vantu vavangi ngava kavhuro kawanenamo mauwa mukonda yaliwapukururo olyo ngalikaro pakupwa shikurongwa shino.

Kuvhura tupu kuhamena mushikurongwa shino ene ngoli kuvhura kushayeka kehe pano ndi?

Uhameni ghoye mushikurongwa shino, kakutokora naumoye ndi wapanaumoye. Kuvhura utokore shi kapi una horo kuhamenamo. Njene una tokora shi uhamenemo, kuvhura tupu kushayeka kehepano una

horere. Ntjene una shewa kuhamenamo mushikurongwa shino, kwato vyavidona ovyo ngavi kuhorokero.

Kwato vyavidona vyakuhoroka mukuhamena mushikurongwa shino, ene ngoli ntjene mpovili tupu vya ditto yivilita ngavi shoroko, mbatero mpoyili kuvaruwani vamakorangedo ndi kuvhura kukutuma kushipangero.

Weni ngoli ntjene nakara nalipuro?

Shikurongwa shino kuna kushiruwana Alice Lifalaza muna shure wa pashure yakuyeruka ya Western Cape. Ntjene una kara kehe lipuro lyakuhamena kushikurongwa shino, wana ngoli Alice Lifalaza kuno: kushimbangu posa 211, Rundu, MuNamibia, funguna: 066-265500, funguna yapamaghoko: 081244330, shimbangu shapampepo: alifalaza@gmail.com

Ntjene una kara na mapuro gha kuhamena kushikurongwa shino ndo una nkondo ghoye murupe rwa uhameni ghoye mushikurongwa shino ndi walye una shana kurapota udito ogho una kugwanekere nagho, vina kugharukiri kumuwana

Muyenditi kurona:

Prof Helene Schneider

Shure yaukanguki wambunga yavantu

Nkurushure yalidina Western Cape

Shimbangu posa X17

Bellville 7535

hschneider@uwc.ac.za

Mpititi washure yaruha rwa mukunda na ukanguki:

Prof Jose Frantz

Nkurushure yalidina Western Cape

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Shukurongwa shino kwa shipulitira mbunga mpititi yana vikurongwa ntani nambunga mpititi ya maukaro da nkurushure yalidina Western Cape.



APPENDIX 2: CONSENT FORM (ENGLISH VERSION)



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CONSENT FORM

Title of Research Project: The perceptions of mothers on the factors affecting the low uptake of measles vaccine at Karukuta, Nyangana district, Kavango region, Namibia

The study has been described to me in language that I understand and I freely and voluntarily agree to participate.

My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name

Participant's signature

CONSENT FORM (GCIRUKI VERSION)



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SHIMBAPIRA SHA LIPULITIRO

Shiparatjangwa sha Shikurongwa shino: Maghayadaro gha muvareti ashi vinke nani vyarenkitango shi shivaro shashididi shiri sha vanuke ovo vavendwangwa vendwa ntitiko yaKankwenyenye pa vipangero vya Karukuta na Nyangana, ruha rwaKavango muNamibia Shikurongwa shino vanashi nkenitiri muliraka olyo nayuvhanga mbyonka nakara nankondo dakuvhura kutokora shi nihamenemo ndi kapishi nihamenemo.

Mapuro ghande gha kuhamena kushikurongwa shino vanaghandimburura. Nayuvhunka shi shipa shande kwato oko vashinegheda ntaninka nakara nankondo dakutokora mukutundamo muuhameni washikurongwa shino kehepano, ntaninka kwato vyavidona vintjorokero ndi vanduwana mukonda yakutundamo.

Lidina lya muhameni.....

Shikaha sha muhameni.....

Mayuvha.....

APPENDIX 3: INTERVIEW GUIDE (ENGLISH VERSION)



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Date of interview:...../...../.....



Introduction

I am Alice Njahi Lifalaza, a student studying for the Postgraduate Diploma/Master in Public Health at the University of the Western Cape. I am gathering information from mothers of children under the age of 5 years. I am trying to find out what factors are contributing to the low uptake of measles immunisation. I would like to ask you some questions which will take about 30 minutes of your time. You may choose not to participate in this study. Whatever information you give me will not affect the care you receive from the clinic, and will not be given to anyone else except for improving the programme. The information collected will help us improve the utilization of measles immunisation at Karukuta Clinic.

