FACTORS INFLUENCING THE DEMAND FOR ROUTINE AND SUPPLEMENTARY ORAL POLIO VACCINE AMONG MOTHERS OF UNDER-FIVE IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE

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DEDICATION

This work is dedicated to the Almighty God, for His infinite mercy in my life and for His divine sustenance.

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- **A-JAMES Valentine C.**

ABTRACT

Eradication of poliomyelitis in Nigeria has been of a serious public health concern for many years. However, target dates have repeatedly been pushed back and, at present, transmission of wild poliovirus remains endemic in Nigeria especially the northern part of the country. Consequently, there is susceptibility of the southern part of the country to the virus through importation by migrants and travelers from the high risk states. The study was therefore designed to investigate the factors influencing the demand for routine and supplementary oral polio vaccines among mothers of under-five in Ibadan-North Local Government Area of Oyo State.

A descriptive cross-sectional study was designed using a multi-staged random sampling technique to select 421 mothers of under-five children in Ibadan-North LGA. The semi-structured questionnaire used for data collection included: 22-point knowledge, 13-point perception, 10-point attitude scales. Questions on the general knowledge of polio immunisation, perception, attitude towards Oral Polio Vaccine (OPV), uptake of routine and supplementary OPV, and the factors influencing the demand for OPV were developed. Knowledge score of < 11 and ≥ 11 were rated poor and good respectively. Perception score of < 7 and ≥ 7 were rated as unfavourable and favourable respectively. Attitude score of <6 and ≥ 6 were rated as negative and positive respectively. Data were analysed using descriptive and inferential statistics such as frequency and chi-square test α 0.05, respectively.

Respondents' age was 27.5± 10.5. Majority of the respondents were from Yoruba ethnic group (74.5%), married (75.3%), Muslims (63.7%), and had completed secondary school education (41.8%). General knowledge of polio immunisation was 1.6±0.5. Majority of the respondents (85.3%) and (61.5%) had assessed routine and supplementary OPV respectively. Majority (63.4%) had poor knowledge of polio immunisation, while (36.6%) had good knowledge. Perception score of respondents was 1.3±0.5. Those with favourable and unfavourable perception were 67.5% and 32.5% respectively. Attitude score of respondents was 1.4±0.5. Those with positive and negative attitudes were 60.8% and 39.2% respectively. Greater proportion of the respondents reported: Benefits of visiting hospital (18.8%) as a promotive factor to the uptake of routine OPV; Financial incapacitation (28.2%) as a constraining factor to the uptake of routine OPV; Free vaccine access (35.1%) as a promotive factor to the uptake of supplementary OPV; and Fear of vaccine fakeness

(17.2%) as a constraining factor to the uptake of supplementary OPV. There were significant differences between knowledge of respondents and perceived severity to polio; age of the mothers and perceived susceptibility of the child; and fear of adverse reaction and uptake of OPV. However, there was no significant difference between uptake of routine OPV and uptake of supplementary OPV.

The general knowledge of polio immunisation was poor among the mothers of under-five children in Ibadan North Local Government Area of Oyo state. However, their perception and attitudes towards polio immunisation were majorly favourable and positive respectively. Health promotion strategies such as enhancement of social mobilisation, advocacy, and public enlightenment were recommended to address the issue.

Keywords: Oral Polio Vaccine, Mothers of Under-five

Word count: 488

CERTIFICATION

I certify that this project was carried out, under my supervision by A-JAMES Valentine Chiemeka in the Department of Health Promotion, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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TABLE OF CONTENTS

CHAPTER 3: METHODOLOGY

CHAPTER 4: RESULTS

CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATION

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

OPV: Oral Polio Vaccine

SIA: Supplementary Immunisation Activities

RI: Routine Immunisation

WHO: World Health Organisation

EPI: Expanded Programme on Immunisation

GPEI: Global Polio Eradication Initiative

UNICEF: United Nations Children's Fund

GVAP: Global Vaccine Action Plan

NIDs: National Immunisation Days

SNIDs: Sub National Immunisation Days

VPD: Vaccine Preventable Diseases

NDHS: National Demographic Health Survey

WPV: Wild Polio Virus

AFP: Acute Flaccid Paralysis

LGA: Local Government Area

BCG: BaccillusCalmette of Guerin Vaccine

DPT: Diphtheria, Pertussis, and Tetanus Vaccine

NPHCDA: National Primary Health Care Development Agency

NPI: National Programme on Immunisation

LQAS: Lot Quality Assessment Sampling

GIS: Geographic Information System

NGO: Non-Governmental Organisation

HBM: Health Belief Model

RA: Research Assistant

EOC: Emergency Operation Centre

OPERATIONAL DEFINITION OF TERMS

Factors: They are both dependent and independent variables such as the cultural, economical, social and institutional variables that determine an outcome of event as it relates to the recipients. For the purpose of this work, they are the factors that relate to the mothers of under-five children.

Mothers of under-five: These are the mothers with children between the age ranges of 0 to 5years old.

Knowledge: Awareness and familiarity gained through experiences, information or learning.

Attitude: Individual's disposition or tendency to act in a certain manner to an event

Perception: Individual's ideas of a situation or idea whether right or wrong.

Uptake: To use a service or participate in an event.

Demand: Willingness to accept and use a service or participate in an event

Supplementary Immunisation Activities (SIA): Vaccines such as oral polio vaccines administered during immunisation campaigns, outside the usual routine immunisation schedules given at the health facilities.

Routine Immunisation (RI): These are the regular or the usual immunisation schedules administered at the health facilities, which could be either daily or weekly.

Oral Polio Vaccine: This is an aqueous solution of weakened poliovirus given via droplets orally as a vaccine to prevent poliomyelitis

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Childhood immunisation is a cost effective and most important public health intervention to reduce the morbidity and mortality associated with infectious diseases (Gupta, Prakash, & Srivastava, 2015). The global burden constituted by vaccine preventable diseases is immense. Globally speaking, 2.5 million children die every year from easily prevented infectious diseases among which is polio (Adeyinka, Oladimeji, Adeyinka, & Aimakhu, 2010).The World Health Organisation (WHO) launched the Expanded Program on Immunisation (EPI) in 1974 globally with the focus on prevention of the six childhood vaccine-preventable diseases (including polio) by the year 2000 by promoting the expansion of immunisation activities around the world. This notwithstanding, over three million deaths are recorded annually worldwide from vaccine preventable diseases, while over two million deaths are delayed through immunisation processes. That means, more childhood mortality resulting from vaccine preventable diseases is still being recorded than are being prevented by vaccines worldwide. Nigerian immunisation Schedule (2015) stated that in Nigeria, vaccine preventable diseases account for approximately 22% of child death amounting to over 200,000 deaths per year (Edomwonyi, Ubannache, & Busu, 2015).

In May 2012, the World Health Assembly formally declared polio eradication as a "programmatic emergency for global public health" and called for the development and finalisation of a comprehensive polio endgame strategy. Efforts towards eradication involve many different actors at country, regional and global levels. At the centre of this effort is the Global Polio Eradication Initiative (GPEI), which was established in 1988 when there were an estimated 350,000 polio cases reported from 125 endemic countries. Today, the world is nearer than it has ever been to polio eradication with global vaccination efforts bringing reduction in polio cases by 99.8%. An estimated 250,000 children are now alive and another 5 million children are walking who otherwise would have been paralysed although this has taken 25 years and a cost exceeding $10 billion from external sources; exclusive of polio funds from countries' and bilateral sources to achieve (Fetene & Sherani, 2013). By September 2015 only few countries continued to have transmission of wild polio virus with Nigeria inclusive. However, due to significant gaps in immunity and high population

movements, several polio-free countries were either re-infected, causing large outbreaks with extensive transmission, or remain at risk.

One of the strategic objectives of the Global Vaccine Action Plan (GVAP) which was adopted in the eradication of polio efforts is to ensure that the benefits of polio immunisation are equitably extended to all people. This means that every eligible individual is immunised irrespective of geographic location, age, gender, disability, educational level, socioeconomic level, ethnic group or work condition (WHO, 2013). Supplementary Immunisation Activities (SIAs) are proven methods for increasing polio vaccination equity. Supplementary Immunisation Activities (SIAs), also referred to as mass immunisation campaigns, are an effective strategy for providing vaccination opportunities for children otherwise missed by routine services or to susceptible individuals that are out of the routine target population. SIAs are also excellent opportunities for strengthening vaccination services through building national capacity, advocating for routine immunisation, improving immunisation practices and providing further public health benefits through integration of other public health interventions (WHO, 2013). Therefore, building high population immunity to poliovirus infection through routine immunisation as well as through supplementary immunisation activities (SIAs) was found as the key to polio eradication (UNICEF, 2015).In low- and middle-income countries, the Expanded Programme on Immunisation (EPI) frequently uses supplementary immunisation activities (SIAs) to achieve polio eradication(Stéphane Helleringer, Abdelwahab, & Vandenent, 2014). SIAs are mass vaccination campaigns during which health workers and volunteers establish additional door to door outreach for polio vaccination to offer immunisations to all members of a target population, irrespective of previous vaccination status (Helleringer et al., 2014). SIAs provide opportunities to catch up with the oral polio vaccine (OPV) schedule for children not fully vaccinated through Routine Immunisation (RI) services and also provide additional OPV doses to children who have completed (or who are on schedule to complete) the RI OPV schedule.

The attractiveness of the SIA model largely stems from its high coverage and perceived ability to reach the most disadvantaged children. Polio SIAs indeed address a number of barriers associated with the use of RI services among the poorest individuals. They are conducted from door to door, and as a result, from the client perspective, the travel costs associated with seeking vaccinations at health facilities are eliminated. Finally, polio SIAs frequently use special outreach techniques to contact children in hard-to-reach populations (eg, fishing communities and nomadic groups), which are typically at high economic

disadvantage and are not (or incompletely) reached by RI services (Helleringer et al., 2014). Polio SIAs may be conducted nationwide (through national immunisation days [NIDs] or child health days) or may target specific districts/regions (through subnational immunisation days [SNID] and so-called mop-ups). SIAs may significantly contribute to herd immunity against poliovirus infection in local communities by delivering a large number of OPV doses in a short period. High SIA coverage is widely credited for playing a key role in the >99% decrease in polio cases since the start of the Global Polio Eradication Initiative (GPEI), especially in countries with low RI coverage (Helleringer et al., 2014).

According to Sanou et al. (2009), WHO projected that complete vaccination should reach at least 90% of children at the country level and 80% in sub-areas by the year 2010. One of the most current national surveys conducted in Nigeria in 2013 to assess the immunisation coverage for children born within five years before the survey actually reported that the full immunisation coverage for Nigerian children is 25% (National Population Commission and ICF Macro, 2013). This is quite low compared to the WHO expectation for 2010, despite the huge resources being committed. To make matter worse, Nigeria is now even considered the greatest threat to the global eradication of polio. There is therefore an urgent need to address the factors influencing the uptake of oral polio vaccine especially during supplementary immunisation activities that holds so much potential in reaching those missed during the routine immunisation at the health facilities. The aim of this study is to determine the factors influencing the demand for routine and supplementary oral polio vaccine among mothers of under five in Ibadan North Local Government area of Oyo State.

1.2 Problem Statement

Currently, Nigeria is among the ten countries in the world with vaccine coverage rates below 50% (WHO, 2010). Roughly 3 million children die each year of vaccine preventable diseases (VPDs) with a disproportionate number of these children residing in developing countries. Recent estimates suggest that approximately 34 million children are not completely immunised with almost 98 percent of them residing in developing countries (Ashlesha Datar, Arnab Mukherji, 2005). The infant mortality rate in Nigeria was 69 per 1,000 live births for the five years preceding the survey, the child mortality rate was 64 per 1,000 children surviving to age 12 months, and the under-5 mortality rate was 128 per 1,000 live births. This implies that one in 15 Nigerian children die before their first birthday and that one in eight die before their fifth birthday (NDHS, 2013). Many of these deaths are due to vaccine – preventable diseases arising from low uptake of vaccination especially in the rural areas.

Polio outbreaks have been linked with multiples of low coverage of routine immunisation and SIA, leading to critical build-up of susceptible populations. The polio epidemic in Nigeria is the worst in the African region and constitutes threat to other nations (Ophori, Tula, Azih, Okojie, & Ikpo, 2014).

National coverage in Nigeria for full immunisation is less than 13%, one of the lowest rates in the world (Uchenna, 2009). Some states in northern Nigeria have coverage rates below 1%, and the average for the whole North West Zone is just 4%. Nigeria's performance on routine immunisation has continued to decline since the high point achieved around 1990.

Despite the central role of SIAs in eradication efforts, setbacks in the GPEI have been attributed to low-quality SIAs. Target dates for eradication have repeatedly been pushed back and, at present, transmission of wild poliovirus remains endemic in Nigeria. Four countries where circulation of wild poliovirus had stopped (Angola, Chad, Democratic Republic of the Congo and South Sudan) have been labeled as having "re-established polio transmission" and several other countries previously considered to be "polio free" have reported cases of acute flaccid paralysis due to wild poliovirus strains originating from northern Nigeria. Of great significance and concern is the emerging status of Nigeria as the country with the highest number of Wild Polioviruses (WPV) in the world (Uchenna, 2009). Increased widespread transmission of the WPV was reported in the highly endemic States of Kano, Katsina, Jigawa, Kaduna and Bauchi, while a fresh outbreak of WPV was confirmed in Kebbi. Of epidemiological importance to Oyo State is the recent AFP case that was discovered in one of the Wards in Ibadan North Local Government during the march round of the National Immunisation Days in the year 2016 but being investigated by the Disease Surveillance and Notification Unit of the Local Government. This is to ascertain if the AFP is of Polio origin(NPI Ibadan North LGA Report, 2016). Ibadan North local government recorded a very low coverage rate of 28% for routine immunisation in the year 2016 as against the previous higher coverages recorded in the past 6 years (NPI Ibadan North LGA Report, 2015).

Research in other parts of the world has shown that social factors, economic factors, community and systemic factors affect immunisation coverage(Uchenna, 2009). These factors are potentially modifiable. Ibadan North Local Government, Oyo State,Nigeria is not immuned to the catalogue of problems facing immunisation uptake in Nigeria. Against this background, the goal of this study is to provide data that would assist programme staff and policy makers to design strategic interventions to improve immunisation coverage in Oyo State in particular and Nigeria in general. This study aimed at obtaining community-based

information on the level demand for polio vaccines delivered through routine and supplementary polio vaccination services together with factors which are associated with the low uptake of these services in the local government.

1.3 Justification of the study

In spite of a number of supplementary immunisation rounds conducted in Nigeria, hard to reach communities have complicated the polio eradication efforts. As a result, engaging and convincing caregivers in hard-to-reach areas of the benefits of vaccinating their children and ensuring that caregivers whose children have received OPV (Oral Polio Vaccine) are motivated to continue vaccinating their children remains a strategic communication challenge in these areas.

Vaccination coverage figures are generally available, however there is no information about factors affecting uptake of vaccination services in various areas. In order to define priorities and plan and implement interventions that aim to improve uptake of vaccination services, community-based information about the determinants of the uptake of polio vaccination services especially during SIAs in the population is needed.

The results obtained from this study will be used by programme managers working with Reproductive and Child Health services at National, Regional and District level to improve uptake of vaccination services. It is expected that these results will be incorporated when planning routine vaccination and supplementary immunisation activities by the relevant bodies.

1.4 Research questions

The study was designed to answer the following questions

1 What is the knowledge of mothers of under-five on oral polio vaccination in Ibadan North Local Government Area?
2 What is the uptake of oral polio vaccination among mothers of under-five in Ibadan North Local Government Area?
3 What are the perceptions of mothers of under-five towards oral polio vaccination in Ibadan North Local Government Area?
4 What are the attitudes of mothers of under-five towards the uptake of oral polio vaccination in Ibadan North Local Government Area?

5 What are the factors affecting the demand for routine and supplementary oral polio vaccine among mothers of under-five in Ibadan North Local Government Area?

1.5 Broad Objective

The broad objective of this study is to investigate factors influencing the demand for routine and supplementary oral polio vaccine among mothers of under-five in Ibadan North Local Government.

1.5.1 Specific Objectives:

The specific objectives of the study are to;

1. Assess the knowledge of oral polio vaccination among mothers of under-five in Ibadan North Local Government Area.
2. Examine the uptake of oral polio vaccination among mothers of under-five in Ibadan North Local Government Area.
3. Determine the perception of mothers of under-five towards oral polio vaccination in Ibadan North Local Government Area.
4. Determine the attitudes of mothers of under-five towards the uptake of oral polio vaccination in Ibadan North Local Government Area.
5. Identify the factors affecting the demand for routine and supplementary oral polio vaccine among mothers of under-five in Ibadan North Local Government Area.

1.6 Hypotheses

1. There is no significant difference between mothers' knowledge of oral polio vaccination and their perceived severity of polio in Ibadan North Local Government Area.
2. There is no significant difference between mothers' age and their perceived child's susceptibility to polio in Ibadan North Local Government Area.
3. There is no significant difference between a child's uptake of routine oral polio vaccine and uptake of supplementary oral polio vaccine.
4. There is no significant difference between mothers' fear of adverse reaction and their child's uptake of supplementary oral polio vaccine.