Do I have permission to continue with questions? Yes No

Signature

Date

1. To start with I would like to get some demographic information from you. Are you in agreement with this?

Category of Respondent (tick where appropriate)

- a) Biological parent who brought back child for measles immunisation
- b) Biological parent who did not return child for measles immunisation
- c) Caregiver who brought back child for measles immunisation
- d) Caregiver who did not brought back child for measles immunisation
- e) Caretaker that did not bring back child for measles immunisation
- f) Grand parent who brought back child for measles immunisation
- g) Grand parent who never brought back for measles immunisation



Sex:

Age:

Education level:

Marital status:

Employment status:

Religious denomination:

Questions for the caregiver.

1. Could you please tell what you know about measles?

Probe: How you think of its effects on children?

2. How can a child get measles?

3. Can you tell me about what you know about immunisation? Why do you think it is important?

4. Can you tell me the age that children are supposed to have their measles immunisation?

5. What do you think that might be reasons for not bringing the children for immunisation?

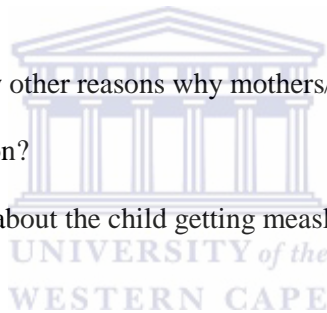
a. based on the answer.

b. (Ask only for mother/caregiver who brought back child for immunisation) What assisted you to in bringing your child for measles immunisation? Probe based on the answer.

c. Can you think of any other reasons why mothers/caregivers do not bring their child for measles immunisation?

6. Can you tell me what you know about the child getting measles immunisation.

Probe based on the answer.



6.1 If a child did not receive measles immunisation, she is at risk of contracting the disease during measles outbreak, he or she can fall very sick and could die due to complications and therefore the chances of living longer are lost. What do you think would help to get a better response to immunisation?

a. What do you think should be done to ensure that mothers bring their children for measles immunisation?

b. What can the health care workers do?

c. What can the caregivers do?

d. What can community leaders do?

e. What can the Ministry of Health and Social Services do?

f. Can you think of any other agencies that could assist? What might they do?

Closing:

Thank you very much for answering our questions. Do you have any questions, comments or recommendations you would like to make about what we talked about? Is there anything else you would like to tell us?

THANK YOU SO MUCH FOR YOUR TIME



INTERVIEW GUIDE (GCIRUKI VERSION)



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Lidina lya muhameni.....

Shikaha sha muhameni.....

Mayuvha.....

Liyuva lya vipuraghera vino:...../...../.....



LIKUTONGONONO

Ame Alice Njahi Lifalaza muna shure kurona nakukushongero vya kuhamena ku ukanguki vantu mudima pashure kurona yalidina Western Cape. Ame kuna kushana ushiri muvayiti vavanuke vamwaka dakuntji ya ntano shi, vinke nani vya renkitango shi shivaro shavanuke ovo vavendwanga vendwa tintiko yakukandanapo Kakuti shighurumuke unene. Nashana nikupure mapuro gha ngandi, nahuguvara shi kutughupa shirugho sha kutika kuminute dimurongo ntantu. Yivashi una Kara nankondo dakushwena mukuhamena muno mushikurongwa shino. Ushiri ogho ghuntantera kapi ghuditopeka ghuhaku ghoye wa pashipangero shino, ntaninka kwato oko nganighu tantera nkwanzi konda yakuwapeka ndi

kunenepeka uhaku uno. Ushiri uno kughutuvatera tuyiveshi weni omo turenka vendwa tintiko yaKankwenyenye yiyende kumeho pa ruha rwa shipangero shaKarukuta.

Nakara nalipulitiro lyakutwikira kukupuraghera ndi?