CHAPTER TWO

LITERATURE REVIEW

2.1 Immunisation

Immunisation is defined as the creation of immunity against a particular disease. It could be the treatment of an organ and/ or making a body immune to subsequent attack by particular pathogens through giving of vaccine (Rahji & Ndikom, 2013). These vaccines protect individuals at risks of acquiring infection by inducing a variety of immune mechanisms. Immunity so acquired can be active or passive (Rahji & Ndikom, 2013). Immunisation is one of the most effective, safest and efficient public health interventions as it is estimated to save at least 3 million lives from vaccine preventable diseases (Adeyinka et al., 2010). Immunisation is achieved through the use of vaccines which have substantially reduced the global burden of infectious diseases (Hu et al., 2014).

Live vaccines, derived from modified strains of the causative organism, are capable of replications which in turn induce an immune response in the host. They have sufficient characteristics of the original pathogen to activate the immune system of the recipient and cause long- lasting immunity. They rarely cause significant illness unless there are pre-existing immune defects in the host. “Killed” or inactivated vaccines on the other hand trigger the immune system through antigens that are common to the original pathogen but which do not replicate. These vaccines require relatively large doses to trigger an effective immune response, and the protection may not be as long-lasting. While there is no risk of vaccine-induced infection, there may be a risk of a mild, modified form of the disease. Vaccines can occasionally induce allergic reactions, ranging from mild to severe anaphylactic responses which may be due to components of the vaccine, e.g., residuals of materials used in the preparation of the vaccines, preservatives, etc. Specific recommendations with regard to allergic reactions are provided by the producers of each vaccine and should be consulted(Carr, Clements, Ritchie, & Martin, 2003).

2.1.1 Active immunisation

Active immunisation involves challenging the human immune system with a vaccine composed of modified pathogens. Since the immune system has a long- lasting memory for a wide range of specific infecting agents, vaccination provides the individual with long- term protection against a particular disease. Active immunisation has the advantage of providing

individual with immune protection and also reduces the circulation of the infecting agent in the population, thereby protecting unvaccinated individuals as well. This phenomenon, called herd immunity, operates in the target population once adequate rates of immunisation are achieved, resulting in a drop in the incidence of the disease (Carr et al., 2003). However, once the incidence of a disease is significantly reduced, there is a danger individuals will no longer feel the need to get immunised, and rates of vaccination will decline. If the pathogen is still circulating and herd immunity is lost, there is the risk of a rise in the incidence of new infections. Thus, it is important that health professionals and the public be well educated about the importance of continuing immunisation to prevent the re-emergence of infections (Carr et al., 2003).

2.1.2 Passive immunisation

Passive immunisation involves the transfer of antibodies generated by one individual to another individual in an attempt to prevent or attenuate an anticipated infection. The method is less effective and shorter lived than active immunisation but it has the advantage of being more immediately effective. This is an important strategy in the use of antibody preparations for prophylaxis against/or treatment of tetanus, rabies, varicella and hepatitis A and B. However, passive immunisation is not without difficulties. It may interfere with the immune response to some antigens like measles vaccine, but can be used effectively in combination with active immunisation against such diseases as rabies and hepatitis B (Carr et al., 2003). Though, polio vaccine does not belongto the category of artificial passive immunisation. Breast feeding however serves as a means of providing natural passive immunity of varied antibodies to young ones.

2.2 Global Immunisation and Disease Prevention Efforts

Certain diseases may require universal immunisation of a population to control. Such efforts usually target infants in the first year of life so that immunity is completed as early as possible before the risk of infection, (e.g., diphtheria-pertussis-tetanus, polio). Since there are regional differences in infection rates and severity of every disease, the choice of vaccine and dosage regimen will vary with the local epidemiology of the disease, specific target population, and health system.

Financial commitment towards immunisation would amount to $3 billion per year in the next ten years with UNICEF investing 56% of its health funds (Adeyinka et al., 2010). Thus, as part of the child survival programme, the expanded programme on immunisation was created in 1974 by WHO with UNICEF and Rotary International as partners. This has increased the

level of immunisation of the world's children from 5 to 80% in 30 years. Though efforts at immunisation have yielded highly beneficial results with most developed countries of the world having coverage of over 90% (Adeyinka et al., 2010). The same cannot be said of developing nations of the world especially in Africa where vaccine preventable diseases contribute significantly to under-5 mortality. Nigeria for instance has an under-5 mortality rate of 201/1000 (immunisation coverage of 13%). It remains one of the polio hot zones along with the India, Pakistan and Afghanistan and also one of the 11 countries that accounted for 66% of the world's measles death. While South Africa, Asia and Sub- Saharan Africa are substantially behind and would have improved by average annual rates of 3.2% points and 4.1% points respectively in order to reach 90% coverage by 2010 (Adeyinka et al., 2010). To this end, only 4 countries in the world are reported to have endemic poliomyelitis; Pakistan, Afghanistan, Nigeria and India. Global polio eradication has dramatically reduced polio transmission throughout the world with the eradication from western hemisphere in September, 1994 but this has suffered great set back in Nigeria especially the Northern part witnessing pandemonium and commotion (Adeyinka et al., 2010).

2.3 Immunisation and Disease Prevention in Nigeria

Nigeria like many countries in Africa is making efforts to strengthen its health system especially the routine immunisation so as to reduce the burden from vaccine preventable diseases. According to the Nigerian Federal Ministry of Health definition, a child is considered fully vaccinated if he or she has received a BCG vaccination against tuberculosis; three doses of DPT to prevent diphtheria, pertussis (whooping cough), and tetanus; at least three doses of polio vaccine; and one dose of measles vaccine. All these vaccinations should be received during the first year of life, over the course of five visits, including the doses delivered at birth. According to this schedule, children aged 12–23 months would have completed their immunisations and be fully immunised.

In Nigeria, the percentage of children aged 12-23 months who received at least one dose of vaccines by their fifth birthday rose from 60.9% to 69.4% indicating that access and uptake had improved. Yet the percentage of fully immunised with all doses before 12 months of age fell from 14.3% in 1999 to 13% in 2003 and drop-out between first and third dose of DPT increased from 45.7% to 48.1%, indicating growing problems with continuity of routine immunisation services. A comparison of the 2008 NDHS results with those of the earlier surveys shows there has been an increase in the overall vaccination coverage in Nigeria from 13% in 2003 to current rate of 23%. However, the percentage of children with no

immunisation has not improved for the same period as this stood at 27% in 2003 and 29% in 20089. Despite the slight improvement, it is still low (Rahji & Ndikom, 2013)

According to WHO Country Cooperation Strategy report 2014, more children are being immunised at the right age, and a broader range of antigens has been introduced, and the incidence of cases of vaccine-preventable a disease has been reduced (WHO, 2014). DPT3 coverage increased from 52% in 2008 to 83% in 2013. Nationally, the proportion of fully immunised children aged 12-23 months is 23%, ranging from 4.7% in the North-West zone to 40.7% in the South-West zone. Coverage in rural areas was 13.4% compared with 32.6% in urban areas (WHO, 2014). Nigeria is facing difficulties in progress towards achieving the measles vaccination target of 95% by 2015, and a large equity gaps persist among zones and between urban and rural areas (WHO, 2014). Factors such as lack of political will, lack of motivation, infrastructure and negative perceptions and beliefs especially in the Northern parts of the country have affected immunisation in Nigeria (Adeyinka et al., 2010). In Northern Nigeria, on the perception, beliefs and practices towards measles and measles vaccination showed 1 of 500 mothers interviewed believed that measles is prevented by immunisation, 16% believed that it is contagious, 26% believed that it is caused by evil spirit, witch craft, and heat. 25% has never heard of measles immunisation, 27% said that they did not believe immunisation was effective and 4% were not allowed to go for immunisation by their husbands (Adeyinka et al., 2010).

2.4 Immunisation in Oyo State

National Programme on Immunisation is the parastatal saddled with the responsibility of immunisation in Nigeria. Another parastatal, the National Primary Health Care Development Agency (NPHCDA), has responsibilities in immunisation. The Oyo State office of the NPI oversees immunisation activities in the state. Routine Immunisation (RI) is the major focus of the NPI. It has a schedule in Nigeria for the full immunisation of every child before the age of one(Uchenna, 2009). Nigeria's immunisation schedule contains tetanus toxoid (TT), BCG, Hepatitis B vaccine (HBV), OPV, DPT, measles, cerebro-spinal meningitis vaccine (CSM) for types A and C, and yellow fever.

Oyo State, routine immunisation coverage in 2009 was above 70% for most antigens. Also the state has been polio free in the last 14 months. Oyo State`s population of under one year old was 247,287, and under 5 years 1,236,434 (Rahji & Ndikom, 2013). Infant mortality rate in 2007 was 60/1000 live births while under five mortality rate in 2007 was 64/1000 live birth. Infant mortality rate in 2009 was 21/1000 live birth. Under-five mortality rate in 2009

was 42/1000 live births. The number of children under 1 year that were fully immunised in 2007 were 90,906 while the number of children under 1 year that were fully immunised in 2009 were 255,199 10. These results were attributed to the supplemental immunisation activities embarked on in the state (Rahji & Ndikom, 2013).

2.5 Global Polio Eradication Efforts

At the centre of the Global Polio Eradication is the Global Polio Eradication Initiative (GPEI), which was established in 1988 when there were an estimated 350,000 polio cases reported from 125 endemic countries. Considerable progress towards global polio eradication has been made since then (Rahji & Ndikom, 2013). New tools and tailored approaches, including the new bivalent oral polio vaccine (OPV), began to be implemented in all remaining endemic and re-infected areas, under the auspices of the Strategic Plan 2010-2012. By the end of its period, although the milestone of stopping all poliovirus transmission by end-2012 was missed, the Plan had brought the world to the brink of eradication with all persistent outbreaks being successfully stopped. Polio was geographically increasingly restricted in Nigeria, Pakistan and Afghanistan. And India, long regarded as the most challenging place from where to eradicate polio, achieved success, putting to rest the question of the technical feasibility of eradication. At the end of 2012, polio was at the lowest levels ever – with fewer cases in fewer districts of fewer countries than ever before. 223 cases were reported in 2012 – a greater than 60% reduction from 2011. Over the year, more than two billion doses of vaccine were distributed to 429 million children around the world with the world facing the best ever opportunity for success (WHO, 2013).

After the year 2013, the GPEI started operating under the auspices of the new Polio Eradication and Endgame Strategic Plan 2013-2018. The development of this Plan was made possible by the successes, progress and lessons learnt from 2010-2012. It sets out a blueprint for ceasing the transmission of both wild poliovirus and vaccine-derived poliovirus and strengthening routine immunisation coverage in key target countries, provides for the safe containment of poliovirus in laboratories and lays out a roadmap to ensure that the assets, resources and knowledge of the polio programme can be harnessed to support other health interventions and services.

2.6 Polio Immunisation in Nigeria

Nigeria introduced several child survival initiatives and expanded existing ones, with a particular focus on polio eradication and strengthening routine immunisation. Several supplemental vaccination campaigns were conducted to rapidly increase the coverage of

specific vaccines notably the polio vaccine. In 1990, polio coverage was 55%. This dropped to 31.5% in 1995 and, between 1996 and 1999 it dropped to between 26% and 19%. In 2000, it increased picked to 26% and continued to rise to 45% in 2005. Oral polio vaccine (OPV3) coverage shows a national figure of 73.95% coverage with the southeast zone at 86.63% as the highest and the northeast zone with 60.2 as the lowest rate. The trend shows a drop from 38.60% in 2003 to 36.70% in 2006 and an increase to 73.95% in 2010. The OPV3 coverage by states shows that Enugu state recorded the highest coverage with 99.11%, while Taraba State recorded the lowest with 18.75%.

In May 2006, Nigeria began to implement polio vaccination campaigns (Immunisation Plus Days). In 2012 alone, for example, Nigeria conducted two national and five sub national polio immunisation campaigns (NPHCDA, 2012). More States in Nigeria were polio-free in 2006 than in 2005 with 22 States not reporting wild poliovirus case in 2006 as compared to 16 in 2005 while six of the country's 37 states—Bauchi, Jigawa, Kaduna, Kano, Zamfara and Katsina—accounted for 90% of all cases in Nigeria in 2006.

The total number of confirmed wild poliovirus cases in Nigeria for the year 2005 was 801 with a total of 21 states infected. Nigeria accounted for 41% of the global wild poliovirus cases in 2005. The infection affected 55 local government areas (LGAs) in the country, with the majority of the infected LGAs being in the northern zone. In 2006, Nigeria reported a high poliovirus transmission mainly in six states in the northern area of the country. According to WHO data, 438 wild poliovirus cases had been confirmed in 15 states, as of June 9, 2006. This compares with 173 cases for the same period in 2005. Today Nigeria accounts for 83% of the global wild poliovirus cases in 2006 and for 98% of the cases in Africa (Ophori et al., 2014)..

Concerted efforts led to significant decreases in new infections from wild poliovirus, which fell from 388 in 2009 to 21 in 2010. This is the lowest incidence of both types over a 12-month period that Nigeria has ever recorded. But this was followed by a gradual increase in cases to 63 in 2011 and 122 in 2012. In 2012, a new National Polio Emergency Action Plan aimed to urgently address long-standing operational challenges associated with lack of accountability and ownership. And even though case numbers continued to increase from 2011, the programme moved onto its strongest footing ever. An unprecedented level of political and societal commitment was built up. Operations improved, including in highest-risk Local Government Areas (LGAs) (WHO, 2013). A strong overall baseline was established, enabling the effort to focus on filling in remaining gaps. The National Polio

Emergency Action Plan was finalized and officially launched by His Excellency President Goodluck Jonathan in March 2012 (WHO, 2013).

2.7 Key elements of the Nigeria National Emergency action plan on Polio Eradication and Impacts

The following are key elements of the Emergency Action Plan;

- **Focus on known high-risk areas**: The available technical, financial and personnel resources should be focused on improving operations in the known identified 107 high-risk Local Government Areas (LGAs).
- **Emergency operations centres (EOCs)**: These were implemented to further facilitate planning, implementation and monitoring of activities. 'Dashboards' tracking data and programmatic updates regularly monitored activities, including local-level preparedness for vaccination campaigns. By end 2012, EOCs were operational in Abuja and five high-risk states, including Kano
- **Tracking of local-level engagement**: Engagement of LGA Chairpersons in polio activities was actively being monitored and reported to state task forces.
- **Intensified social mobilisation**: UNICEF launched a Volunteer Community Mobilizer Network, operational in 22,000 settlements in high-risk LGAs, to secure full societal and community engagement, including through religious and traditional leaders. A household-based communications strategy was rolled out in high-risk wards particularly in the north-west, and expansion of the network of Volunteer Community Mobilisers is continuing.
- **Revised team structure and selection**: the composition of vaccination teams and supervisors was evaluated and restructured, to include a specific community leader; daily workloads were revised
- **Improved SIA microplanning**: new guidelines for developing microplans were established and rolled- out. Importantly, the new microplans are house-based, rather than community-based. The new household- based microplanning process was fully rolled out in the endemic states, and has been augmented by the use of GIS technology in key area and completed in seven states. GIS tracking of vaccination teams was initiated in July, and conducted in 70 LGAs in five states.

- **Intensified monitoring**: Lot Quality Assessment Sampling (LQAS) became the gold-standard to evaluate the quality of implementation, supported by concurrent monitoring of immunisation activities.
- **Strengthened surveillance**: subnational gaps in surveillance for acute flaccid paralysis (AFP) continued to be filled, supplemented in high-risk, urban areas by environmental surveillance.
- **Reaching underserved, hard-to-reach groups**: special strategies focused on hard-to-reach or underserved population groups, including nomadic populations, and – in some areas – populations living in areas with insecurity.
- **Emergency surge in staff**: an emergency technical surge was deployed to high-risk LGAs and optimized. WHO maintained support for its 2,500 strong human resource surge, with ongoing efforts to improve staff management and accountability processes. UNICEF expanded its communications capacity in LGAs in high-risk states. More than 1,800 volunteer community mobilisers were deployed to the highest-risk settlements, with further expansion planned in 2013.
- **Close alignment of polio and routine immunisation**: within the context of the 'Saving One Million Lives Initiative', launched by President Jonathan in October 2012, synergies between the polio programme and broader public health systems were sought, in particular with routine immunisation. The Plan aims to save one million lives by 2015, by focusing on improving maternal and child health, malaria control, child nutrition, prevention of mother-to-child transmission of HIV, routine immunisation and polio eradication. Polio staff actively supported routine immunisation efforts, by focusing on the Reaching Every Ward approach. In particular, activity plans covered all immunisation activities, with synergies being aligned in the areas of training, microplanning, communications, logistics, data collection, assessment of performance indicators and cold chain refurbishment

The impact of the emergency action plan was clearly being seen by end-2012. Although the country reported more cases in 2012 than in 2011, case numbers began to rapidly decline towards the end of the year and in early 2013. Of the 122 cases reported in 2012, only 21 occurred in the last quarter, with only two cases in December. Another decline started in 2013 with 53 cases. By week 28 of 2014, only five cases had been recorded and only in two states, compared with 36 cases in nine states in the same period in 2013, an 86% reduction. There has not been any case of wild polio virus Type 3 since November 2012 (WHO, 2014).

Most importantly, the epidemiological improvements correlated with improvements in vaccination status of children, as verified by LQAS. The proportion of high-risk LGAs reaching the target threshold of 80% coverage increased from 10% at the start of the year, to 64% by the end of the year, and further improvements were noted at the start of 2013. At the end of 2012, 80% of children were fully immunised (with more than 3 doses of OPV) (WHO, 2013). Surveillance sensitivity continues to be strengthened. All states are meeting the non-polio AFP indicator of ≥ 2/100,000 children aged <15 years of age. Environmental surveillance continues to be expanded, and is now operational in three states (Kano, Lagos and Sokoto) (WHO, 2013).

Nigeria still poses a substantial risk to the global goal, in part because it has many neighbouring countries that are vulnerable to the spread of infection. The risk of an explosive return of polio in Nigeria and West Africa is ever-present and raises the chilling spectre of many deaths and a huge financial outlay to regain control (Donaldson et al., 2012)

2.8 Supplementary Immunisation Activities (SIA)

The "Reaching Every District" (RED) approaches, through its operational components including

district planning and management of resources, reaching the target population, linking services with the community, providing supportive supervision, and monitoring and use of data for action has been implemented to build capacity and expand the provision of immunization services. However, certain individuals or population groups continue to remain susceptible because they are missed by routine immunisation programmes. Supplementary immunisation activities (SIAs) also referred to as mass immunisation campaigns are an effective strategy for providing vaccination opportunities for children otherwise missed by routine services or to susceptible individuals that are out of the routine target population.

SIAs are mass vaccination campaigns during which health workers and volunteers establish additional outreach service points (for measles vaccination) or go door to door (for polio vaccination) to offer immunisations to all members of a target population, irrespective of previous vaccination status (Stéphane Helleringer et al., 2014). Polio SIAs may be conducted nationwide (through national immunisation days [NIDs] or child health days) or may target specific districts/regions (through subnational immunisation days [SNID] and so-called mop-ups).

High SIA coverage is widely credited for playing a key role in the >99% decrease in polio cases since the start of the Global Polio Eradication Initiative (GPEI), especially in countries

with low RI coverage like Nigeria. The attractiveness of the SIA model largely stems from (1) its high coverage and (2) it's perceived ability to reach the most disadvantaged children. Polio SIAs indeed address a number of barriers associated with the use of RI services among the poorest individuals. They are conducted from door to door, and as a result, from the client perspective, the travel costs associated with seeking vaccinations at health facilities are eliminated. They also contribute to raising awareness and mobilizing social networks about vaccination in communities where access to vaccines may be limited. Finally, polio SIAs frequently use special outreach techniques to contact children in hard-to-reach populations (e.g, fishing communities and nomadic groups), which are typically at high economic disadvantage and are not (or incompletely) reached by RI services (Helleringer et al., 2014). SIAs are a proven method for increasing vaccination equity (WHO, 2012). SIAs also have the effect of rapidly boosting population immunity and quickly reducing the number of susceptible individuals in the population. SIAs are also excellent opportunities for strengthening vaccination services through building national capacity, advocating for routine immunisation, improving immunisation practices and providing further public health benefits through integration of other public health interventions (WHO, 2012). SIAs have been credited with many of the gains against child mortality made by Niger, Bangladesh and Nepal, and have also been effective even in conflict settings like DR Congo (Soe-lin & Kim, 2014).

Despite the central role of SIAs in eradication efforts, setbacks in the GPEI have been attributed to low-quality SIAs (Helleringer et al., 2012) and low uptake especially in some areas. Successful SIAs therefore require coordination, involvement of frontline health workers, social promotion, and strong management to achieve impact (Soe-lin & Kim, 2014). To succeed, SIAs require a strong political commitment at the highest national level and timely and complete availability of necessary resources. A major obstacle for SIA success has frequently been the lack of sufficient and timely political and financial support. Therefore, early in the planning process, high-level political support and resource availability (both at the national level and from donors) must be confirmed, along with assurances that funding for SIA operations at the local level will be fully available and on time. Another frequent problem stems from delays in the authorisation and distribution of financial resources for operational costs, and from the completeness and timeliness with which such resources arrive at the local level. Therefore, an assessment of support and resources should be made early in the planning process. Collaboration between the Ministries of Health and Finance will facilitate timely and complete delivery of operational resources to the local level.

Participation of the Ministries of Education and Social Services, along with the engagement of other public and nongovernmental sectors, could facilitate coordination with programmes that focus on vulnerable and difficult to reach populations.

2.9 Factors affecting Immunisation in Nigeria

Poliovirus transmission in Nigeria has been significantly reduced in 2010 following real progress in improving programme quality and community engagement and reaching more children consistently with the vaccine through the SIAs. However SIAs are hampered by a number of issues at the family/community level leading to a low demand for immunisation (Ophori et al., 2014). Some of these problems are briefly discussed below;

2.9.1 Misperceptions and lack of Knowledge about immunisation

A significant barrier to immunisation may be the family's lack of knowledge or inaccurate perception about the importance of vaccines and the seriousness of the diseases prevented by the vaccines. For example, in the U.S. a 1993 poll showed that 47% of parents of children under five did not know that polio was contagious, 36% did not know that measles could be fatal, and 44% did not know that H. influenza type B was the leading cause of potentially fatal childhood meningitis. Incorrect knowledge as to the preventive role of immunisation is widespread in Nigeria. Many women felt that immunisation was not necessary because the child was not sick (Rahji & Ndikom, 2013). In another study conducted in Nigeria, lack of knowledge about childhood immunisation schedule and where to sources for it is another major factor for not immunising children. Other reasons include lack of awareness about health benefits of immunisation. Lack of information and understanding about the importance of vaccines and immunisation may lead to failure for the children to return for the required follow-up doses. In Nigeria, maternal factor that was most strongly associated with non-completion of vaccination was lack of awareness of the need for vaccination (Lyimo, 2012). Some women believed that their children were too young to receive specific vaccines, particularly those involving the use of needles and syringes. More over few women believed that their child had received some vaccines and were apparently well and thriving there was no need for additional vaccines. Some women also believed that too many vaccines could be harmful to the child (Rahji & Ndikom, 2013). The role of maternal knowledge on vaccination as an important determinant of vaccination coverage has been shown by several researchers even in communities with a high level of illiteracy (Lyimo, 2012).

2.9.2 Perception of Disease Severity

Other household factors like parental attitude have also been shown to influence the uptake of vaccination services (Lyimo, 2012). Perception of disease severity, and of the efficacy of vaccines in preventing disease-the "health belief' model were soon recognised as additional important factors behind the motivation of parents to seek vaccination for their children (Barreto & Rodrigues, 1992). Other studies found that those with low uptake of vaccination differed from those with high uptake in their attitudes towards, and knowledge of, infant immunisation based on a wide range of personal experiences. Poor perception of the threat and potential severity of the disease may be influenced by local or culturally- based beliefs and a relative lack of medical knowledge leading individuals to assume the disease to be harmless, rare, minimally contagious, a “normal” part of childhood, or that individuals are resistant based on past exposure (Carr et al., 2003).

Parents may be fearful of vaccination effects on the young child, trying to balance their fear of committing harm against their fear of omitting care. Parents also worry about the potential side effects of vaccines and the number of injections their child will receive in a single visit. One study has shown that 67% of parents interviewed expressed concern over potentially dangerous side effects and that such concerns are often fostered by media reports (Carr et al., 2003). These concerns may be fueled by fears of the very concept of immunisation and require a well-planned and carefully carried out programme of public information to explain why immunisation is needed and how it works, explaining the relative risk of damage by vaccines (extremely low) versus the risk from vaccine- preventable diseases (very high) (Carr et al., 2003)

2.9.3 Influence of religion

In Nigeria, the greatest challenge to the acceptance of Immunisation generally is religious especially among the northern Nigerian Muslims. Generally, the Muslim north has the low immunisation coverage. In Oyo State and its strong Islamic background and influence, it is possible that religion affects immunisation coverage and also poor educational attainment. Christians have 24.2% immunisation coverage as compared to only 8.8% for Muslims according to Ophori et al., 2014.In a study conducted byEdomwonyi et al., 2015**,** the proportion of children of Muslim mothers who immunised their children fully were significantly lower than their Christian counterparts. Other studies (Sanou et al. 2012; Jegede, 2007; Renne, 2006) have also reported of the belief of some Islamic communities in Nigeria opposed to immunisation seeing it as international conspiracies targeted at Muslim

communities. Religious and philosophical objections of parents to immunisation are far more complex issues. Since religious groups tend to be clustered in geographic locations, these can pose a potential risk for outbreaks of a disease(Carr et al., 2003). Health care professionals need to familiarise themselves with relevant laws and local customs regarding this issue. Some countries may permit exemptions from immunisation on religious and philosophical grounds. Some may permit the intervention of health care professionals in situations where a patient's life, especially that of a child, may be in danger. Even when religion appears to be a barrier, sensitive handling of the issue can often result in acceptance of vaccination.

2.9.4 Rejection of routine immunisation

Another problem and challenges facing immunisation programmes in Nigeria is the rejection of selected vaccines/vaccination by parents or religious bodies more especially in the northern part of this country. The reasons for such rejection are;

a. **Fear and confusion**: Many decision-makers and caregivers reject routine immunisation due to rumour, incorrect information, and fear. Attempts to increase coverage must include awareness of people's attitudes and the influence of these on behaviour. Fears regarding routine immunisation are expressed in many parts of Nigeria. Fathers of partially immunised children in Muslim rural communities in Lagos State see hidden motives linked with attempts by non- governmental organisations (NGOs) sponsored by unknown enemies in developed countries to reduce the local population and increase mortality rates among Nigerians.

b. **Low confidence and lack of trust**; Lack of confidence and trust in routine immunisation as effective health interventions appears to be relatively common in many parts of Nigeria. The widespread misconception that immunisation can prevent all childhood illnesses reduces trust because when, as it must, immunization fails to give such protection, faith is lost in immunisation as an intervention, for any and all diseases (Ophori et al., 2014)

2.9.5 Political problems

The downward trend in the coverage of all the antigens appears to be associated with political problems. Immunisation programmes have been found to be vulnerable to disruptions of several kinds including high local rates of crime, political instability, sudden regime changes, withdrawal of donor aid and civil war. These political problems also included low government commitment to ensure the fulfillment of EPI policy as well as over-centralisation in the administration of EPI at the federal level of governance in Nigeria. The poor coverage

of measles between 1998 and 2005 was blamed on vaccine shortages and administrative problems, as was the case in 1996, 1999 and 2000 when polio coverage was only 26%, 19% and 26% respectively. Some positions offer potential for patronage due to the large payments for NID activities. This has led to political appointments and frequent changes in personnel as some LGA chairmen wish to bestow or repay political favours. Even at the state government level, increased political interference has been reported to be in the appointment of civil servants, also resulting in frequent changes of staff and the appointment of inappropriately qualified staff (Ophori et al., 2014)

2.9.6 Environmental and logistical barriers

Such barriers may include climate, geography or limited accessibility to health care due to poor roads, a failure of the Ministry of Health to provide them, inadequate public transportation, inconvenient office hours, inaccessible locations. Access to supplementary immunization is hampered by these factors (Carr et al., 2003).Under the NPI's the first mandate is to "support the states and local governments in their immunisation programmes by supplying vaccines, needles and syringes, cold chain equipment and other things and logistics as may be required for those programmes". However, the supply of vaccines has always been problematic for Nigeria, primarily because funds were not sufficient and were not released on time (Rahji & Ndikom, 2013). For example in 2001 the whole amount was approved but only 61% was released, the late release of funds (April 2001) meant that vaccine had to be bought on the spot market at inflated prices. In 2002 no funds were released and by March 2003 the funding cycle had only reached the stage of getting the budget approved. NPI did not supply any syringes for Rubella infection in 2005, and the only safety boxes that have been supplied are the limited quantities given by donors for SIAs. Following an assessment in 2003, it was decided that UNICEF would supply vaccines in future. In the last quarter of 2003, UNICEF began supplying vaccines through a procurement services agreement, and this arrangement continues to date. (Ophori et al., 2014)

2.9.7 Parents' Unavailability

Mother`s unavailability, including sickness, travel time and time constraints are other factors affecting immunisation uptake in Nigeria. According to another study, the commonest reason for the partial immunisation of the child was the unavailability of both the parents (17.2%) to fulfill the child's health needs, as they were preoccupied in the livelihood-generation activities. Other reasons for partial immunisation were missing of the dose due to visit to native place/village. Families who live in temporary housing, or who migrate between jobs

are especially at risk of failing to complete immunisation schedules. Moving to a new area immediately after birth raises the probability that a child will not be immunised or that vaccination will not be completed.

2.9.8 Household Factors

Household factors includes economic status, employment, family size, number of children in the household, mother's/ caretaker's level of education and attitudes and beliefs may also influence the uptake of vaccine. Maina et al. (2013), in their study found that maternal education was one of the factors that were significantly associated with immunisation coverage. In Kaptembwo, the proportion of fully immunised children of mothers/guardians who had attained secondary school education and above was 81.6%, which is higher than those who had attained primary school education (76.7%) and even those with no formal education (42.9%). In another study by Mutua et al (2011), they noted that household assets and household expenditures were predictors of vaccination. They also found that children of mothers who had completed primary education had a greater chance of being vaccinated than those of mothers who had no education.

2.9.9 Social Characteristics and Factors

Social characteristics such as income, family size, ethnicity, social isolation and migrant status have also been linked to vaccination uptake (Lyimo, 2012). The effect of socioeconomic variables on vaccination uptake has also been explored. Economic status has been associated with immunisation status. It affects uptake of immunisation by creating conflicting priorities for working families that must meet daily survival needs. Families that live in deprived socio- economic (SES) areas may have less access to, and are less likely to pursue immunisation (Carr et al., 2003). Overall, many studies on factors associated with uptake describes maternal education, place of residence, and familial wealth as measured through the proxy of father's occupation as determinants of vaccine uptake. Other studies that sought to identify determinants of uptake of vaccination have also supported the view that maternal education basic health education for mothers and area of residence are important factors (Lyimo, 2012). Also the birth order and size of family also affect uptake of immunisation as the higher the number of offspring in a family, the greater the probability that the youngest will not be vaccinated. In fact, as a family increases in number, successive children are less likely to be vaccinated as the increasing family responsibilities demand more and more time and detract from health care decisions.

2.9.10 Health staff's attitudes

A programme can be seriously damaged by the poor interaction between staff and clients. In some cases, staffs have been observed to be rude. Even when correct information was provided, the manner in which it was delivered was not conducive to parents' coming to complete immunisation for their children. This kind of situation is obviously undesirable, but the reasons for such behaviour may be complex, not always directly within the control of the health worker, and require considerable effort to correct.

2.9.11 Legal considerations

The success of immunisation programmes can lead to the perception and expectation that these programmes are infallible. However, as has been shown, although serious adverse effects are rare, it is not yet possible to remove all risk. As a result, in industrialised countries there is a growing number of lawsuits for alleged vaccine-induced damage, especially in instances where immunisation has been legally required. These potential threats of legal action can serve as significant disincentives to governments, agencies, pharmaceutical companies, and health care professionals to provide immunisation. A significant diminution of immunisation programmes as a result could prove to have disastrous consequences. Therefore, governments, institutions, and individual health care providers must ensure that patients are thoroughly informed of the risks involved, and of the potential for adverse effects. One recommended solution is the institution of a no-fault compensation agreement for vaccine related injuries. Several European countries have established no fault compensation agreements for vaccine related injuries. However, to ensure that compensation is paid only on genuine, scientifically accepted circumstances, a rigorous system of medical peer review is required. A skilled lawyer might convince a court that compensation is due for an event temporally associated with administration of vaccine, but which may have no causal association. Awarding damages in such a case may appear compassionate, but is actually against the public interest and unnecessarily damages a vaccine's reputation (Carr et al., 2003).

2.10 Communication and Education– the key to behaviour change for Immunisation acceptance

As in many areas of health care, behavioural factors play an important, sometimes crucial role in the successful implementation of supplementary immunisation programmes. Immunisation is an important form of primary prevention which protects the individual and the wider population by impeding the spread of infectious disease. However, immunisation

programmes may be less effective because eligible individuals chose not to complete vaccination schedules for various reasons. These include ignorance of the benefits and risks of immunisation as well as a misunderstanding of the consequences of non-participation. Standards for Pediatric Immunisation Practices are available and provide useful information for family and community education. However, the effectiveness of information provided to the public depends upon the quantity of information provided, the clarity of the information and the source of the information. Information needs to be presented in a form that is readily understood by the lay public. It must be relevant and accurate regarding the disease and its potential risks with and without vaccine, the effectiveness and any contraindications or associated risks of the vaccine, and the procedures required for successful completion of the immunisation programme. The information should come from authoritative sources such as community leaders, popular figures (e.g. football stars), religious leaders, and health professionals (Carr et al., 2003).

Since family and friends are important sources of health care information, efforts should be made to inform communities and educate families, even though some members may not be part of the target population. Educational efforts should be focused on parents and families who may not be motivated to obtain timely vaccinations, e.g., low educational level of either parent, large family size, low SES, minority, high use of public clinics, young parental age, single parent status, lack of prenatal care, and a late start with immunisation. Mass media campaigns have been shown to be highly effective in obtaining the acceptance of the public. Using such techniques, in excess of 99% of target group has been reached during the Polio Eradication Initiative of the 1990s.

2.11 CONCEPTUAL FRAMEWORK

The Health Belief Model

The health belief model (HBM) is a psychological health behaviour change model developed to explain and predict health-related indicators with regard to health care services uptake (Siddiqui et al, 2016).

The model was developed in the 1950s by the social psychologists at the US Public Health Service out of set of independent research problems (Rosenstock, 1974). Many factors, like demographic, social, cultural, economic and healthcare factors, have been found to influence knowledge, attitude and practice of parents/care givers of children. This was, for instance,

established by health care belief model which comprises of three components: Individual perception (attitude), modifying factors (demographic, social, cultural factors), and likelihood of action (outcomes) (Rosenstock, 1974).