Yii

Hawe

Shikaha

Mayuva

1. Mukutameka nahoro tanko kuyiva shi kuni nani wakara ndi watundilira. Viwa sha tupu?

Ruha rwa mulimburuli (Mereka opo pakuwapero)

- a) Vayiti ovo vana kavyuto mwanuke kuvendwa ntitiko ya Kakuti
- b) Vayiti ovo aka diro kayita mwanuke kuvendwa ntitiko ya kakuti
- c) Mupakeli mbili ogho ana kavyutoko mwanuke kuvendwa ntitiko ya Kakuti
- d) Mupakeli mbili ogho aka diro kavyutako mwanuke kuvendwa ntitiko ya kakuti
- e) Mukareli wa mwanuke ogho aka diro kavyutako mwanuke kuvendwa ntitiko ya Kakuti
- f) Vanyakulyendi ovo vana kavyutoko mwanuke kuvendwa ntitiko ya kakuti
- g) Vanyakulyendi ovo vaka diro kavyuta ku vendwa ntitiko ya kakuti

Ruvharo rwaMuntu oro wahama:

Mwaka:

Makushongo ghoye kwa shaghera pa:

Ruha rwankwara:

Ruha rwaViruwana:

Ruha rwaMapuliro oro wahamena:

Mapuro kuvapakeli mbili.

1. Kuvhura untantereke shi vinke wayiva vya kuhamena kakuti?

Pura: Vinke una kughayara shi mbyo viruwana vya lino lihamba kuvanuke?

2. Weni avhura kuwana mwanuke Kakuti?

3. Kuvhura untantere ovyo wayiva vya kuhamena Kakuti, morwa ntje nani yakarera venda ya Kakuti mulyo unene?

4. Kuvhura untantere ashi mwaka munke vawananga vanuke vendwa tintiko davo daKankwenyenye?

5. Vinke una kughayara shin do konda darenkitango vantu vadire kuyita vanuke kuvendwa tintiko?

a) Kutwara mulilimburo.

b) (Pura vayiti/vapakeli mbili ovo vana yito vanuke ku vendwa tintiko) Vinke ovyo vina murenkiro muyive vanuke kuvendwa tintiko? Pura kutwara ku lilimburo

c) Vinke una kughayara ashi mbyo pamwe vya renkitango vareti/vapakeli mbili vadite kuyita vanuke kuvendwa tintiko ya Kakuti?

6. Kuvhura untantere vya kuhamena kumwanuke awanango vendwa tintiko ya Kakuti.

Pura kutwara kulilimburo

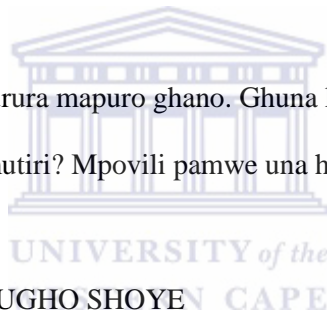
6.1 Ntjeneshi mwanuke kapi awana vendwa tintiko dendi da Kakuti, ghuye ana kara ngoli parupe rwa kuvhura kukaura uvera ghuno kehepano, ntaninka kuvhura avere ndi

adohoroke kuuvera uno, kutantashi liparu lyendi kunalifupipita. Vinke una kughayara shi mbyo vivhura kurenkita vantu vavayingi vayitange vanuke kuvendwa tintiko?

- a) Vinke una kughaya shi mbyo vya kuruwana mukurenka vayiti vayitange vanuke kuvendwa tintiko yaKankwenyenyene?
- b) Vinke vavhura kuruwana varuwani vaukanguki?
- c) Vinke vahura kuruwana vapakeli mbili?
- d) Vinke vavhura kuruwana vampititi vamukunda?
- e) Vinke yiruwanako menisteli yaukanguki na waundjewandjewa?
- f) Mpodili mbunga dakukukarera odo una kughayara shi nado kuvhura divatere? Vinke divhura kuruwana?

Mukuhulita:

Mpandu shili unene kovyo una limburura mapuro ghano. Ghuna kara nalipuro, shinghamba ndi shiwederako kuhamena kovi tuna timutiri? Mpovili pamwe una horo kututantera?