The model asserts that an individual takes an active role in engaging in health promotive behavior (Marriner and Raile, 2005). The HBM assumes that there is a "cue to action" that may trigger off the decision-making process and may be either internal (i.e. symptoms) or external (e.g. media and interpersonal influences). This model accepts that diverse demographical, socio-psychological and structural variables may affect the individual's perception and, as a result, influence health-related behavior (Janz and Becker, 1984).

The health belief model explains reasons for behaviour behind the uptake of health commodities. The model is known to be most successful when applied to preventive health services such as immunisation. It has been used extensively to organize theoretical predictors of preventive health actions including individual perceptions of diseases, individual perception of preventive actions and modifying factors such as social and demographic and structural characteristics.

The model states that individuals engage in preventive health behaviour based on three main factors. These factors are perceived vulnerability, perceived severity and perceived benefits. This means that a person would have to believe that he or she is susceptible or vulnerable to a disease in order to take any action. The value of compliance is therefore based on the probability that in the client's view, compliance will reduce the perceived threat and not be too costly in money, time and emotional energy. Hence, the preventive action taken by an individual depends on the individual's perception that he or she is personally susceptible and that occurrence of the disease would have atleast some severe implication of a personal nature. The assumption here is that taking action reduces susceptibility. The perception of threat is also affected by modifying factors. These include demographic, social, psychological and structural variables. These can influence both perception and corresponding cue necessary to instigate action. The health belief model is selected for this study because it can help to explain some factors responsible for decision to uptake polio vaccine during supplementary immunisation activities. The elements of the model can assist the researcher in designing the health education interventions that could influence mother`s readiness to take make their children available for polio immunisation. This is by emphasising the benefits of compliance and by removing obstacles that might prevent compliance.

1. **Perceived susceptibility** - This refers to a person's subjective perception of the risk of acquiring an illness or disease. In this study it means a high probability of susceptibility to the child killer diseases-like polio. There is wide variation in a person's feelings of personal vulnerability to an illness or disease.
2. **Perceived severity** - This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). There is wide variation in a person's feelings of severity, and often a person considers the medical consequences (e.g. death, disability) and social consequences (e.g., family life, social relationships) when evaluating the severity.
3. **Perceived benefits** - This refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease). The course of action a person takes in preventing (or curing) illness or disease relies on consideration and evaluation of both perceived susceptibility and perceived benefit, such that the person would accept the recommended health action if it was perceived as beneficial.
4. **Perceived barriers** - This refers to a person's feelings on the obstacles to performing a recommended health action. There is wide variation in a person's feelings of barriers, or impediments, which lead to a cost/benefit analysis. The person weighs the effectiveness of the actions against the perceptions that it may be expensive, dangerous (e.g. side effects), unpleasant (e.g. painful), time-consuming, or inconvenient.
5. **Cue to action** - This is the stimulus needed to trigger the decision-making process to accept a recommended health action. These cues can be internal (e.g. chest pains, wheezing, etc.) or external (e.g. advice from others, illness of family member, newspaper article, etc.).
6. **Self-efficacy** - This refers to the level of a person's confidence in his or her ability to successfully perform a behaviour. This construct was added to the model most recently in mid-1980. Self-efficacy is a construct in many behavioural theories as it directly relates to whether a person performs the desired behaviour.

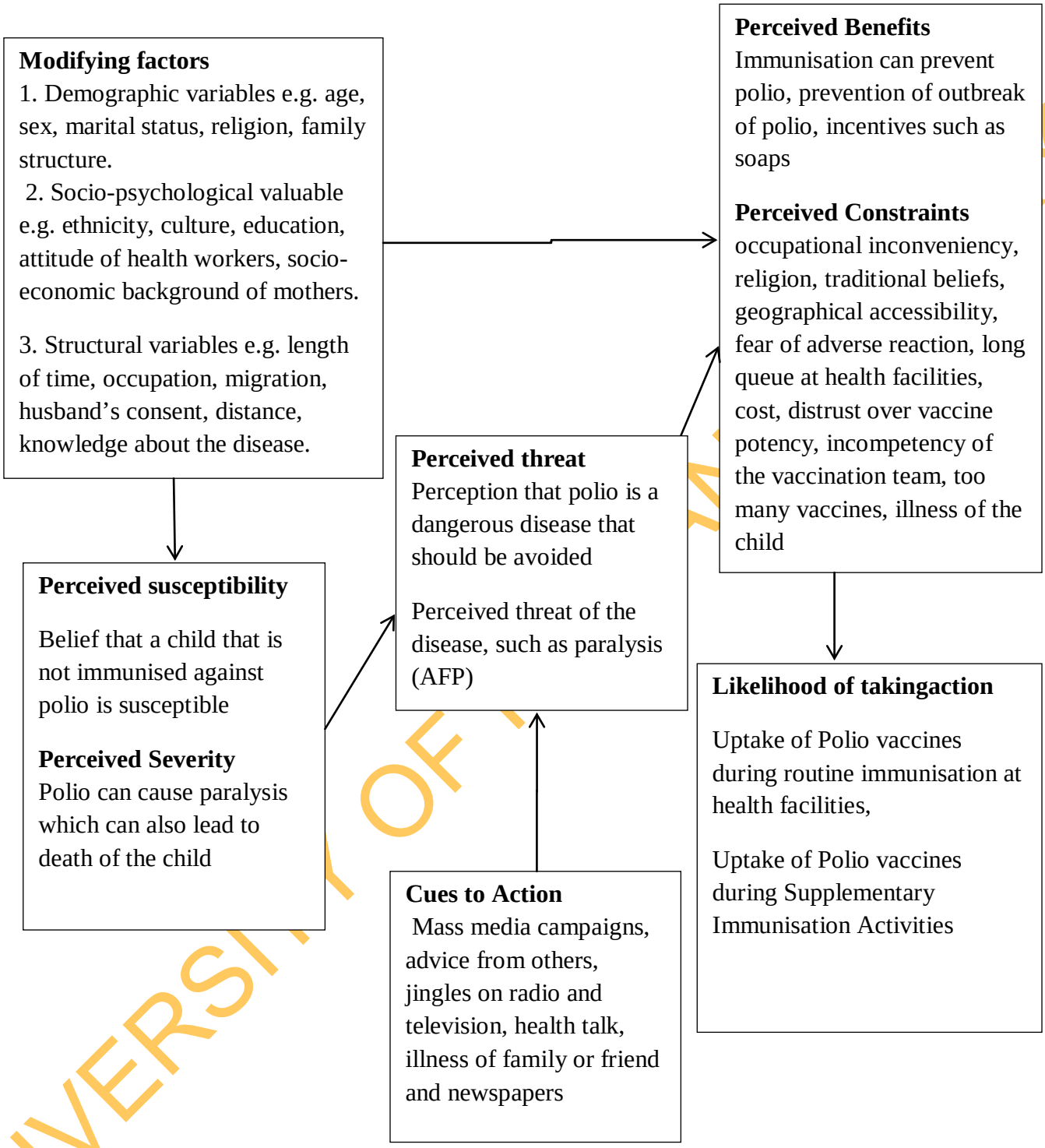

Figure 2.11: Health Belief Model (adapted to the study of the factors influencing the demand for routine and supplementary oral polio vaccine among mothers of under-five in Ibadan north local government area, Oyo state)

CHAPTER THREE

METHODOLOGY

This section deals with the research design, study population, sampling techniques, methods and instruments for data collection, procedure for data collection and data analysis.

3.1 Study design

A descriptive cross- sectional design was used for the purpose of this research. This is because the study aimed to examine the relationship between the demand for routine and supplementary oral polio vaccine among mothers of under-five, and other variables of interest as they exist in our target population over a short period of time.

3.2 Scope of the study

This study was limited in scope to the investigation of the factors influencing the demand for oral polio vaccine during routine and supplementary immunisation among mothers of under-five in Ibadan North Local Government Area, Oyo State.

3.3 Description of study site

Ibadan North Local Government Area is located approximately on longitude 8°5' East of the Greenwich meridian and latitude 7°23' North of equators. According to the 2006 population census (provision result); it has a proportion of 306,763. The male population is given as 153,039 and female population as 153,756 (source ERN (National Bureau of Statistics)). Ibadan North Local Government Area comprises 12 wards. This local government consists of multi-ethnic nationalities predominantly dominantly by the Yoruba, Igbo, Edos, Urhobos, Itsekiris, Ijaws, Hausas, Fulani and foreigners who are from Europe, Asia and other parts of the world. The inhabitants are mostly traders, University and Polytechnic lecturers, civil servants, students etc. The Local Government also houses several educational institutions such as the premier university (University College Ibadan), University College Hospital (College of Medicine), The Polytechnic Ibadan and several private and public secondary and primary schools. This advantage puts Ibadan North Local Government Area ahead of other Local Government Areas in the aspect of educational facilities.

The Local Government Area also houses several health care centres such as University College Hospital, Jaja health care centres, Adeoyo Hospital and several Maternity Centres

and dispensaries. The establishment of all these health-care facilities in the Local Government Area is due to the sensitivity of government to the health care of people resident within the boundaries of the local Government Area. Nevertheless, as a result of the high number of women within reproductive age in the study area, there has been the establishment of antenatal and health care delivery centres. This local government was chosen for this research work because its population represents all the ethnic groups (thereby, giving the LGA a large cultural, religious, and ethnic diversity) in the state. The LGA also comprises high risk settlements (such as its urban informal settlements) as well as hard to reach settlements with hilly terrains (for example Okeare). The LGA's 2016 ward level coverage rate with 3 doses of OPV (routine immunisation) for the infants from birth to 11 months of age is at 28% which is abysmally poor. While the 2 rounds of polio SIA conducted so far within the LGA in the year 2016 has average records of >90% coverage rate, though there has been increasing refusal cases of the supplemental oral polio vaccination from the mothers. This however has been scarcely captured and reported by immunisation team. Prior to the year 2016, no new case of polio was reported in Nigeria since 2014and Nigeria removed from the list of polio endemic countries on 25th September, 2015.Three years without new cases are required before a country can be declared polio free (Nigeria targeted the year 2017). However Nigeria announced new cases of wild polio virus in the early August, 2016, thereby setting back the country's and Africa's goal of polio eradication. This is an important milestone which requires strengthened continuing efforts at every level (Ibadan North inclusive).

3.4 Study population

This study enrolled mothers of children between the ages of 0-59 months living in communities of Ibadan North Local Government Area who consented to participate in the study.

3.5 Inclusion criteria

For the purpose of this study, only mothers of children between the ages of 0 – 59 months and living within the confines of Ibadan North Local Government Area were included.

3.6 Exclusion criteria

This study excluded mothers in Ibadan North LGA whose children were more than 5 years old. The study also excluded adolescent or women who were not nursing any child both within and outside the Study area. Also mothers with children within 0 – 59 months but living outside Ibadan North LGA were excluded.

3.7 Determination of sample size

The sample size (n) was determined by using Leslie Kish formula sample size formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where n=minimum sample size required

Z= confidence limit of survey at 95% (1.96)

P=uptake of polio vaccine =54%= 0.54 (NDHS,2013)

d=absolute deviation from true value (degree of accuracy) = 5% (0.05)

$$n = \frac{1.96^2 \text{ x}0.46\times0.54}{0.05^2} = 382$$

To compensate for non-response, 10% attrition rate was added to the minimum sample size

10% of 382 = 39

382+39 =457= 421

3.8 Sampling technique

A six-stage probability sampling technique was used in this study

Stage 1

Purposive sampling method was used to zero in on Ibadan North LGA (12 wards).This was as a result of poor routine oral polio uptake in the LGA for the year 2015/2016; and the peculiarity of the local government to constitute basically of travelers and migrants from all over Nigeria thus standing a risk of polio virus importation from the high risk states. Eight wards out of the twelve wards were selected through multi stage sampling technique.

Stage 2

Due to the heterogeneous nature of the LGA, Stratified sampling was used to divide the ward into different strata to ensure precision and proper representation of the target population.
1. Wards with Urban formal settlement (consists of 6 wards out of which 4 wards were chosen via simple random sampling; Samonda, Old Bodija, Agodi, Bashorun, Agbowo, and Sango) 2. Wards with Urban informal settlement (consists of 6 wards out of which 3 were chosen via simple random sampling; Okeare, Oke itunu, Ago tapa, Sabo, Inalende, and Yemetu). However due to the peculiarity of Sabo being a Hausa dominated ward as against other wards in the local government area, it was purposively selected.

Stage 3

Proportionate sampling was used to determine the sample size from the selected wards. Population of women of reproductive age (from which the target population would be sampled) was obtained from the local government and used to calculate the number of respondents to be chosen from each of the selected wards.

Stage 4

This stage involved random selection of 2 communities from each participating wards.

Stage 5

Systematic sampling method was used to select households. Sample interval was derived for the 16 communities by dividing the total number of the households in each of the communities by their respective sample size. The first house visited was determined by a random method. This involves assigning a number (1- 10) to each interviewer and letting the interviewer select the first house on the basis of counting that number from the closest house to the drop-off point. The sampling interval was then used to select subsequent households. However, if the potential participant was not available or refused to participate in the study, the next household was chosen.

Stage 6

This involved purposive selection of mothers of under-five from the selected households. Every mother with her child(ren) constituted a household. However, if there were more than one respondent in a house, simple random (via replaceable ballot system) was used to select the study participant. A total of 432 households were visited, out of which 421 were selected.

3.9 Instrument for data collection

A seventy-one item, semi-structured interviewer-administered questionnaire was designed using the information gathered through the review of literature. The questionnaire was initially developed in English, which was later back translated to Yoruba for the interview. The questionnaire comprised both open ended and closed ended questions. The questionnaire was divided into six sections. The first section of the instrument seeked for socio-demographic characteristics, while the second, third, fourth, fifth and sixth sections assessed the uptake of RI and SIA, knowlegde, perception, attitudes, factors influencing polio vaccinations uptake and demand respectively. Most of the questions on the survey instrument were close-ended. **Section 1** assessed socio-demographic characteristics. **Section 2** examined the oral polio vaccines uptake during RI and SIA.

Section 3 assessed knowledge of polio vaccine using a 11-item scale with 2 points each, and a total of 22 points. **Section 4** assessed perception towards polio vaccine uptake with a 13-item scale with 13 points. **Section 5** assessed attitudes of the respondents using a 10 item scale with total of 10 points. **Section 6** highlighted the factors that can affect the demand for oral polio vaccines among the respondents. The scale was categorised using the scores obtained by the respondents. The knowledge scale was categorised based on the score obtained by the respondents. Respondents with score of 11 points and above were taken to have good knowledge while points below 11 were taken to have poor knowledge. The perception scale was categorised using the scores obtained by the respondents. Respondents with scores of 7 points and above were taken to have a favourable perception, while scores below 7 were taken to have unfavourable perception. The attitudinal scale was categorised based on the scores obtained by the respondents. Respondents with scores of 6 points and above were taken to have positive attitude, while scores below 6 were taken to have negative attitudes.

3.10 Validity of the study instrument

Validity refers to the degree to which an instrument measures what it intends to measure (Polit & Beck, 2004). The questionnaire was designed after a comprehensive review of related available literature which involved utilisation of important variables related to factors influencing the uptake of polio vaccine during Routine and Supplementary Immunisation Activities. The study instrument was also enhanced by using questions from instruments used in related studies. The questionnaire was then subjected to peer review as well as critical examination by specialists within and outside the Department of Health Promotion and

Education, Faculty of Public Health, University of Ibadan. After this, necessary adjustments were made to improve on the face and content validity of the questionnaire before data collection.

3.11 Reliability of the study instrument

This refers to the consistency with which an instrument measures an attribute of the target (Polit & Beck, 2004). An instrument measure is said to have a high reliability if it produces consistent results under consistent conditions. A pre-test of the study instrument was conducted among mothers of children between the ages of 0– 59 months living in a similar setting to the study area at Ibadan North West Local Government, using 10% of the sample size (39 respondents). Facilitated by the use of SPSS, the reliability of the questionnaire was determined using Cronbach's Alpha coefficient. Cronbach's Alpha which is also known as the coefficient of reliability or consistency measures how closely related a set of items are as a group. A reliability coefficient of 0.70 or higher is considered acceptable. The Cronbach alpha score obtained in this study was 0.72. This confirmed that the items of the instrument are of high internal consistency and reliability. The study instrument was however reviewed and, where necessary, revised on the basis of the results obtained from the pretest.

3.12 Training of Research Assistants and Data collection process

Research assistants were trained for two hours a day for two days to ensure proper understanding and administration of the instrument. Four Research Assistants (RA) were recruited (1 RA per 2 wards). The RAs were undergraduate students (since the Local Government has two tertiary institutions), owing to the much needed technicalities involved in data collection. Efforts were also made to recruit the research assistants from the local government. This was as a result of their familiarity with the region and their ability to get to the respondents. Initial Visits were made to the sample site to seek permission. Informed consent and signing of the informed consent forms by the respondents were conducted before copies of the questionnaires were administered. Each copy of the questionnaire was reviewed by the research assistants for completion after administration. The researcher supervised the whole data collection process.

3.13 Data management and analysis

Copies of the administered questionnaires were reviewed for accuracy after which serial number was given to each copy of questionnaires for easy identification and recall. Data quality was ensured through onsite supervision. A coding guide was developed to facilitate

the coding of the responses in the copies of the questionnaire. The coded questionnaires were entered into the computer using statistical package for social science (SPSS for window version20). Variables were analysed using descriptive statistics such as frequency and percentage, and inferential statistics such as chi-square test α 0.05. Results were presented in tables.

3.14 Limitation

The main limitation of this study was during the course of data collection. Most of the respondents were reluctant to participate in the study owing to their various busy schedules and negative perception of community survey. Also most of the houses in the urban informal settlements were not with house numbers for easy identification. However, the potential respondents were identified and encouraged to participate.

Also the reliance on verbal reporting of immunisation in majority of the sample may cause some recall bias. Therefore limiting the sample to the youngest cohort of children per mother who would have had oral polio vaccination should significantly reduce the bias.

Despite these limitations, the study was able to give an in-depth look on the factors influencing the demand for oral polio vaccines during RI and SIA in the local government area. The strength of the study therefore lies on the large study population which allows for a meaningful conclusion.

3.15 Ethical considerations

The request for ethical and research approval for the study was sought from the Oyo State Ministry of Health Ethical Review Committee, Ministry of Health, Ibadan (Appendix V). The objectives and nature of the study were explained to the respondents. They were informed that participation in the study was voluntary and that anyone could withdraw from the study at any time without any consequences. It was emphasised that information disclosed would be kept confidential and that it would not in under any circumstance be disclosed to anyone. Informed consent form (Appendix I) was signed before administration of the questionnaire.

CHAPTER FOUR

RESULTS

This chapter deals with data analysis and interpretation of result of the study findings. Specifically the study provided answers to five research questions and four research hypotheses. The statistical tests used include frequency count and percentages for research questions and Chi-Square for hypotheses. Four hundred and thirty-two (432) copies of the questionnaire were administered in the study. A total of four hundred and twenty-one (421) were returned good to be used for analysis putting return rate at 97.5%. This percentage was considered well enough for adequate representation of the sample size.

4.1 Socio-Demographic Variables of Respondents

The socio-demographic data of the respondents were analysed using frequency distribution and percentage. Table 4.1 presents the respondents' demographic data. Majority of the respondents were below the age of twenty155 (36.8%), followed by the age range between 21-30 145 (34.5%) while the others were above the age 31121 (28.7%). The tribal classification indicated that Yoruba's were in the majority 315 (74.8%), followed by the Hausas 62 (14.7%), Ibos 41 (9.7%), then other tribes 7(1.7%) were the least. Majority of the respondents were married 317 (75.3%), followed by those who are cohabiting 71 (16.9%) and the least represented were the singles 33 (7.8%). The family structure of the respondents as indicated in Table 4.1 showed that majority of the respondents were of nuclear family 207 (49.2%), next were 144 (34.2%) of polygamy while 70 (16.6%), the least, were of extended family. Muslims were in the majority 268 (63.7%), while the Christians constituted the remaining153 (36.3%).

The majority of the respondents completed secondary school education 176 (41.8%), followed by those who do not have any form of western education 132 (31.4) and holders of tertiary degrees 92 (21.8%) while the remaining only completed primary school 21 (5%). Majority of the respondents were evenly distributed at unemployed and business person 100 (23.8%), followed by those that were Public/Civil Servant, 97 (23.0%), petty traders, 62 (14.7%), artisans 40 (9.5%) while the remaining ones were farmers 22 (5.2%). The respondents' husbands' occupations range from farming 22 (5.2%), labourer 54 (12.8), artisan 61(14.5%), business person 64 (15.2%), professional 31 (7.4%), public /civil servant 105

(24.9%), driver 47 (11.2%), and unemployed 37 (8.8%), with the majority being public/civil servant.

Likewise majority of their husbands reside with the family 345 (81.9%), while only 76 (18.1%) do not reside with the family. Those husbands who do not resides with their family were either living in another area but same state 70 (16.6%) or living entirely in another state 6 (1.5%). Respondents having one (1) child with age less than five were 217 (51.5%), while those with 2 children were 204 (48.5%). The result further stated that the majority of the respondents last child were of age 1 (168, 39.9%), followed by age 2 (145, 34.4%), and finally age 4 (108, 25.7%). The table further revealed that majority of the respondents' last child has received both routine and supplementary oral polio vaccine 239 (56.8%), 120 (28.5%) received only routine OPV, 20 (4.8%) received supplementary OPV only while 42 (10%) received none of both the routine and supplementary immunisation.

Table 4.1(a) Socio-Demographic Information of respondents

N = 421

Variables	Frequency (n)	Percentage (%)
Age (yrs)		
Below 20	155	36.8
21-30	145	34.5
31 and above	121	28.7
Ethnicity		
Yoruba	311	73.9
Igbo	41	9.7
Hausa	62	14.7
Others	7	1.7
Marital Status		
Married	317	75.3
Cohabiting	71	16.9
Single	33	7.8
Family Structure		
Nuclear	207	49.2
Extended	70	16.6
Polygamy	144	34.2
Religion		
Christianity	153	36.3
Islam	268	63.7
Highest Level of Education		
None	132	31.4
Completed Primary Education	21	5.0
Completed Secondary Education	176	41.8
Tertiary Education	92	21.8
Husband's Highest Level of Education		
None	106	25.2
Completed Primary Education	98	23.3
Completed Secondary Education	121	28.7
Tertiary Education	96	22.8

Table 4.1(b) Socio-Demographic Information of respondents

N = 421

Variables	Frequency (n)	Percentage (%)
Occupation		
Farming	22	5.2
Petty trading	62	14.7
Artisan	40	9.5
Business person	100	23.8
Public/Civil Servant	97	23.0
Unemployed	100	23.8
Husband's Occupation		
Farming	22	5.2
Labourer	54	12.8
Artisan	61	14.5
Business person	64	15.2
Professional	31	7.4
Public/Civil Servant	105	24.9
Driver	47	11.2
Unemployed	37	8.8
Husband's Residence		
Resides with the family	345	81.9
Not residing with the family	76	18.1
Reason for not residing with the family		
Living in another area but same state	70	16.6
Living in another state	6	1.5
Not Applicable	345	81.9
Children with age less than five		
1	217	51.5
2	204	48.5

Table 4.1(c) Socio-Demographic Information of respondents

N = 421

Variables	Frequency (n)	Percentage (%)
Age of the last child		
1	168	39.9
2	145	34.4
4	108	25.7
Oral Polio Immunisation received by child		
Routine	120	28.5
Supplementary	20	4.8
Both	239	56.8
None	42	10.0

4.2 Uptake of routine oral polio vaccine

Table 4.2 revealed that majority of the respondents' child had immunisation card (359, 85.3%) while only few of them 62 (14.7%) did not have. Of those that had an immunisation card, majority of the children 269 (63.9%) received their first polio vaccine within the first week of birth, 72 (17.1%) of them received it within 6-14 weeks of birth while 18 (4.3%) of them received it more than 14 weeks old. The table further stated that majority of the respondents' child had received 3 doses of OPV (103 24.5%) during RI session.

The means of transportation to the health facility where OPV is given by majority of the respondents was by bus 147 (34.9%), followed by those who go by motorcycle (100, 23.8%) and on foot (77, 18.3%). The least were those who go by their private cars (97, 23.0%). The longest time frame to get to the facility as indicated in the table was 20 minutes (152, 36.1%), while the highest amounts spent in one visit on transportation to the clinic was 200 naira (176, 41.8%). As regards the satisfaction level with the vaccination services, (105, 24.9%) of the respondents were very satisfied with the vaccination services, 202 (48.0%) were satisfied while 52 (12.4%) were fairly satisfied with the vaccination services.

Table 4.2(a) Uptake of routine oral polio vaccine

N=421

Variables	Frequency (n)	Percentage (%)
Does your child have an immunisation card?		
Yes	359	85.3
No	62	14.7
When was the first polio vaccine received?		
Within the first week of birth	269	63.9
Within 6-14 weeks	72	17.1
More than 14 weeks old	18	4.3
Not Applicable	62	14.7
How many doses of OPV has your child received during RI session?		
1	35	8.3
2	39	9.3
3	103	24.5
4	99	23.5
No idea	83	19.7
Not Applicable	62	14.7
What was the means of transportation to the health facility?		
Trekking	77	18.3
By Bus	147	34.9
Private car	97	23.0
Motorcycle (Okada)	100	23.8
How long does it take you to get to the clinic?		
10 Minutes or less	43	10.1
20 Minutes	152	36.1
30Minutes	103	24.5
40 Minutes	27	6.4
50 minutes	76	18.1
1 hour and above	20	4.8

Table 4.2 (b) Uptake of routine oral polio vaccine

		N=421
Variables	**Frequency (n)**	**Percentage (%)**
How much do you spend in transportation in one visit to the clinic?		
50 Naira or less	99	23.5
100 Naira	41	9.7
200 Naira	176	41.8
300 Naira	42	10.0
400 Naira	43	10.2
500 Naira or more	20	4.8
Satisfaction level with vaccination services		
Very satisfactory	105	24.9
Satisfactory	202	48.0
Fairly satisfactory	52	12.4
Not Applicable	62	14.7

Uptake of supplementary oral polio vaccine

Table 4.3 presents the uptake of supplementary oral polio vaccine. Majority (162, 38.5%) did not receive OPV during SIA this year, while 81 (19.2%) had received it more than three times. Majority of the respondents also considered the OPV provided during SIA to be satisfactory (139, 33.0%) and also indicated that it was important for eligible children to receive polio vaccines in every polio campaign (370, 87.9%). Most respondents (195, 46.3%) preferred both routine and supplementary polio immunisation followed by those that preferred routine OPV only (172, 40.9%) and then supplementary OPV only (54, 12.8%). Reasons given for the above responses ranges from health benefits of the vaccines (98, 23.3%), safeguarding child's health (55, 13.1%), RI is better than SIA (100, 23.7%), anyone is better (45, 10.7%), fear of expiration of SIA vaccines (42, 10%), SIA is better because there is no need to go clinic (54, 12.8%), and for record purposes (27, 6.4%). Lastly, majority of the respondents (349, 82.9%) also stated that they will be willing to participate in the next supplementary polio exercise while only (72, 17.1%) of them are not sure.

Table 4.3(a) Uptake of supplementary oral polio vaccine

N=421

Variables	Frequency (n)	Percentage (%)
How many times this year was the polio vaccine received during SIA?		
Once	44	10.5
2 times	56	13.3
3 times	78	18.5
More than three times	81	19.2
None	162	38.5
How will you consider the OPV provided during SIA?		
Very satisfactory	44	11.2
Satisfactory	139	33.0
Fairly satisfactory	45	10.7
Not satisfactory	28	6.6
None	162	38.5
Do you think it is important for your eligible child(ren) to receive polio vaccines in every polio campaign?		
Yes	370	87.9
No	51	12.1
Which will you prefer between the following polio immunisation activities?		
Routine Polio Immunisation	172	40.9
Supplementary Immunisation Activities	54	12.8
Both	195	46.3

Table 4.3(b) Uptake of supplementary oral polio vaccine

N=421

Variables	Frequency (n)	Percentage (%)
What is the reason for option picked in Q 25 above?		
Health Benefits of the vaccines	98	23.3
Safeguarding child's heath	55	13.1
RI is better than SIA	100	23.7
Anyone is better	45	10.7
Fear of expiration of SIA vaccines	42	10.0
SIA is better because there is no need to go to clinic	54	12.8
Record purposes	27	6.4
Will you participate in the next session of supplementary polio vaccination exercise?		
Yes	349	82.9
No	0	0
Not sure	72	17.1

4.4 Knowledge of Oral Polio Vaccination

From Table 4.4, majority of the respondents had poor knowledge of oral polio vaccination (290, 68.9%) as well as its route of administration (215, 51.9%). However, majority had good knowledge of the appropriate age a child should receive the first dose of OPV (381, 90.5%) as well as consider it compulsory for a child to be immunised against polio (398, 94.5%). Likewise majority of the respondents had poor knowledge of the disease that can occur if a child is not immunised with OPV (298, 70.8%), the number of doses of routine OPV a child should receive (373, 88.6%), the age a child is expected to have completed the routine oral polio vaccine (251, 60.6%) and the number of times an eligible child can have polio SIA (421, 100%). A very good number of the respondents acceded to the idea that a child's immunisation can be rescheduled due to serious illness (398, 94.5%). Lastly, majority of the respondents also had poor knowledge of the importance of routine vaccination to OPV uptake (352, 83.6%) as well as importance of supplementary vaccination to OPV uptake (400, 95.0%). In conclusion, the overall knowledge of the respondents on OPV was poor (267, 63.4%).

Table 4.4(a) Knowledge of Oral Polio Vaccination

N=421

Variables	Frequency (n)	Percentages (%)
What is oral polio vaccine?		
2 Mks	135	32.1
1 Mk	152	36.1
0 Mk	134	31.8
Is it compulsory that a child be immunised against polio?		
1 Mk	398	94.5
0 Mk	23	5.5
What is the route of administration		
1 Mk	206	48.9
0 Mk	215	51.9
Mention one disease that can occur if a child is not immunised with OPV		
1 Mk	123	29.2
0 Mk	298	70.8
How many doses of routine OPV should a child receive		
1 Mk	48	11.4
0 Mk	373	88.6
What age is appropriate to receive the first dose of OPV		
1 Mk	381	90.5
0 Mk	40	9.5
What age is a child expected to have completed the routine oral polio vaccination		
1 Mk	170	39.4
0 Mk	251	60.6

***See appendix III for the correct answers to the questions and the meaning of the scores**

Table 4.4(b) Knowledge of Oral Polio Vaccination

N=421

Variables*	Frequency (n)	Percentages (%)
How many times can an eligible child have Polio SIA?		
1 Mk	0	0.0
0 Mk	421	100.0
Do you think a child's immunisation can be rescheduled due to serious illness?		
1 Mk	398	94.5
0 Mk	23	5.5
Mention one importance of routine vaccination to OPV uptake		
1 Mk	69	16.4
0 Mk	352	83.6
Mention one importance of supplementary vaccination to OPV uptake		
1 Mk	21	5.0
0 Mk	400	95.0
Knowledge Summary		
Good	154	36.6
Poor	267	63.4

Mean knowledge score = 1.6 ± 0.5

***See appendix III for the correct answers to the questions and the meaning of the scores**

4.5 Perception towards Polio Vaccination

Table 4.5 presents the perception of the respondents towards polio vaccination. Majority of the respondents had good perception of the fact that poliomyelitis is a serious disease that should be avoided (367, 87.2%) as well as the fact that it causes acute flaccid paralysis (386, 91.7%). However, they had poor perceptions on when acute flaccid paralysis is usually observed in a child (216, 51.3%), and that OPV is infectious (292, 69.4%). In a similar vein, the respondents also had a very good perception of the fact that if a child receives OPV, he or she will not suffer from the disease (286, 67.9%), a good perception that poliomyelitis is not a spiritual attack on the victims (317, 75.3%), and that having a clean environment and water is not enough to prevent the risk of having polio infection (289, 68.6%). Furthermore, they also had good perception on the fact that acute flaccid paralysis in a child is not a disease for the poor (279, 66.3%), and that additional vaccines were necessary regardless of the child's health status. Respondents however, also had poor perception of the potency of the vaccines during SIAs and were also worried over the side effects of the vaccine which can prevent them to participate in the immunisation exercise. Overall, the respondents had good perception towards polio (261, 71.5%).

Table 4.5(a) Perception towards Polio Vaccination

N=421

Variables*	Frequency (n)	Percentage (%)
Poliomyelitis is a serious disease that should be avoided		
1 Mk	367	87.2
0 Mk	54	12.8
Oral polio vaccine is infectious		
1 Mk	129	30.6
0 Mk	292	69.4
Acute flaccid paralysis is caused by poliomyelitis		
1 Mk	386	91.7
0 Mk	35	8.3
Acute flaccid paralysis is usually observed on or before 14 years of life in a child		
1 Mk	205	48.7
0 Mk	216	51.3
If my child(ren) receives oral polio vaccine, he or she will not suffer from the disease		
1 Mk	286	67.9
0 Mk	135	32.1
Poliomyelitis is a spiritual attack on the victims		
1 Mk	317	75.3
0 Mk	104	24.7

Mean perception score = 1.3 ± 0.5

***See appendix III for the correct answers to the questions and the meaning of the scores**

Table 4.4(b) Perception towards Polio Vaccination

N=421

Variables	Frequency (n)	Percentages (%)
Having a clean environment and water is enough to prevent the risk of having polio infection		
1 Mk	289	68.6
0 Mk	132	31.4
Acute flaccid paralysis in a child is a disease for the poor		
1 Mk	279	66.3
0 Mk	142	33.7
My child is apparently well and thriving, so no need of additional vaccines		
1 Mk	402	95.5
0 Mk	19	4.5
Polio rarely occurs so no need for the vaccine		
1 Mk	368	87.4
0 Mk	53	12.6
My child cannot have polio because I know how to keep him safe from diseases		
1 Mk	357	84.8
0 Mk	64	15.2
Oral polio vaccine cannot protect a child from polio		
1 Mk	368	87.4
0 Mk	53	12.6
Supplementary oral polio vaccination is a propaganda by the government to loot funds		
1 Mk	284	67.5
0 Mk	137	32.5
Perception summary		
Favourable	303	67.5
Unfavourable	137	32.5

Mean perception score = 1.3 ± 0.5

4.6 Attitude towards the Uptake of Oral Polio Vaccine

The results in Table 4.6 indicated that respondents had positive attitude towards uptake of OPV. Respondents indicated that their children would participate in the OPV irrespective of RIA or SIA 260(61.8%), they trusted the competency of the vaccination team during 239 (56.8%), they trusted the potency of the vaccines during SIAs 278 (66%), their religion 340 (80.8%) and culture 298 (70.8%) does not discourage them to participate in the OPV during immunisation activities and will not participate only if other people participated 309 (73.6%).