APPENDIX 4: APPROVAL LETTER, NYANGANA INSTITUTION



CATHOLIC HEALTH SERVICES

NYANGANA DISTRICT HOSPITAL, P.O.BOX 1326, RUNDU

TEL:066-258266, FAX:066-258256, E-MAIL pmonyangana@namibnet.com

Andara, Nyangana, Oshikuku, Rehoboth

Aroab, Bunya, Okatana, Sambyu, Tondoro

Anamulenge, Ilyateko, Mayara, Mbambi

, Old Bagani, Oshitutuma, Shinungwe

(ASSOCIATION INCORPORATED UNDER SECTION 21)

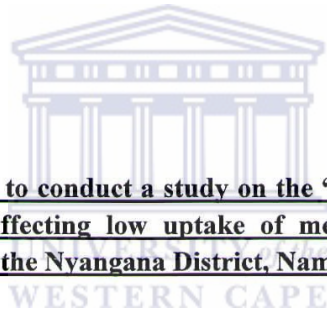
21/05/2015

OFFICE OF THE SENIOR MEDICAL OFFICER

Sr. A.N. Lifalaza
P.O Box 211
Rundu
Namibia

Dear Ms. Lifalaza,

Re: Application for permission to conduct a study on the “Perceptions of mothers and caregivers about the factors affecting low uptake of measles immunization among children under 5 years of age in the Nyangana District, Namibia”.



Reference is made to your application for permission to conduct the above-mentioned study.

Permission is hereby granted for you to conduct the above-mentioned survey at Karukuta Clinic according to the recommendations given by the Permanent Secretary of the MOHSS.

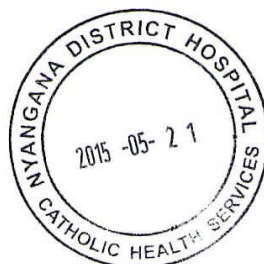
Kindly inform us in advance on the dates you are planning to visit the clinic for us to make necessary arrangements with the nurses working at Karukuta clinic.

Yours in Health

The District Management Team Chairperson



Dr Mfutula Tsitukenina
Senior Medical Officer
Nyangana District Hospital



APPENDIX 5: APPROVAL LETTER, MOHSS



9 – 0/0001

REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13198
Windhoek
Namibia

Ministerial Building
Harvey Street
Windhoek

Tel: 061 – 203 2125
Fax: 061 – 222558
E-mail: msimasiku@mhss.gov.na

OFFICE OF THE PERMANENT SECRETARY

Ref: 17/3/3

Enquiries: Mr. M. Simasiku

Date: 27 April 2015

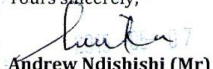
Mrs. Alice Njahi Lifalaza
P.O.Box 211
Rundu
Namibia

Dear Mrs. Lifalaza

Re: The perception of mothers and caregivers about the factors affecting low uptake of measles immunization among children under five years of age in the Nyangana district, Namibia.

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**
 - 3.1 The data to be collected must only be used for purpose stated in proposal and the permission Requesting letter;
 - 3.2 No other data should be collected other than the data stated in the proposal;
 - 3.3 A quarterly report to be submitted to the Ministry's Research Unit;
 - 3.4 Preliminary findings to be submitted upon completion of the study;
 - 3.5 Final report to be submitted upon completion of the study;
 - 3.6 Separate permission should be sought from the Ministry for the publication of the findings.

Yours sincerely,


Andrew Ndishishi (Mr)
Permanent Secretary

"Health for All"