Table 4.6(a) Attitudes toward the Uptake of Oral Polio Vaccine

N=421

Variables*	Frequency (n)	Percentages (%)
I can participate in polio immunisation only during RI sessions.		
1 Mk	190	45.1
0 Mk	231	54.9
I can participate only during the SIA but not RI		
1 Mk	352	83.6
0 Mk	69	16.4
I can participate in both RI sessions and polio campaigns		
1 Mk	260	61.8
0 Mk	161	38.2
I am discouraged to participate due to bad attitudes of health workers		
1 Mk	298	70.8
0 Mk	123	29.2
I do not trust the competency of the vaccination team during SIA		
1 Mk	182	43.2
0 Mk	239	56.8
I do not trust the potency of the vaccines during SIAs		
1 Mk	143	34.0
0 Mk	278	66.0
I am worried over side effects so I will not participate		
1 Mk	183	43.5
0 Mk	238	56.5

***See appendix III for the correct answers to the questions and the meaning of the scores**

Table 4.6(b) Attitudes toward the Uptake of Oral Polio Vaccine

N=421

Variables*	Frequency (n)	Percentages (%)
My religion does not support immunisation		
1 Mk	340	80.8
0 Mk	81	19.2
My culture does not support immunisation		
1 Mk	298	70.8
0 Mk	123	29.2
I can participate in immunisation only because other people do		
1 Mk	309	73.6
0 Mk	112	26.4
Attitude summary		
Positive	256	60.8
Negative	165	39.2

Mean attitude score = 1.4 ± 0.5

***See appendix III for the correct answers to the questions and the meaning of the scores**

4.7 Factors that promote the uptake of routine oral polio vaccination

The factors that promote the uptake of routine OPV are presented in Table 4.7. Majority of the respondents (117, 18.7%) opined that Benefits of visiting hospital (such as opportunity to see doctor) was the main factor that promotes uptake of routine oral polio vaccination. Other responses include; Availability of funds (99, 15.9%), Assurance that vaccines are original (93, 14.9%), Nearness of health centres to place of residents (93, 14.9%), Social influence (87, 13.9%), Fear of polio (66, 10.6%), and If vaccines are free (66, 10.6%).

Table 4.7 Factors that promote the uptake of routine oral polio vaccination

N= 421

Factors	Frequency*	Percentage (%)
Benefits of visiting hospital (such as opportunity to see doctor)	117	18.7
Availability of funds	99	15.9
Assurance that vaccines are original	96	15.4
Nearness of health centres to place of residents	93	14.9
Social influence	87	13.9
Fear of polio	66	10.6
If vaccines are free	66	10.6

*** There were multiple responses to the factors**

4.8 Factors that prevent people from accessing routine oral polio vaccination

Out of all the factors presented in Table 4.8 that prevent people from assessing routine OPV, financial incapacitation (e.g. transport fare, money for injection etc.) had the highest quota (285, 28.2%), followed by Far distance (234, 23.1%). Other responses are: Bad attitude of health workers (138, 13.6%), Mother's sickness (120, 11.9%), cultural factors (105, 10.4%), Fear of side effects (51, 5.0%), Long queuing (42, 4.2%), religious factors (21, 2.1%) and migration (15, 1.5%)

Table 4.8 Factors that prevent people from accessing routine oral polio vaccination

N=421

Factors	Frequency*	Percentage (%)
Financial incapacitation (e.g. transport fare, money for injection etc.)	285	28.2
Far distance	234	23.1
Bad attitude of health workers	138	13.6
Mother's sickness	120	11.9
Cultural factors	105	10.4
Fear of side effects	51	5.0
Long queuing	42	4.2
Religious factors	21	2.1
Migration	15	1.5

*** There were multiple responses to the factors**

4.9 Factors that promote the uptake of supplementary oral polio vaccination

Table 4.9 presents the result for the factors that promote the uptake of supplementary OPV. Most of the respondents indicated that if the vaccination is free, it will ultimately promote its uptake (372, 35.1%). Other various responses are convenience (303, 28.5%), proper awareness (180, 16.9%), substitute for missed RI (96, 9.1%), competency of the SIA team (81, 7.6%), and supplement for RI (30, 2.8%).

Table 4.9 Factors that promote the uptake of supplementary oral polio vaccination

N= 421

Factors	Frequency*	Percentage (%)
Free	372	35.1
Convenience	303	28.5
Proper awareness	180	16.9
Substitute for missed RI	96	9.1
Competency of the SIA team	81	7.6
Supplement for RI	30	2.8

*** There were multiple responses to the factors**

4.10 Factors that prevent people from the uptake of supplementary oral polio vaccination

According to Table 4.10, the factors that can prevent people from the uptake of supplementary OPV are; Fear of vaccine fakeness (165, 17.2%), Fear of side effects (156, 26.3%), Religious propaganda(138, 14.2%),Cultural factors (123, 12.8%), Lack of proper awareness (120, 12.5%), Bad timing(114, 11.9%), Misconception about the purpose of the immunisation (93, 9.7%), and Problem associated with trust (48, 5.4%).

Table 4.10: Factors that prevent people from the uptake of supplementary oral polio vaccination

N= 421

Factors	Frequency*	Percentage (%)
Fear of vaccine fakeness	165	17.2
Fear of side effects	156	26.3
Religious propaganda	138	14.2
Cultural factors	123	12.8
Lack of proper awareness	120	12.5
Bad timing	114	11.9
Misconception about the purpose of the immunisation	93	9.7
Problem associated with trust	48	5.4

*** There were multiple responses to the factors**

4.11. Test of hypothesis

The results of the hypothesis tested are shown below:

1. **Hypothesis 1:** There is no significant difference between mothers' knowledge of polio vaccination and its perceived severity in Ibadan North Local Government. The result of the finding is shown in table 4.11.1 below: chi-Square Tests was used to test for a relationship between the mothers' knowledge of polio vaccination and its perceived severity, and it was found that there was significant relationship statistically with P = 0.0. This meant that mothers' knowledge of polio vaccination to their perceived severity of polio had significant influence. Therefore, the null hypothesis is accepted.
2. **Hypothesis 2:** There is no significant difference between mothers' age and the children's susceptibility to polio in Ibadan North Local Government. The result of the finding is shown in table 4.11.2 below: Chi-Square Test was used to test for a relationship between the mothers' age and the children's susceptibility to polio, and it was found that there was significant relationship statistically with P = 0.0. This meant that mothers' age and their perceived children's susceptibility to polio had significant influence. Therefore, the null hypothesis is accepted.

3. **Hypothesis 3:** There is no significant difference between a child's polio vaccine uptake during routine immunisation and the vaccine uptake during supplementary immunisation. The result of the finding is shown in table 4.11.3 below: Chi-Square Test was used to test for a relationship between between a child's polio vaccine uptake during routine immunisation and the vaccine uptake during supplementary immunisation, and it was found that there was no significant relationship statistically with P = 0.5. This meant that between a child's polio vaccine uptake during routine immunisation and the vaccine uptake during supplementary immunisation had no significant influence. Therefore, the null hypothesis is rejected.

4. **Hypothesis 4:** There is no significant difference between mother's fear of adverse reaction and the child's polio vaccination during immunisation activities. The result of the finding is shown in table 4.11.4 below: Chi-Square Test was used to test for a relationship between the mother's fear of adverse reaction and the child's polio

vaccination during immunisation activities, and it was found that there was significant relationship statistically with P = 0.0. This meant that mother's fear of adverse reaction and the child's polio vaccination during immunisation activities had significant influence. Therefore, the null hypothesis is accepted.

Table 4.11.1: Relationship between mothers' knowledge and their perceived severity of poliomyelitis

	Perceived severity of poliomyelitis				
Mothers' Knowledge of poliomyelitis	**1 Mark**	**No mark**	**X^2**	**P Value**	**Ho**
Good	37	43			
Poor	6	12	36.4	0.0	**Accepted**
Total	43	55			

Table 4.11.2: Relationship between mothers' age and mothers' belief of child's polio susceptibility

	Mothers' age					
Child's susceptibility to polio	**Below 20**	**21-30**	**31 and above**	**X^2**	**P Value**	**Ho**
1 Mark	141	130	86			
No Mark	14	15	35	24.9	0.0	**Accepted**
Total	155	145	121			

Table 4.11.3: Relationship between child's routine polio vaccination uptake and child's supplementary polio vaccination uptake

	Uptake during Supplementary immunisation							
Does your child have an immunisation card	**once**	**2 times**	**3 times**	**More than 3 times**	**None**	**X^2**	**P Value**	**Ho**
Yes	37	43	67	66	147			
No	6	12	9	13	21	3.6	0.5	**Rejected**
Total	43	55	76	79	168			

Table 4.11.4: Relationship between mother's fear of adverse reaction of polio vaccines and the child's uptake of supplementary oral polio vaccine

	Child's polio vaccination during SIA							
Mother's fear of adverse reaction	**once**	**2 times**	**3 times**	**More than 3 times**	**None**	**X^2**	**P Value**	**Ho**
1 Mark	23	22	54	42	119			
No Mark	20	33	22	37	49	92.6	0.0	**Accepted**
Total	43	55	76	79	168			

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Socio-Demographic Variables of Respondents

Findings from the study revealed that majority of the respondents were below the age of twenty, followed by those between the age ranges of 21-30 while others were above the age of 31. Yoruba's were in the majority (74.8%), followed by the Hausas (14%) while Ibo 41 (9.7%), then other tribes 7 (1.7) was the least. This was however due to the study being carried out in the southwestern region. Majority of the respondents were married (75.3%); of nuclear family (49.2%); and were Muslims (63.7%).The majority of the respondents completed secondary school education (41.8%). In a study, 55% respondents stated there was high literacy level among the households which influences the rate of immunisation coverage (Alfred & Alfred, 2012). Also Nnenna et al (2013), opined that the level of house hold education contributes significantly to the acceptance polio immunisation. This was also substantiated by Babalola (2008), who states that individual levels of women's education may be a stronger predictor of immunisation uptake. Majority of the respondents were unemployed (23.8%) and business persons (23.8%). This was followed by the Public/Civil Servant, petty traders, artisans and farmers. Their husbands' occupations range from farming, labourer, artisan, business person, professional, public /civil servant, and driver, and 37 (8.8%) were, however, unemployed with the majority being public/civil servant. In one of the studies conducted, it was also found that majority of the respondents (98%) were self employed, thereby implying their time for the programmes (Alfred & Alfred, 2012). However in contrast, another study posits that 98% of the respondents claimed that occupation allows them to take their children for immunisation (Raji & Ndikom, 2013).

Majority of their husbands reside with the family , those husbands who do not reside with their family are either living in another area but same state 70 (16.6%) or living entirely in another state 6 (1.5%). Respondents having one (1) child with age less than five were in the majority, while those with 2 children closely followed them. The result equally indicated that majority of the respondents last child were of age 1, followed by age 2, and finally age 4. The findings further revealed that majority of the respondents' last children have received both routine and supplementary oral polio vaccine, followed by those who received only routine OPV, those who received supplementary OPV and the few who did not receive any.

5.2 Uptake of routine oral polio vaccine

From the result of the findings, it was found that majority of the respondents' children have an immunisation card (85.3%) and the remaining few do not have. This is in consonant with some studies that posit that 95. 2% of mothers took their children for immunisation (Tagbo et al, 2012), 91.7% (Oyefara, 2012), 57.7% (Alfred & Alfred, 2012). These prove the encouraging level of participation of mothers in polio immunisation carried out in Nigeria. Majority of the children received their first polio vaccine within the first week of birth, and have received 3 doses of OPV during RI session. This finding is same with the WHO Country Cooperation Strategy report 2014 which reported that more children are being immunised at the right age, and a broader range of antigens has been introduced, and the incidence of cases of vaccine–preventable a disease has been reduced (WHO, 2014). The means of transportation to the health facility where OPV is given by majority of the respondents was by bus (34.9%), followed by those who go by motorcycle, then trekking while the least go by their private cars. The longest time frame to get to the facility as indicated by the findings was 20 minutes while the highest amounts spend in one visit on transportation to the clinic was 200 naira. Majority of the respondents were satisfied (48.0%) with the immunisation activities, very satisfied and fairly satisfied in that order. This is in line with the study by Pai et al (2016), who also found out that greater proportion of the respondents (88.4%) reported being satisfied with the quality of vaccination services.

5.3 Uptake of supplementary oral polio vaccine

Findings showed that majority of the respondents' children did not receive any OPV during supplementary immunisation activities (SIA) and few 81 (19.2%) indicated they received it more than three times. This finding corroborated Helleringer et al (2012) who found low uptake of supplementary oral polio vaccine in some areas covered by their research. Majority of the respondents also consider the OPV provided during SIA to be satisfactory and also indicated that it is important for eligible children to receive polio vaccines in every polio campaign. Most respondents preferred both routine and supplementary polio immunisation followed by those that prefer routine OPV only and then supplementary OPV only. Respondents gave reasons for the choice of OPV uptake during supplementary immunisation as its health benefits, safeguarding child's health and its non requirement to go to the clinic. Majority of the respondents (82.9%) also stated that they will be willing to participate in the next supplementary polio exercises, while 17.1 % are not sure if they will participate. This

also agrees with the study by Taylor (2015), who states that a proportion (14%- 17%) of his respondents reported considering OPV refusal in the future.

5.4 Knowledge of Oral Polio Vaccination

Results showed that majority of the respondents have poor knowledge of oral polio vaccination as well as its route of administration. However, majority have good knowledge of the appropriate age a child should receive the first dose of OPV as well as consider it compulsory for a child to be immunised against polio. Likewise majority of the respondents have poor knowledge of the disease that can occur if a child is not immunised with OPV, the number of doses of routine OPV a child should receive, the age a child is expected to have completed the routine oral polio vaccine and the number of times an eligible child can have polio SIA. Khan et al (2015) also found out that only 38.8% of the participants exhibited good knowledge about polio immunisation. Most of the respondents accede to the idea that a child's immunisation can be rescheduled due to serious illness (94.5%). This is in relative contrast with the study of Tagbo et al (2012), who found that 17 % of the women will not take their children to hospital due to ill-health.

In addition, majority of the respondents also have poor knowledge of the importance of routine vaccination to OPV uptake as well as importance of supplementary vaccination to OPV uptake. The overall knowledge of the respondents on OPV is found to be poor.

5.5 Perception towards Polio Vaccination

As found by the study, majority of the respondents (87.2%) had favourable perception of the fact that poliomyelitis is a serious disease that should be avoided as well as the fact that it causes acute flaccid paralysis. A study report also showed that majority 83.6% believed that polio is a serious disease (Osowole & Obute, 2005). However, the respondents had poor perceptions on when acute flaccid paralysis is usually observed in a child. The respondents also had very good perception (67.9%) of the fact that if a child receives OPV, he or she will not suffer from the disease. Awodele et al (2010) reported that 66.5% of mothers were convinced that immunisation is necessary for their children. The study also reveals a good perception (75.3%) that poliomyelitis is not a spiritual attack. A similar study by Ogwumike et al (2012), states that 64.6% mothers rejected the view of spiritual witches or evil attacks as

the cause of paralytic poliomyelitis. The respondents also have good perception that having a clean environment and water is not enough to prevent the risk of having polio infection.

It was further found that they also had good perception of acute flaccid paralysis and that additional vaccines are necessary regardless of the child's health status. Overall, it was found that the respondents had good perception towards polio. The result was in contrast with (Rahji & Ndikom, 2013) who found that many women felt that immunisation was not necessary because the child was not sick and also that of Carr et al (2003) who found that poor perception of the threat and potential severity of the disease may be influenced by local or culturally- based beliefs and a relative lack of medical knowledge leading individuals to assume the disease to be harmless, rare, minimally contagious, a "normal" part of childhood, or that individuals are resistant based on past exposure.

5.6 Attitude towards the uptake of Oral Polio Vaccine

Findings from the study indicated that the respondents had positive attitudes (60.8%) towards oral polio vaccine uptake. Some studies found that 55.3% have positive attitudes towards polio vaccines. (Ogwumike et al, 2012). Though a study carried out by Khan et al 2015 in Parkistan revealed that a large proportion of participants displayed negative attitudes towards polio immunisation. However the disparity in the results is not unconnected to the religious and cultural beliefs of the study areas. According to Khan et al (2015), false religious belief (39.66%) was found to be the major barrier towards polio immunisation. This study found that 80.9% respondents disagree that religion does not support immunisation. This is also supported in a study by Taylor (2015), in three Northern Nigerian States, who found little effect of religious affiliations on the decision of parents to immunise their children. It was found however that respondents had poor attitudes towards the potency of the vaccines during SIAs (34.0%) and are also worried over the side effects of the vaccine (43.5%), as well as do not trust the competency of the vaccination team during SIA (43.2%). These can prevent them to participate in the immunisation exercise. In a study by Nnenna et al (2013), 98.7% of mothers have a favourable disposition to immunisation, whereby 80.9% would continue with immunisation in view of adverse effects.

5.7 Factors that promote the uptake of routine oral polio vaccination

Findings showed that the major factor that promote the uptake of routine OPV were benefits of visiting hospital (such as opportunity to see the doctor or seek other services) (18.8%). This was substantiated by Raji (2013), who found that factors significantly associated with complete immunisation uptake included tetanus vaccination during pregnancy (OR 3.55 95% CI) and delivery of the child at the health facility was also positively associated with complete immunisation (OR 1.81 95% CI). Secondly among factors that promote the uptake of routine OPV is the availability of fund (15.9%). Raji (2013) also posits that high socio economic status is significantly associated with complete immunisation. Availability of funds to foot the bill of transport and injection needles, good and quality health services, Then assurance that the vaccines at the health centres are genuine (15.4%). Nearness of health centres to place of residents (14.9%), social influence (13.9%) (Such as friends' influence, what the society will say if child is not immunised, social status etc.). In a study by Awodele et al (2013), 65.4% of the respondents believed that they can advise their fellow women to receive immunisation for their children. Other factors are fear of polio experience (10.6%) and if vaccines are free (10.6%).

5.8 Factors that prevent people from accessing routine oral polio vaccination

As indicated in the findings of this study, factors that prevent people from accessing routine OPV were financial unavailability (28.5%) to foot the transport fare and injection cost. The finding here further corroborates (Rahji & Ndikom, 2013) who found that paucity of fund hinders supplies and overall activities of routine oral polio vaccination. Then far distance (23.1%). According to Raji (2013), perception that distance of home to the nearest health facility was far was associated with decrease uptake of immunisation (OR 0.72 95% CI). Also Oyefara et al (2014) found that 37.2% of mothers will not take their children to the hospital due to long distance, and bad attitude of health workers (13.6%). The above 3 factors were further highlighted in another study as participants reported various barriers to seeking health care notably financial situation (43.6%), distance to the nearest health facility (30.9%), and attitudes of health workers (16.1%) (Olorunsaiye & Degge, 2016). Other factors identified in the study are mother's sickness (11.9%). According to Tagbo et al (2012), 17.4% will not take their children to the hospital due to ill health. Then cultural factors, fear of side effects, long queuing, religious factors, and migration. In a different study were information were

obtained from endemic northern states Katsina, Kano and Kaduna , 60% of respondents stated they would not take their children to the hospital for immunisation due to religion and cultural factors. (Baba et al, 2012). In another study 30% of respondents stated they will not assess immunisation because of side effects. (Ekure et al, 2013).

5.9 Factors that promote the uptake of supplementary oral polio vaccination

Findings from the study showed that factors that promote the uptake of supplementary OPV were if the vaccination is free (35.1%), if the process is convenient (28.5%), adequate public enlightenment (16.9%), substitute for missing RIA (9.1%), competency of the SIA team (7.6%), and supplement for RI (2.8). In a study by Alfred and Alfred (2012), they stated that 56% of the respondents had high participation, it could be inferred that the households in the study embraced EPI strategy such as the door to door approach. However Eisengberg and Power (2000) had a different opinion that the free immunisation policy in the country may not be enough to ensure equitable access and use these services. There are other salient factors that may limit the use of the seemingly free services. Adeyinka et al (2005) further corroborated that even when these services are offered free; there are other important barriers and indirect costs, such as travel times and transportation when the nearest public health facility providing these services is not within a short distance. In another study, over 40% would not accept polio vaccine during SIA, while 55.6% felt cost of immunisation is affordable (Ekure et al, 2013).

5.10 Factors that prevent people from the uptake of supplementary oral polio vaccination

Results indicated that factors that can prevent people from the uptake of supplementary OPV were majorly fear of being fake (17.2%). Abdulraheem et al (2011), in his study found that 38.8 % of the respondents disagree with the vaccine safety during SIA. Then fear of side effects (16.3%). Raji and Ndikom (2013) found that 98.0% of the respondents contented that they worry about the side effects of immunisation. Osowole and Obute (2005) further confirmed that the major reasons cited for reluctance in releasing children for polio immunisation were high frequency of NIDs (40.8%), polio vaccine overdose (39.6%), and mixture of vaccines with harmful pathogens (7.3%). Religious propaganda and cultural factors were 14.2% and 12.8% respectively. The results further corroborated what (Carr et al.,

2003) who stated that poor perception of the threat and potential severity of the disease may be influenced by local or culturally- based beliefs and a relative lack of medical knowledge leading individuals to assume the disease to be harmless, rare, minimally contagious, a "normal" part of childhood, or that individuals are resistant based on past exposure found. Results also showed that other studies (Sanou et al. 2012; Jegede, 2007; Renne, 2006) which reported that the belief of some Islamic communities in Nigeria which opposed to immunisation seeing it as international conspiracies targeted at Muslim communities was same with the findings of this study. However, the percentage of those who believed that religious propaganda is a factor that prevents people from SIA OPV uptake was low. Also lack of adequate awareness (12.5%) was in consonance with Lyimo (2012) who found out that in Nigeria, maternal factor that was most strongly associated with non-completion of vaccination was lack of awareness of the need for vaccination. Other factors are bad timing (11.9%), misconceptions about the purpose of the immunisation (9.7%), and problem associated with trust (5.4%).

5.11 Test of Hypotheses

The study found that there was significant difference between mothers' knowledge of polio and perceived severity of the disease. This was in harmony with Rahji & Njikom (2013). Who posited that incorrect knowledge as to the preventive role of immunisation is widespread in Nigeria. Many women felt that immunisation was not necessary because the child was not sick.

Also the result found that there is a significant difference between age of the mother and perceived child's susceptibility to polio. This is also in affirmation with the study carried out by Antai (2012). She found out that the likelihood of childhood immunisation is significantly higher for children of mothers 34 years or older with odd ratio of 1.54.

The result also found that there is significant difference between mothers' fear of adverse reactions and the uptake of polio vaccine during SIA. This also agrees with Rahji & Njikom (2013) who found that 98% respondents contended that they worry about the side effects of immunisation.

However, the study found that there is no significant relationship between the uptake of RI and the uptake of SIA. Contrary to the findings by Rahji & Ndikom (2013) that few women believed that their children had received some vaccines and were apparently well and thriving there was no need for additional vaccines.

5.12 Implication of findings to health promotion and education

The study suggests that uptake of oral polio vaccines' uptake during routine and supplementary immunisation activities should be embraced by mothers of children of age under five in Oyo State wholesomely. This is important because most unhealthy behaviors are usually initiated right at the birth of the child.

Similarly, poor knowledge, perception and importance of oral polio vaccines at both routine and supplementary immunisation activities which protects children from poliomyelitis should be nipped in the bud so as to have a laudable achievement in the evangelism embarked upon by programme managers working with Reproductive and Child Health services at National, Regional and District level to improve uptake of vaccination services and to bring to reality in no time the complete eradication of polio in the nation at large.

Hence as part of enabling community members most especially mothers to have complete control over the health of their children at birth and thereafter, the following health promotion and education strategies are suggested; Advocacy to the executive arm of the government as well as policy makers for continuous supply of funds and passing of bills that will promote the correct uptake of oral polio vaccines at both the routine and supplementary immunisation activities for polio prevention. Training and re-training (capacity building) of relevant stakeholders in the health sector most especially health promoters on different strategies to achieving success in the fight against low uptake of vaccines.

Enhancement of community mobilisation, house to house sensitisation to create awareness, and public enlightenment on polio as well as benefits of uptake of oral polio vaccines as a way to prevent it. Community engagement and participation in any intervention embarked upon by the health promoters for sustainability and efficient outcome. The use of behavioural change and communication approach should not be left out as low uptake of oral polio vaccine is behavioural and always takes a very long time to correct. This should be implemented using different information, education and communication materials in different languages for easy comprehension of the messages.

5.13 Conclusion

The study concluded that though there was a poor general knowledge of oral polio vaccines, uptake among mothers, perception and attitudes towards the uptake of OPV was good. Many

of the respondents' children did not receive OPV during supplementary immunisation activities (SIA). This however sets a bad precedence for the fight against polio.

Major factors militating against routine immunisation are financial incapacitation, far distance, and bad attitudes of the health workers.

The major factors militating against the uptake of supplementary OPV were fear of vaccine fakeness, fear of adverse effects, lack of adequate awareness, fake, religious propaganda, cultural factor and lack of trust.

5.14 Recommendations

In lieu of the findings from this study, the following recommendations are suggested;

1. Intensifying social mobilisation activities especially targeting mothers who usually decide whether to vaccinate or not.
2. Unmet needs in the LGAs should be accorded priority by the authority in order to combat rejection due to no felt needs.
3. Compound meetings with mothers should be regularly held to clear misconception about the oral polio vaccine.
4. Sensitisation of religious leaders should be considered by the LGA team prior to every immunisation campaign.
5. The LGA has quite a number of uneducated and hence the need to involve them in planning and implementation of immunisation program.
6. Strengthening the routine immunisation programmes by employing most of the strategies used during SIA.
7. Further research in vaccine supply and availability of OPV will be helpful in identifying supply side barriers.

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APPENDIX I

SEMI-STRUCTURED QUESTIONNAIRE

FACTORS INFLUENCING THE DEMAND FOR ROUTINE AND SUPPLEMENTARY ORAL POLIO VACCINE AMONG MOTHERS OF UNDER-FIVE IN IBADAN NORTH LOCAL GOVERNMENT OF OYO STATE

Informed consent form

Greetings

My name is A-James, Valentine. I am a Master of Public Health student from the Department of Health Promotion and Education, Faculty of public health, College of medicine, University of Ibadan, Ibadan. As part of the requirements for the award of a Master of Public Health (MPH) Degree, I am carrying out a study to explore the **factors influencing the demand for routine and supplementary oral polio vaccine among mothers of under-five in Ibadan North Local Government Area of Oyo State**.

Purpose of the study

This study has the purpose of collecting information on factors influencing the demand for oral polio vaccine during routine and supplementary immunisation activities among mothers of under-five in Ibadan North Local Government. You are being asked to participate in this study because you have particular knowledge and experiences that may be important to the study.

What participation involved

If you agree to participate in this study, you will be required to answer series of questions that have been prepared for the study through interviewing in order to obtain the intended information.

Confidentiality

I assure you that all the information collected from you will be kept confidential. We will be compiling a report which will contain responses from several mothers of children less than five years without any reference to any individual. We will not put your name or other identifying information on the records of the information you provide.

Risks

Some questions could potentially make you feel uncomfortable. You may refuse to answer any particular question and stop the interview at any time. We do not expect any harm to happen to you because of participation in this study

Benefits

The information you provide will help to increase our understanding on factors influencing the demand for oral polio vaccine among mothers of under-five in Ibadan North Local Government and communicate the findings to policy makers for the improvement of supplementary and routine vaccination services in the LGA.

SIGNATURE

Can we start the interview now? Yes [ ] No [ ]

I have read the content in this form; I agree to participate in this study.

Signature of Participant ……

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

1 How old are you this year? ……years

2 Ethnicity 1 Yoruba [ ] 2 Igbo [ ] 3 Hausa [ ] 4 Others (Please mention)…….

3 Current marital status 1. Married [ ] 2 Cohabiting [ ] 3 Single [ ] 4 Divorced [ ] 5 Separated [ ] 6 Widowed [ ]

4 What is the family structure 1 Nuclear [ ] 2 Extended [ ] 3 Polygamy [ ]

5 Religion 1 Christianity [ ] 2 Islam [ ]3 Traditionalist [ ]4 Others [ ]

6 Highest level of Education 1 None [ ] 2 Completed primary education [ ] 3 Completed secondary education [ ] 4 Tertiary education [ ]

7 Husband's highest level of Education 1 None [ ] 2 Completed primary education [ ] 3 Completed secondary education [ ] 4 Tertiary education [ ]

8 Occupation 1 Farming [ ] 2 Petty trading [ ] 3 Driver [ ] 4 Labourer [ ] 5 Artisan [ ]6 Business person [ ] 7 Professional [ ] 8 Public/ civil servant [ ] 9 Unemployed [ ] 10 Others….. [ ]

9 Husband's Occupation 1 Farming [ ] 2 Petty trading [ ] 3 Driver [ ]4 Labourer[ ]5 Artisan [ ] 6 Business person [ ]7 Professional [ ]8 Public/ civil servant [ ] 9 Unemployed [ ] 10 Others……

10 Does your husband reside with the family for at least five days in a week1 Yes [ ] 2 No [ ]

11 If No to Q 10, where? 1 Living in another area but same state [ ] 2 Living in another state [ ] 3 Dead [ ] 4 Others……..

12 How many of your children are aged less than five years……..

13 How old is your last child this year ……

14 Which of the Oral Polio immunisation schedule has your child received? 1. Routine [ ] 2. Supplementary [ ] 3. Both [ ] 4. None [ ]

SECTION B: UPTAKE OF ROUTINE AND SUPPLEMENTARY ORAL POLIO VACCINE
Tick (√) in the boxes provided to the right response.
Where no responses/choices are provided please write the response in the spaces provided

SECTION B (i): UPTAKE OF ROUTINE ORAL POLIO VACCINE

15 Does your child have an immunisation card? 1. Yes [ ] 2. No [ ]

16 When was the first polio vaccine received? 1 Within the first week of birth. [ ] 2 Within 6 -14 weeks of birth [ ] 3 More than 14 weeks old [ ] 4 I don't know

17 How many doses of OPV has he/she received during RI session……..

18 What was the means of transportation to the health facility? 1 On foot [ ] 2 By bus [ ] 3 Private Car [ ] 4 Others (Please mention)……..

19 How long does it take you to get to the clinic? _____minutes

20 How much do you spend in transportation in one visit to the clinic?.....Naira

21 How will you consider vaccination services provided for your child at the health facility? 1 Very satisfactory [ ] 2 Satisfactory [ ] 3 Fairly satisfactory [ ] 4 Not satisfactory[ ]

SECTION B (ii): UPTAKE OF SUPPLEMENTARY ORAL POLIO VACCINE

22 How many times this year was the polio vaccine received during SIA? 1 once [ ] 2 . 2times [ ] 3 3times [ ] 4 more than 3 times [ ] 5 None [ ]

23 How will you consider the oral polio vaccination provided during the SIA? 1 Very satisfactory [ ] 2 Satisfactory [ ] 3 Fairly satisfactory [ ] 4 Not satisfactory[ ]

24 Do you think it is important for your eligible child(ren) to receive polio vaccines in every polio campaign? 1 Yes [ ] 2 No [ ]

25 Which will you prefer between the following polio immunisation activities?1 Routine polio immunisation [ ] 2 Supplementary immunisation activities [ ] 3 Both of them [ ]

26 What is the reason for option picked in Q 25 above? ……

27 Will you participate in the next session of supplementary polio vaccination exercise? 1 Yes [ ] 2 No [ ] 3 Not Sure [ ]

SECTION C: KNOWLEDGE OF ORAL POLIO VACCINATION
Tick (√) in the boxes provided to the right response.
Where no responses/choices are provided please write the response in the spaces provide

S/N	QUESTIONS	ANSWER	POINTS	SCORES
28	What is oral polio vaccine			
29	Is it compulsory that a child be immunised against polio	Yes [ ] No [ ]		
30	What is the route of administration			
31	Mention one disease that can occur if a child is not immunised with OPV			
32	How many doses of routine OPV should a child receive			
33	What age is appropriate to receive the first dose of OPV			
34	What age is a child expected to have completed the routine oral polio vaccination			
35	How many times can an eligible child have Polio SIA			

36	Do you think a child's immunisation can be rescheduled due to serious illness	Yes [ ] No [ ]		
37	Mention one importance of routine vaccination to OPV uptake			
38	Mention one importance of supplementary vaccination to OPV uptake			

39. Score obtained ……

40. Code……

SECTION D: PERCEPTION TOWARDS POLIO VACCINATION

Instruction: For the following options kindly tick (√) the best option as applied to each question. ***Please do not select more than one answer(s) per row.***

S/N	QUESTIONS/ STATEMENT	AGREE	DISAGREE	Allotted Points	Scores
41	Poliomyelitis is a serious disease that should be avoided				
42	Oral polio vaccine is infectious				
43	Acute flaccid paralysis is caused by poliomyelitis				
44	Acute flaccid paralysis is usually observed on or before 14 years of life in a child				
45	If my child(ren) receives oral polio vaccine, he or she will not suffer from the disease				
46	Poliomyelitis is a spiritual attack on the victims				
47	Having a clean environment and water is enough to prevent the risk of having polio infection				
48	Acute flaccid paralysis in a child is a disease for the poor				
49	My child is apparently well and thriving, so no need of additional vaccines				
50	polio rarely occurs so no need for the vaccine				
51	My child cannot have polio because I know how to keep him safe from diseases				
52	Oral polio vaccine cannot protect a child from polio				
53.	Supplementary oral polio vaccination is a propaganda by the government to loot funds				
54.	Score obtained				
55.	Code				

SECTION E: ATTITUDES TOWARDS THE UPTAKE OF ORAL POLIO VACCINE

Instruction: For the following options kindly tick (√) the best option as applied to each question. ***Please do not select more than one answer(s) per row.***

S/N	QUESTIONS/ STATEMENT	AGREE	DISAGREE	Allotted points	Scores
56.	I can participate in polio immunisation only during RI sessions.				
57.	I can participate only during the SIA but not RI				
58.	I can participate in both RI sessions and polio campaigns				
59.	I am discouraged to participate due to bad attitudes of health workers				
60.	I do not trust the competency of the vaccination team during SIA				
61.	I do not trust the potency of the vaccines during SIAs				
62.	I am worried over side effects so I will not participate				
63.	My religion does not support immunisation				
64.	My culture does not support immunisation				
65.	I can participate in immunisation only because other people do				
66.	Score obtained				
67.	Code				

SECTION F: FACTORS THAT AFFECT THE DEMAND FOR ROUTINE AND SUPPLEMENTARY ORAL POLIO VACCINE

Which of the following factors can influence your child's uptake of polio vaccine during the immunisation exercises?