APPENDIX 6: TABLE OF RESULTS

TABLE 2: PARTICIPANT RESULTS

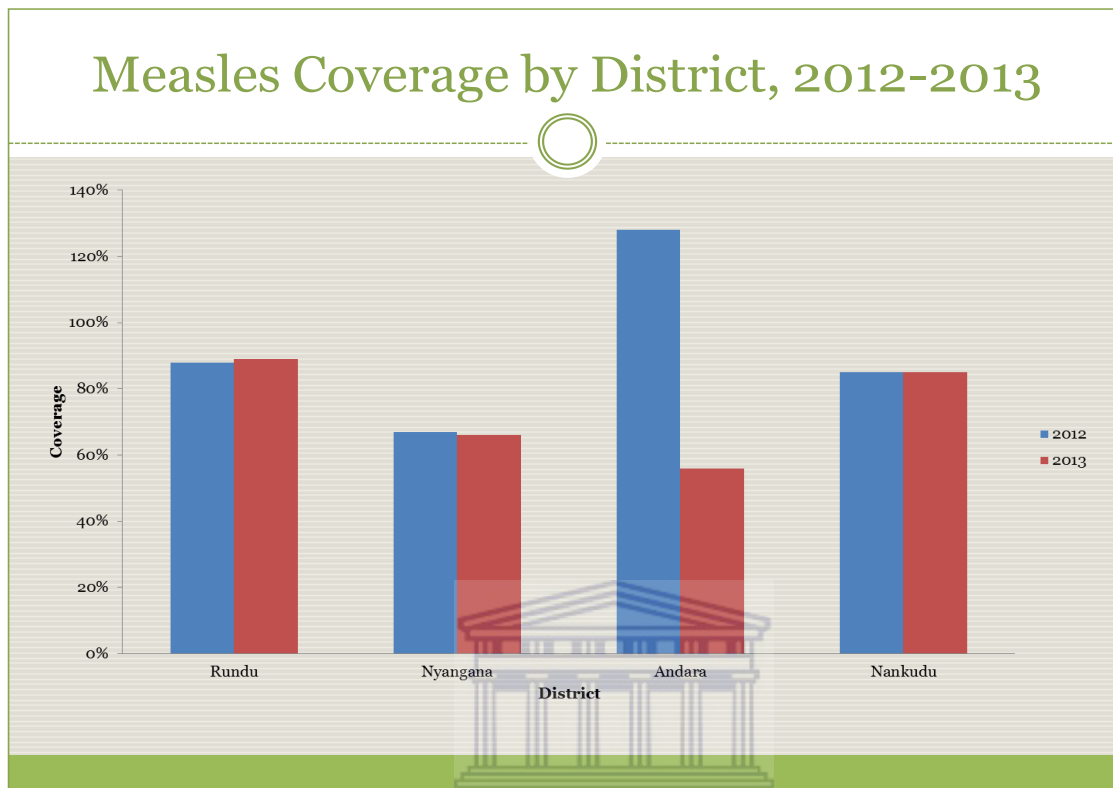
THEMES	SUB-THEMES	CODES
1. Individual factors	1.1 Understanding of measles immunisation	<ul style="list-style-type: none"> ▪ Awareness of benefits of measles vaccine ▪ Knowledge of effects of missing measles dose
	1.2 Education level	<ul style="list-style-type: none"> ▪ Ability to read information on child Health Passport
	1.3 Forgetfulness	<ul style="list-style-type: none"> ▪ Reminder for follow-up immunisation
	1.4 Travelling	<ul style="list-style-type: none"> ▪ Unplanned travelling
	1.5 Commitment	<ul style="list-style-type: none"> ▪ Competing priority activities ▪ Lack of self motivation ▪ Laziness ▪ Ignorance ▪ Alcohol use
2. Socio-cultural factors	2.1 Beliefs	<ul style="list-style-type: none"> ▪ Religious beliefs ▪ Traditional remedies
	2.2 Support structures	<ul style="list-style-type: none"> ▪ Family support ▪ Social support
3. Socio-economic factors	3.1 Unemployment	<ul style="list-style-type: none"> ▪ Effects of poverty to cater for repeated visits
4. Health System factors	4.1 Long distance	<ul style="list-style-type: none"> ▪ Transport cost ▪ Long distance walking
	4.2 Availability of services and vaccines	<ul style="list-style-type: none"> ▪ Access to services ▪ Unavailability of out-reach services
	4.3 Staff shortage at clinic	<ul style="list-style-type: none"> ▪ Long waiting time for service ▪ Lack of order
	4.4 Attitudes of staff	<ul style="list-style-type: none"> ▪ Interaction
	4.5 Patient/health care provider	<ul style="list-style-type: none"> ▪ Unfriendly services
5. Vaccine related factors	5.1 Mothers' belief on vaccine	<ul style="list-style-type: none"> ▪ Contra-indication for immunisation

	5.2 Adverse vaccine reaction	<ul style="list-style-type: none"> ▪ Side effects
Improvement mechanisms	Health system	<ul style="list-style-type: none"> ▪ Attitude of staff
		<ul style="list-style-type: none"> ▪ Staff shortage
		<ul style="list-style-type: none"> ▪ Patient/health care provider relationship
	Socio-cultural	<ul style="list-style-type: none"> ▪ Community leaders
		<ul style="list-style-type: none"> ▪ Agencies
	Availability of services	<ul style="list-style-type: none"> ▪ Fixed community points
		<ul style="list-style-type: none"> ▪ House to house



APPENDIX 7: TABLE OF VACCINE COVERAGE

Table 3: Measles vaccine coverage by health district, Kavango region



Source: MoHSS, Kavango Region Health Directorate Report 2014; Measles Vaccine coverage