SECTION F (i): Factors that affect the demand for routine oral polio vaccination

68 Mention 3 factors that you think will promote the uptake of routine oral polio vaccination

……

……

…….....

69 Mention 4 factors that you think will prevent people from assessing routine oral polio vaccination

……
……
……
……

SECTION F (ii): Factors that affect the demand for supplementary oral polio vaccination

70 Mention 3 factors that you think will promote the uptake of supplementary oral polio vaccination

……
……
……..

71 Mention 4 factors that you think prevent people from the uptake of supplementary oral polio vaccination

……
……
……
……

Thank you for your sincere answers to these questions

APPENDIX II

AFIKUN

IWE IBEERE (YORUBA LANGUAGE QUESTIONNAIRE)

Alaye Ero

Ikini

Oruko mi ni ….. Mo je omo ile eko giga ti Yunifasiti Ibadan ti o n kawe nipa ona ti a fi le ni ilera . Lara awon ti a ni lati se lati gba Iwe oye, mo n se Iwaadi lori awon okunfa gbigba tabi aigba ajesara polio laarin awon iya to n to omo ti koi tii pe odun marun ni Ijoba Ibile ariwa Ibadan.

Idi Iwadi

Iwadi ni a fe se lati gba awon alaye nipa awon okunfa idi ti awon eniyan fi n gba tabi ko lati gba ajesara polio laarin awon iya to n to omo lowo ni Ijoba Ibile ariwa Ibadan. A yan o lati kopa ninu iwadi yii nitori o ni oye and iriri ti o se Pataki si iwadi yii.

Ohun ti Ikopa ni se pelu

Bi o ba gba lati kopa ninu iwadi yii, o ni lati dahun awon orisirisi ibere ti a ti se akosile re fun iwadi yii nipa iforowanilenuwo lati gba awon laye ti a n fe.

Asiri

Mo fi da yin loju pe gbogbo oro ti a ba gba lenu yin ni a bo ni asiri. Awon ti o n ba wa sise ninu iwadi yii nikan ni o ma ni anfaani sii. A o koro lori gbogbo ohun ti a ba gba lenu gbogbo awon iya to n to omo ti o tii pe odun marun lowo lai daruko enikeni. A ki yoo fi oruko tabi oun idanimo yin Kankan sori nkan ti a ba gba lowo yin. Risk

Ewu

Awon ibeere Kankan le ma rorun lati dahun, e ni anfaani lati ko lati idahun awon ibeere bee. Anfaani sit un wa lati da ifowowanilenuwo yii duro nigbakugba. A ko reti ipalara eyikeyi lati sele nipa kikopa ninu iwadi yii.

Anfaani

Awon alaye ti o pese yoo ran wa lowo lati ni oye si nipa awon okunfa gbigba tabi aigba ajesara polio laarin awon iya to n to omo ti koi tii pe odun maarun ni Ijoba Ibile Ariwa Ibadan ati lati fi awon awari sowo si awon to n se adari eto ajesara lati tunbo mu ko dara si ni Ijoba Ipinle.

IBUWOLUWE

Se a le bere awon iforowanilenuwo wa bayi? Beeni [ ]
Beeko [ ]

Emi ……. Mo ti ka awon nkan ti a ko si inu iwe yii, won si ti dahun awon ibeere mi, mo gba lati kopa ninu iwadi yii.

Ibuwoluwe Olukopa ……..……

APA A: Ibeere nipa agbegbe ati idanimo

1. Omo odun melo ni e ninu odun yii? Odun ……
2. Eya wo ni e? 1 Yoruba 2 Ibo 3 Hausa 4 Awon miran (Daruko)
3. Ipo Igbeyawo 1 Mo ti gbeyawo 2 Mi o ti se iyawo sugbon mo gbe pelu okunrin 3 Mi o se igbeyawo ri 4 A ti pinya 5 Ati gbeyawo sugbon a o gbe papo 6 Alabasepo mi ti ku
4. Iru ebi 1 Ebi oko kan ati aya kan 2 Ebi to gbooro 3 Ebi oniyawo pupo
5. Esin 1 Onigbagbo 2 Musulumi 3 Esin Ibile 4 Awon miran (Daruko)……
6. Ipele Eko 1 Mi o kawe rara 2 Mo pari iwe kefa 3 Mo pari iwe mewa 4 O kawe giga ni yunifasiti
7. Ipele Eko Oko 1 Mi o kawe rara 2 Mo pari iwe kefa 3 Mo pari iwe mewa 4 O kawe giga ni yunifasiti
8. Ise 1 Agbe 2 Isowo pepepe 3 Oko wiwa 4 Lebira 5 Onise owo 6 Onisowo 7 Akosemose 8 Onise ijoba 9 Alainise 10 Awon miran (Daruko)
9. Ise Oko 1 Agbe 2 Isowo pepepe 3 Oko wiwa 4 Lebira 5 Onise owo 6 Onisowo 7 Akosemose 8 Onise ijoba 9 Alainise 10 Awon miran (Daruko)
10. Ṣé ọkọ rẹ gbé pẹlu awọn ebi fun o kere ojo marun ni ọsẹ kan 1 Beeni 2 Beeko
11. BI beeko, nibo loko re n gbe? 1 Ngbe ni agbegbe miran sugbonipinle kanna 2 Ngbe ni ipinle miran 3 O ti ku 4 Awon miran (daruko) ……..
12. Melo ninu awon omo re ni o tii pe omo odun marun? …….
13. Omo odun melo ni abigbeyin re?.....
14. Ewo inu eto gbigba abere ajesara polio ni omo re ti gba 1 Ti ile iwosan 2 Ti alagbeka 3 Mejeji 4 Mi o ti gba rara

APA KEJI: GBIGBA ABERE AJESARA POLIO NI ILE IWOSAN ATI ALAGBEKA

Ilana: Fun awon ibeere wonyi, se ami (√) si idahun ti o dara ju
Nibi ti ko ba si asayan, jowo ba wa ko won si awon aye ti a fi sile

<u>Abala kinni: Gbigba abeere ajesara polio ni ile iwosan</u>

15 Nje omo re ni kaadi abeere ajesara? 1 Beeni 2 Beeko
16 Nigba wo ni o gba alakoko? 1 Laarin ose akoko ti a bi [ ] 2 Laarin ose mefa si merinla ti a bi [ ] 3 leyin ose merinla ti a bi [ ] 4 Mi o mo [ ]
17 Ee melo ni omo naa ti gba ajesara polio ni ile iwosan?……..
18 Nkan irinse wo le lo? 1 Ese ni mo fi rin [ ] 2 Mo wo Boosi [ ] 3 Mo gbe moto ni lo [ ] 4 Awon miran (Jowo Daruko)……
19 Iseju melo ni o lo lati de ile iwosan? Iseju _____
20 Eelo ni o na lori moto ni gbogbo igba ti o ba n lo si ile iwosan?.....Naira

21 Osuwon wo lo le fi se apejuwe awon eto ajesara ti o gba fun omo re? 1 O temi lorun gidigidi [ ] 2 O temi lorun [ ] 3 O te mi lorun die [ ] 4 Ko te mi lorun [ ]

<u>Abala keji: Gbigba abeere ajesara polio alagbeka</u>

22 E e melo ni e ti gba ajesara polio ti alagbeka fun omo yin? 1 Igba kan [ ] 2 . Igba meji [ ] 3 Igba meta [ ] 4 O ti ju igba meta lo [ ] 5 Mi o gba ri [ ]
23 Osuwon wo lo le fi se apejuwe awon eto ajestara aleagbeka ti o gba fun omo re? 1 O temi lorun gidigidi [ ] 2 O temi lorun [ ] 3 O te mi lorun die [ ] 4 Ko te mi lorun [ ]
24 Nje o lero wipe awon omo ti o ti to lati gba ajesara polio ni o se Pataki fun lati gbaa ni gbogbo igba ti a ban se ajesara alagbeka? 1 Beeni [ ] 2 Beeko [ ]
25 Ewo ni o nife si ju larin awon eto ajesara woyin?
1 Eto ajesara ti polio ni ile iwosan 2 Eto ajesara ti polio alagbeka 3 Mejeeji
26 Ewo ni o nife si ju larin awon eto ajesara woyin?

1 Eto ajesara ti polio ni ile iwosan 2 Eto ajesara ti polio alagbeka 3 Mejeeji

27 Nje waa kopa ninu eto ajesara ti polio alagbeka ti o n bo? 1 Beeni [ ] 2 Beeko [ ] 3 Ko daju [ ]

APA KETA Imo nipa ajesara ti polio

Nomba	Ibeere	Idahun	Iye maaki	Maaki
28	Kini ajesara polio			
29	Nje o se Pataki ki omo gba abeere ajesara ti polio?	1 Beeni [ ] 2 Beeko [ ]		
30	Kini ona ti a fi n gba ajesara ti polio nile iwosan ati ti alagbekakiri ?			
31	Daruko aarun kan ti aigba ajesara polio ma n fa			
32	Igba melo ni omo gbodo gba ajesara polio ki o to di omo odun marun?			
33	Igba wo lo dara ju lati gba ajesara akoko ti polio?			
34	Nigba wo ni o ye ki omo gba ajesara polio tan?			
35	Igba melo ni omo to ti to gba ajesara alagbeka gbaa ?			
36	Nje o ro pe a le yi ojo ipade lati gba ajesara pada nitori Arun to se Pataki	1 Beeni [ ] 2 Beeko [ ]		
37	Daruko idi Pataki kan ti ajesara polio ni ile wosan fi se dandan			
38	Daruko idi Pataki kan ti ajesara polio alagbeka fi se dandan			

39 Score obtained

……

40 Code

…….....

APA KERIN: Iro nipa ajesara polio

Ilana: Fun awon ibeere wonyi, se ami (√) si idahun ti o dara ju

Nomba	Ibeere tabi oro	Mo fara mo	Mi o fara mo
41	Arun romo lapa room lese je Arun to lagbara ti eniyan gbodo dena		
42	Ajesara alatola le ko Arun ran eniyan		
43	Kokoro poliomyelitis lo nfa Arun aromolapa romolese		
44	Arun aromolapa romolese li a le ri lara omode ki o to di odun merinla		

45	Ti omo mi ba gba ajesara alatola ti polio, ko ni ni Arun yii		
46	Arun aromolapa romolese je ogun ti emi fun awon ti o ni		
47	Nini ayika ti o mo ati omi ti to lati dena ewu a ti ni arun room lapa romolese		
48	Arun aromolapa romolese je Arun awon talaka		
49	Omo mi wa lalafia o si n dagba daradara, nitorina ko nilo ki n gba ajesara Kankan fun.		
50	Arun aromolapa romolese ko wopo, nitorina ko nilo ajesara		
51	Omo mi o le ni arun aromolapa romolese nitori mom o bi won se n dabo bo lowo awon aisan		
52	Ajesara polio ti alatola ko le dabobo omo lowo arun room lapa room lese		
53	Ajesara polio je iro ti awon ijoba gbe kale lati kowo je		
54	Maaki		
55	Ipele		

APA KARUN: Iwa si gigba ajesara polio

Ilana: Fun awon ibeere wonyi, se ami (√) si idahun ti o dara ju. Jowo ma se mu ju idahun kan lo.

Nomba	**Ibeere tabi oro**	**Mo fara mo**	**Mi o fara mo**
56	Mo le kopa ninu gbigba ajesara polio ninu ile iwosan nikan		
57	Mo le kopa ninu gbigba ajesara polio ninu ti alagbeka nikan, kii se nile iwosan		
58	Mo le kopa ninu gbigba ajesara polio ninu ile iwosan ati ninu ti alagbeka		
59	Ko ki ya mi lara lati kopa ninu gbigba ajesara polio nitori isesi awon osise ilera		
60	Mi o ni igbagbo ninu imunadoko awon osise alagbeka ajesara polio		
61	Mi o ni igbagbo ninu ogun ajesara ti alagbeka		
62	MO ma n damu lori awon oun to le teyin ajesara yii yo nitorinaa ni mi o se ni kopa ninu won		

63	Esin mi o gba mi laye lati gbaruku ti ajesara		
64	Asa mi o faramo gbigba ajesara		
65	Mo le kopa ninu eto ajesara nitori awon eniyan miran na n ko pa		
66	Maaki		
67.	Ipele		

APA KEFA: Okunfa gigba tabi aigba ajesara polio ni ile iwosan ati alagbeka

Abala A: Awon okunfa ti o nipa lori gbigba ajesara polio ni ile iwosan

68 Daruko awon nkan 3 ti o ro pe o le tunbo ro gbigba ajesara polio lagbara si ni ile iwosan

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69 Daruko awon nkan 4 ti o ro pe o le se idiwo fun awon eniyan lati gba ajesara polio lagbara si

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Abala B: Awon okunfa ti o nipa lori gbigba ajesara polio alagbeka

70 Daruko awon nkan 3 ti o ro pe o le tunbo ro gbigba ajesara polio alagbeka lagbara si

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71 Daruko awon nkan 4 ti o ro pe o le se idiwo fun awon eniyan lati gba ajesara polioalagbeka lagbara si

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APPENDIX III

LIST OF CORRECT ANSWERS TO THE QUESTIONNAIRE

SECTION C: KNOWLEDGE OF ORAL POLIO VACCINATION

S/N	QUESTIONS	ANSWER	POINTS
28	What is oral polio vaccine	**It is aqueous solution of weakened polio virus given orally via droplets to prevent polio**	**3**
29	Is it compulsory that a child be immunised against polio	Yes [ ] No [ ] Yes	**2**
30	What is the route of administration	**Mouth**	**2**
31	Mention one disease that can occur if a child is not immunised with OPV	**Poliomyelitis or acute flaccid paralysis**	**2**
32	How many doses of routine OPV should a child receive	**4**	**2**
33	What age is appropriate to receive the first dose of OPV	**First week of birth**	**2**
34	What age is a child expected to have completed the routine oral polio vaccination	**One year**	**2**
35	How many times can an eligible child have Polio SIA	**As many times as possible**	**2**
36	Do you think a child's immunisation can be rescheduled due to serious illness	Yes [ ] No [ ] Yes	**2**
37	Mention one importance of routine vaccination to OPV uptake	**Ensures completion of doses** **It is consistent** **It documents the vaccination history** **Accords opportunity to take other vaccines**	**2**
38	Mention one importance of supplementary vaccination to OPV uptake	**It supplements routine OPV** **Conveniency** **free**	**2**

SECTION D: PERCEPTION TOWARDS POLIO VACCINATION

S/N	QUESTIONS/ STATEMENT	AGREE	DISAGREE	Allotted Points
41	Poliomyelitis is a serious disease that should be avoided	**Yes**		**1**
42	Oral polio vaccine is infectious	Yes		1
43	Acute flaccid paralysis is caused by poliomyelitis	Yes		1
44	Acute flaccid paralysis is usually observed on or before 14 years of life in a child	Yes		1
45	If my child(ren) receives oral polio vaccine, he or she will not suffer from the disease	Yes		1
46	Poliomyelitis is a spiritual attack on the victims		No	1
47	Having a clean environment and water is enough to prevent the risk of having polio infection		No	1
48	Acute flaccid paralysis in a child is a disease for the poor		No	1
49	My child is apparently well and thriving, so no need of additional vaccines		No	1
50	polio rarely occurs so no need for the vaccine		No	1
51	My child cannot have polio because I know how to keep him safe from diseases		No	1
52	Oral polio vaccine cannot protect a child from polio		No	1
53.	Supplementary oral polio vaccination is a propaganda by the government to loot funds		No	1

SECTION E: ATTITUDES TOWARDS THE UPTAKE OF ORAL POLIO VACCINE

S/N	QUESTIONS/ STATEMENT	AGREE	DISAGREE	Allotted points
56.	I can participate in polio immunisation only during RI sessions.		**No**	**1**
57.	I can participate only during the SIA but not RI		No	1
58.	I can participate in both RI sessions and polio campaigns	Yes		1

59.	I am discouraged to participate due to bad attitudes of health workers		No	1
60.	I do not trust the competency of the vaccination team during SIA		No	1
61.	I do not trust the potency of the vaccines during SIAs		No	1
62.	I am worried over side effects so I will not participate		No	1
63.	My religion does not support immunisation		No	1
64.	My culture does not support immunisation		No	1
65.	I can participate in immunisation only because other people do		No	1

APPENDIX IV

LIST OF WARDS AND SETTLEMENTS

S/N	WARDS	SETTLEMENTS
1	OKEARE	Odefunke Isale Afa
2	SABO	Oke isu Danga re
3	AGOTAPA	Darlington Street Obakibeji
4	INALENDE	Bola Area Awarudeen
5	BASHORUN	Oluwonla Ashi
6	AGODI	Kubi Idiomo
7	OLD BODIJA	Ajibade Awosika
8	AGBOWO	Barika Major Salawu

APPENDIX V

OYO STATE ETHICAL APPROVAL

TELEGRAMS…….. TELEPHONE……..

OYO STATE: THE PACESETTER

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. ……..

All communications should be addressed to

the Honorable Commissioner quoting

Our Ref. No. AD 13/ 479/296 19th December, 2016

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: A-James Valentine

ETHICAL APPROVAL FOR THE IMPLEMENTATION
OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "Factors Influencing the Demand for Oral Polio Vaccine During Routine and Supplementary Immunization Activities among Mothers of Under-Five in Ibadan North Local Government Area of Oyo State," has been reviewed by the Oyo State Ethical Review Committee.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you all the best.

Signature & Date

Dr. Abbas Gbolahan
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee