



**COLLEGE OF HEALTH SCIENCES**

**SCHOOL OF HEALTH SCIENCES**

**KNOWLEDGE, ATTITUDE, AND PRACTICES OF MOTHERS/CAREGIVERS  
TOWARDS IMMUNIZATION OF CHILDREN UNDER 5 YEARS OF AGE IN**

**AWACH HEALTH CENTRE IV, GULU DISTRICT**

**BY**

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**A RESEARCH DISSERTATION SUBMITTED TO THE DEPARTMENT OF NURSING  
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF A  
BACHELOR OF SCIENCES IN NURSING MAKERERE UNIVERSITY**

**OCTOBER, 2022**

**Declaration**

I, **Oloya Vincent**, declare to the best of my knowledge that this is my original work, done by myself and has never been submitted to this institution or any other institution for any academic award or grant and is being submitted with the approval of my supervisor;

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I hereby declare that the research proposal titled, “**Knowledge, attitude and practices of mothers towards immunization of children 0 – 5 years of age in, Gulu District**” by “**Oloya Vincent**” has been done under my supervision and is approved for submission to Makerere University.

Signature ..... *[Handwritten Signature]* ..... Date..... *8/2/2023* .....

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## **DEDICATION**

I dedicate this dissertation to my dear mother Ms. Veterina Agombo and my brother Mr. Orombi Ronald for the continuous support and love they have given to me throughout this struggle.

May the Lord bless you abundantly

## **ACKNOWLEDGEMENTS**

I am forever grateful to the Almighty God for the knowledge, wisdom, strength, and endurance he has granted me through this process of developing a dissertation.

I would like to thank my family members Mrs. Uchaki Comfort, Afoyorwoth Destiny, Yikparwoth Damalie, Mungujakisa Ephraim, and Debora. Mr. Oloya Phillips, Sister Janet Oloya for their continued support rendered unto me, and my lovely parents for the continued words of encouragement.

I thank my mentor Dr. Joyce Nakumbi for the wonderful support and encouragement throughout my stay at School and dissertation writing may the almighty God bless her abundantly.

I thank my supervisor, Dr. Nalwadda Gorrette for the support she has given me through guidance with utmost willingness in developing a dissertation.

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## **LIST OF ACRONYMS**

|               |  |
|---------------|--|
| <b>AAP</b>    | American Academy of Pediatrics                   |
| <b>BCG</b>    | Bacillus Calmette Guerin                         |
| <b>DPT3</b>   | Diphtheria, Pertussis and Tetanus 3              |
| <b>HMIS</b>   | Health Management Information System             |
| <b>IPP</b>    | Immunization Program Performance                 |
| <b>UNEPI</b>  | Uganda National Expanded Program of Immunization |
| <b>UNICEF</b> | United Nations Children’s Fund                   |
| <b>VPDS</b>   | Vaccine Preventable Diseases                     |
| <b>WHO</b>    | World Health Organization                        |

## OPERATIONAL DEFINITIONS

**Immunization:** is the process whereby a person is made immune or resistant to an infectious disease by the administration of a vaccine (Verulava, Jaiani, Lordkipanidze, Jorbenadze, & Dangadze, 2019).

**Immunization Coverage:** The provision and utilization of immunization services or percent of the target population that has received the last recommended dose for each vaccine recommended in the nation schedule by vaccine (Vakili, Ghazizadeh Hashemi, Khademi, Ajilian Abbasi, & Saeidi, 2015)

**DPT-HepB+Hib3 Immunization:** refers to a class of combination vaccines against three infectious diseases in humans: diphtheria, Pertussis and Tetanus.

**Polio 3** It refers to a vaccination given to children under 1 year through drops orally.

**Hep-B** This is a vaccine for preventing Hepatitis B among children under 1 year.

**Hib** This is a vaccine for preventing Heamophilus Influenza among children under 1 year.

**Knowledge** This is the information and facts that an individual possesses about something such as immunization.

**Attitude** Refers to asset of emotions beliefs, and behaviors to an individual's outlook towards something or service like immunization. (Kendra cherry, 2021).

**Practice** This refers to intentional tasks, actual application or acts performed by an individual.

## ABSTRACT

**Introduction:** Immunization is a key approach that can be successfully employed to reduce deaths and illnesses among children. Immunization presently averts an estimated 3 million Deaths annually for children aged under five. Uganda Expanded Program on Immunization has a stipulated immunization schedule guideline that should be adhered to for effective immunization of children under five years

**Objective:** The study was to assess the knowledge, attitude, and practices of mothers/caregivers towards immunization of children under five years in Awach Health centre IV Gulu district.

**Methodology:** A descriptive cross-sectional study was conducted in Awach health facility Among 116 participants. The Respondents were interviewed through structured questionnaires. Data were analyzed by Social Statistical Package for Social Scientists (SPSS). Descriptive findings were presented in tables frequencies, percentages and while inferential statistics used a logistic regression test to measure the association between independent and dependent variables. P- Values equal to or less than 0.05 were considered statistically significant.

**Results:** A total of 116 mothers/caretakers were enrolled in the study. The results showed that most of the participants (73.3%) had insufficient knowledge of immunization. The majority of the mothers/caregivers (53.4%) had unfavourable attitude toward immunization. Moreover, the majority of participants (77.6%) had poor practices towards immunization. Mothers/caregivers who attained secondary or higher level of education were 4.28 times more likely to have sufficient knowledge about immunization than housewives, male child were 3.67 times more likely to favourable attitude and married mothers 4.28 times.

**Conclusions and recommendations:** A confidence interval of 95% was adopted thus setting significant thresholds at 0.05 implying any threshold less than 0.05 was significant in affecting Knowledge, attitude and practices towards childhood immunization. The results indicated that there was a statistical significant association between knowledge and attitude such as, educational level ( $p=0.003$ ), marital status ( $p=0.008$ ), sex of the child ( $p=0.003$ ).

The study recommends that health workers should sensitize the mothers about important and good practices of immunization and the dangers of not following the immunization schedule.

## **CHAPTER ONE: INTRODUCTION**

### **1.0.Introduction**

This chapter presents the background of the study, problem statement, justification and significance of the study, research questions, objectives, general objective, specific objectives, and conceptual framework.

### **1.1 Background to the study**

Globally, in developed countries, such as the United Kingdom and Japan, due to well-funded and developed laboratory health systems, with increased levels of monitoring as well as provision of equipment and resources, health staff often do not encounter many factors which affect the effective conducting of immunization outreaches (Kamimura, Ashby, Myers, Nourian, & Christensen, 2015). However, in under-developed countries such as Venezuela and Paraguay, health staff encounter many factors which affect health workers conducting immunization outreaches including lack of guidelines, lack of resources, and poor funding among others (Page & Taraciuk Broner, 2020).

Immunization is an important tool for controlling and eliminating life-threatening infectious diseases and is estimated to prevent between 2 and 3 million deaths each year (Mekonnen, Gelaye, Were, & Tilahun, 2020). An estimated 19.4 million children around the world still do not complete full vaccinations every year, and out of these, approximately two-thirds of all unvaccinated children live in developing countries(Chan, Soelar, Md Ali, Ahmad, & Abu Hassan, 2018). Vaccine-preventable diseases contribute significantly to morbidity and mortality; an estimated 4 million people die each year from diseases from which vaccines are available (WHO, 2015). Diarrhea and Pneumonia diseases account for approximately 34% of the world's 10.4 million deaths in children less than 5 years of age (WHO, 2015). Globally, Invasive pneumococcal disease has shown recent because the deaths of 826,000 Children aged 1 to 59 months and rotaviruses are the highest cause of severe diarrheal disease in children under five years (WHO, 2015).

Immunization remains the single most feasible and cost-effective way of ensuring that all children enjoy their rights to survival and good health. Immunization is the best way of curbing immunizable childhood diseases like poliomyelitis, Measles, mumps, rubella, diphtheria, tuberculosis, and hepatitis. It is also significant that these children get the full dose of these

vaccines. For example, according to World Health Organization (WHO) guidelines, children are considered fully vaccinated with Diphtheria, Pertussis Tetanus 3rd Dose (DPT3) when they have received three doses of pentavalent vaccine DPT-Hep-B-Hib by the age fourteen weeks(Gentle, 2019). Considering this, incomplete immunization of children 6 to 14 weeks can be defined as children who missed at least one dose of the three doses of the vaccine to the United Nations Expanded Program for Immunization (UNEPI) guidelines (Saleh et al., 2018).

Regional perspective: In Sub-Saharan African countries, conducting childhood immunization in static and outreaches differs greatly and is affected by various factors. For example, in Ethiopia and Nigeria, the factors affecting the management of laboratory services include the inadequate provision of supplies and resources such as testing kits, unreliable electricity, and poorly maintained and serviced laboratory equipment among others (Thomas, 2015). Similarly, in East African countries including Kenya and Tanzania, many factors affect health workers in conducting childhood immunization and these include lack of resources such as running water in facilities, inadequate and poorly maintained equipment, inadequate infrastructure, and understaffing among others (Shobowale, Onyedibe, Adegunle, & Elikwu, 2017)

In Uganda, The ministry of health reports that the coverage of immunization for children is below that planned in the standards development goals. The Ministry of Health (MoH) recommends the provision of accessible, efficient, and quality immunization outreaches. However, conducting childhood immunization is greatly affected by various factors including poorly set up services, inadequate staffing, and provision of resources such as vehicles for the transport of staff and vaccines, and lack of fridges for effective cold chain management among other factors (Ochan, Aaron, Aliyu, Mohiuddin, & Bamaiyi, 2018).

## **1.2 Problem Statement**

Immunization against these diseases is one way that can eliminate these diseases and reduce infant mortality rates that have been high in the past decades. However, complete immunization of all children in most sub-Saharan countries has not been achieved. In Uganda, for example, the set target for childhood immunization in Uganda as of 2020/2021, 96% for DPT-HepB-HiB -3, 89% for measles, and 35% for under 5 vitamin A (MOH, 2022). However, in that same year, the vaccine coverage of DPT-Hib-Hep-3 dropped by 6.3%, and measles dropped by 12.5 %. In

addition, coverage in Gulu district was not satisfactory, evidenced by a DPT-HepB-HiB-3 coverage of 85%, and a drop of rubella measles coverage by 15.1% (MOH, 2022).

Several factors affect immunization uptake and among these are the knowledge, and attitudes of parents towards immunization of children under 5 years. This is because mothers/caregivers have the primary obligation to take these children to obtain immunization services and any insufficiencies in knowledge and attitudes would see them have a poor practice of taking their children for immunization. For example, Mothers who think that immunizing their children is associated with severe adverse events will be less likely to take their children for immunization. In addition, mothers/caregivers who are not aware of the benefits of fully vaccinating their children are less likely to take their children to complete the vaccines (McKee & Bohannon, 2016). The diversity of cultures, inadequate sensitization, poor infrastructure, and inadequate provision of vaccines also create a gap for the emergency of poor attitudes and practices towards immunization. Inadequate immunization in maternal and child health and well-being (Reid & Fleck, 2014). Low coverage of childhood immunizations creates pathways to disastrous outbreaks of diseases like measles, pertussis, diphtheria, yellow fever, and polio (Reid & Fleck, 2014). These outbreaks can claim a number of both adults and young children and impair the future of many countries.

To develop the best strategies and ultimately increase immunization coverage in Gulu district, and in Uganda at large, the knowledge attitudes and practices of mothers/caretakers towards immunization of children must be examined. This study, therefore, seeks to examine the knowledge, attitudes, and practices of mothers/caregivers towards immunization of children under 5 years at Awach Health Centre IV, Gulu District.

### **1.3 Justification of the study**

Immunization in children together with obtaining greater coverage with effective and safe vaccines for these ages is the most effective intervention in reducing death and disability in public health within this age group. (Mihigo, Okeibunor, Anya, Mkanda, & Zawaira, 2017). Acceptance of immunization however is still inadequate as evidenced by fluctuations in the proportion of children who obtain a complete childhood immunization by 5 years. In addition, the attitudes and knowledge of those who take these children for immunization, in most cases their mothers but

occasionally caregivers, determine how these children achieve immunization. This is especially true in the Gulu region in which there are disparities in knowledge and attendance of immunization services. With this information, the current study, therefore, seeks to ascertain the knowledge and attitudes, together with the practices of mothers and caregivers of these children towards immunization.

#### **1.4 Significance of the study**

Findings from this study will provide numerous implications to both the public, the government, and other stakeholders. Stakeholders can base on the gaps identified and develop proper interventions to eliminate these gaps. Health care centers can design user-friendly solutions like outreaches and teaching programs, targeting these women.

Improved knowledge, attitudes, and practices towards immunization would then improve initiation and completion of immunization for children aged between 0 to 5 years. This will help reduce the proportion of immunizable childhood illnesses, which contribute to a big health problem and delay the achievement of the standard Development goals.

The study also intends to assist policy makers and planners as well as the Ministry of Health by identifying potential areas, which still require more funding and support for immunization outreaches in government facilities. Results from this study will contribute to the available research material about the knowledge, attitude, and practice gaps of mothers towards immunization of children under 5 years of age and therefore provide a valuable reference point for future studies on this issue.

#### **1.5 Research Questions**

- 1) What is the knowledge level of mothers/caregivers, regarding immunization of children under 5 years in Awach Health Centre IV Gulu District?
- 2) What are the mothers'/caregivers' attitudes towards vaccination of children under 5 years of age in Awach Health center IV, Gulu District?
- 3) What are the practices of mothers/caregivers towards immunization of children under 5 years of age in Awach Health Centre IV, Gulu District?
- 4) What is the association of sociodemographics and mothers/caregivers' knowledge, attitudes and practices towards immunization of children under 5 years in Awach Health Centre, Gulu District?



## **1.6 Objectives of the study**

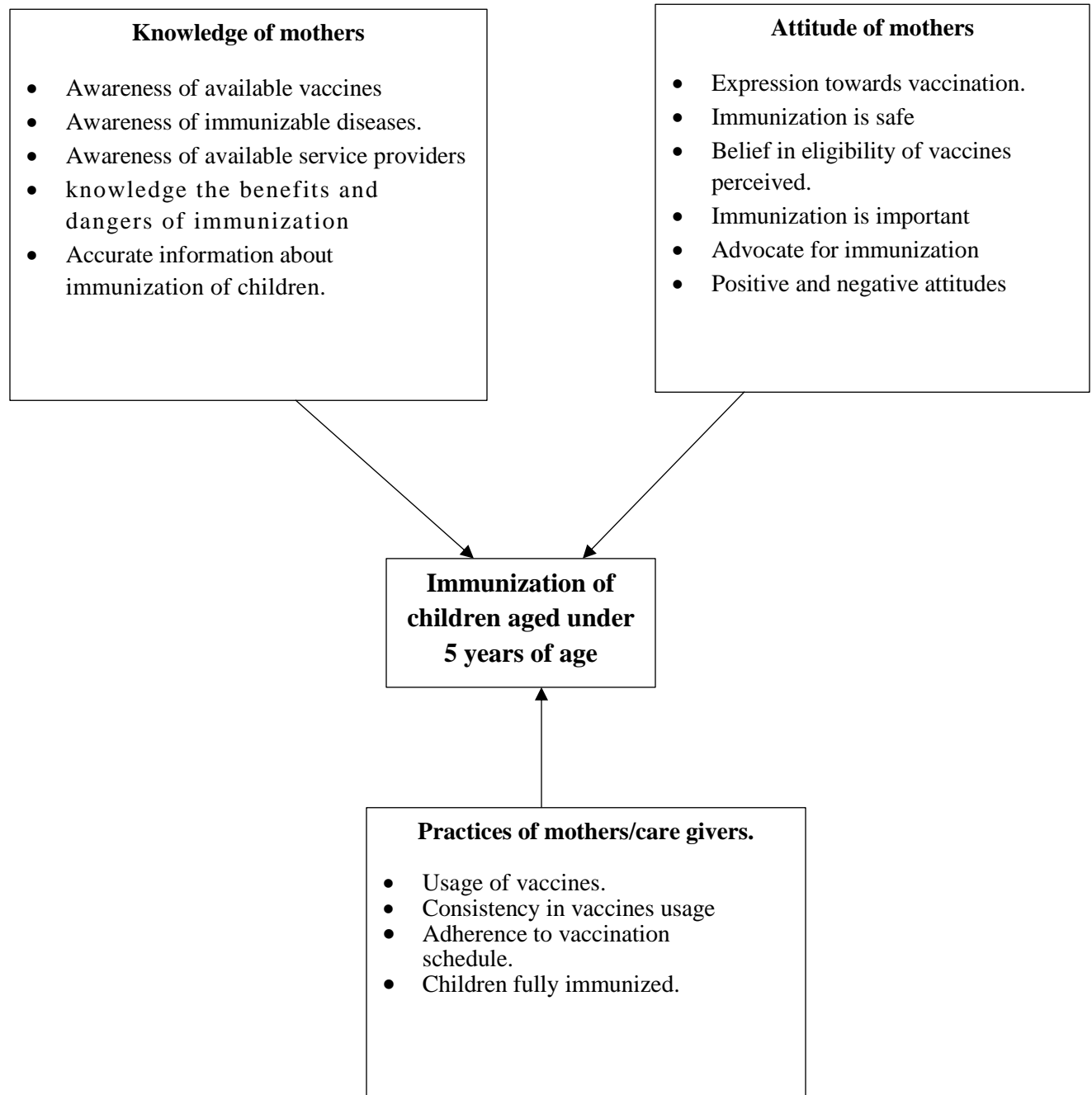
### **1.6.1 General Objective**

To examine the knowledge, attitudes, and practices of mothers/caregivers towards immunization of children under 5 years of age at Awach Health Centre IV, Gulu District.

### **1.6.2 Specific Objectives**

- 1) To examine the knowledge level of mothers/caregivers of children under 5 years of age regarding immunization in Awach Health Centre IV, Gulu District.
- 2) To examine the attitudes of mothers/caregivers towards immunization of children under 5 years of age in Awach Health Centre IV, Gulu District.
- 3) To identify the practices of mothers/caregivers towards immunization of children under 5 years of age in Awach Health Centre IV, Gulu district.
- 4) To determine the association between sociodemographics and the mothers'/caretakers knowledge, attitudes and practices towards immunization of children under 5 years of age in Awach Health Centre, Gulu District.

## 1.7 Conceptual Framework



**Figure 0-1: Conceptual framework of the study**

The framework has four variables. There are three independent variables and one dependent variable.

### **1.7.1 Narrative of the conceptual framework**

**Knowledge** is defined as the facts, information, and skills acquired through education experience or the theoretical and practical understanding of a subject (Oxford, 2014). Knowledge in this framework has been conceptualized as a factor that can promote the utilization of immunization. The framework shows that the mothers/caregivers who know immunization are more likely to immunize children who are below 5 years. The knowledge in this case involves the understanding of immunization, diseases that can be immunized, and the immunization schedule of Uganda.

**Attitude** is defined as the way someone thinks, feels, and behaves toward someone or something (Marriam W., 2014). In this study, the attitude will be the way the mothers/caregivers think, feel, and behave toward immunization. This will involve the way they think, feel, and behave towards Immunization as a tool used to curb immunizable deadly diseases. It also involves being good advocates of immunization.

**Practice** is the actual application or use of an idea or method as opposed to the theories related to it (Oxford, 2014). Practice in this study will be the actual utilization of immunization services by the mothers/caregivers amid the theories and myths that have been posed on immunization. This will check the mothers/caregivers' strict use of the immunization schedule and the absolute immunization of Children below five years. This study has three dependent variables which are the knowledge, attitudes, and practice toward immunization. Immunization is the process of administration of the vaccine to the human body to elicit the Immune system to synthesize specific antibodies against the specific infection. The major objective of the World Health Organization to introduce immunization services worldwide was to reduce and combat some diseases that can be prevented through immunization. These diseases are deadly once the children contract them. Both children and adults can be at risk of contracting the disease. Therefore immunization is meant to reduce the rate of infections, Promote the health of children, communities, and nations.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.0.Introduction**

This chapter entails the literature on the knowledge, attitudes, and practices towards immunization. This chapter compared the various studies that have been done on the knowledge attitude and practices towards the immunization of children below five years. Different online research databases will be used, including google scholar, PubMed, and PubMed central. We restricted our search to those articles not before 2012 so that we obtain more recent data. The literature was organized based on the specific objectives presented in chapter one into three sections, one about the knowledge, then attitudes, and finally practices of mothers or caregivers towards vaccination of children under 5 years of age and below. We will collect twenty documents.

### **2.1.Knowledge of mothers or caregivers about immunization of children under 5 years of age.**

According to the oxford dictionary, knowledge is defined as the skills and information acquired through experience and education (Oxford, 2013). This study explored the knowledge of immunization. The knowledge of immunization included an understanding of the immunization schedule, understanding what immunization means, the importance of immunization, the immunizable diseases, the available centres of immunization, and the dangers of not immunizing. Numerous studies document inadequate knowledge of vaccination among caregivers and mothers of children within this age group. (Pertet et al., 2018) studied about under vaccination of children on Maasai nomadic pastoralist's community in Kenya: is the issue geographic mobility, social demographics or missed opportunities indicated that majority of mothers had insufficient knowledge about immunization of their children under 5 years of age. (Anokye et al., 2018) studied the socio-demographic determinants of childhood immunization incompleteness in Koforidua, Ghana and reported that majority of mothers to children under 5 years of age had inadequate knowledge about immunization of these children. Furthermore, results showed that most 59% lacked awareness of the available vaccines as well as vaccination schedule for their children. Another study by (Galadima, Zulkefli, Said, & Ahmad, 2021) about the factors influencing childhood immunization uptake in Africa: a systematic review revealed that most mothers interviewed had inadequate knowledge about immunization. Furthermore, the majority of respondents could not name any potential dangers of poor or incomplete immunization among

children under 5 years. Similar findings are reported by (Mekonnen et al., 2020) whose study was about timely immunization: a multilevel analysis revealed that mothers lacked sufficient knowledge about immunization completion of vaccination and the factors that determine completion among children in northwest, Ethiopian, the immunizable diseases as well as vaccination schedule for each disease. This was attributed to lack of health education about immunization. (Nwankwo & Orua, 2020) studied the factors influencing incomplete immunization among under five years old children at CHUK hospital, Nyarugenge district, Rwanda, results show that majority of mothers had inadequate knowledge about immunization and did not have accurate information about immunization of children under 5 years of age. (Adegboyega & Abioye, 2017) studied the effects of health care services and commodities cost on the patients at the primary health facilities in Zaria Metropolis, Northwestern Nigeria report that mothers lack sufficient knowledge and awareness about immunization choices, awareness of available service providers as well as the benefits of immunization.

## **2.2. Attitude of mothers towards immunization of children under 5 years of age**

Attitude in this study has been defined as the way the mothers/caregivers feel, think and behave towards the immunizing of the children below five years. A positive and negative attitude towards immunization has therefore been conceptualized to have an influence on the immunization of the children below five years and this depends on the attitude of the mothers/caregivers. (Galadima et al., 2021) carried out a study regarding expanded immunization program in Africa and revealed that majority of mothers had negative attitudes towards immunization of children under 5 years of age. This was attributed to prevalent fears and misperceptions about the potential dangers of immunization such as beliefs that it can make the children lame and barren in future. Similar findings are presented by (Kamanda, 2010) who studied the immunization coverage and factors associated with failure to complete childhood immunization in Kawempe division, Uganda. They reported that majority of mothers had negative attitudes towards immunization as they believed that it made their children uncomfortable and ill and they cried a lot.

Another study by (Tamam Murdi Alshammari et al., 2018) assessed the knowledge, attitude and practice of parents about immunization in Hail City and further reported that majority of mother did not trust safety and efficacy of these vaccines. Similar findings are presented by (Oryema,

Babirye, Baguma, Wasswa, & Guwatudde, 2017) in a study about utilization of outreach immunization services among children in Hoima District, Uganda: a cluster survey reported that majority of mothers had negative attitudes towards immunization as they believed that it could cause harm to the children due to the way it made them uncomfortable.(Adedokun, Uthman, Adekanmbi, & Wiysonge, 2017) used a multilevel analysis and assessed the factors related to incomplete immunization of young individuals in Kenya. They reported that most mothers expressed negative attitudes towards childhood immunization as they revealed that they had concerns to do with vaccine safety and beliefs that there were hidden intentions in the vaccines.

(Shikuku et al., 2019) studied door-to-door strategy of improving access and utilization of vaccination services in areas with difficult accessibility. They reported that most mothers had negative attitude towards child immunization, and this was because of fears about the dangers and side effects of the immunizing agents. Almutairi and his colleagues carried out another study to ascertain the knowledge, attitudes and practices of mothers towards this population group in India. They reported that more than half of mothers had beliefs that vaccination of their children was associated with uncertain health outcomes. (Almutairi et al., 2021). Another study in Kenya yielded similar results. (Kiiro, 2012) studied the determinants of the dropout of the immunization status and reported that immunizing agents would result in unknown side effects and therefore cause harm to the children.

(Abdullahi, 2018) used a cross sectional study to assess the determinants of childhood immunization completion in Nigeria. He reported that many mother had fears of vaccine-associated side effects. Results in Tuscany, Italy were however contradicting with most of the previous ones. Here, (Bechini et al., 2020) used a survey to assess the pediatric activities and adherences to immunizations during the corona virus pandemic. They reported that mothers believed that immunizing agents had a protective effect and provided good health and development to their children.

### **2.3.Practices of mothers towards immunization of children under 5 years of age**

Practice of immunization is very important because it is the one to determine the benefits of immunization. The children, families, communities and nations will always reap these benefits of immunization if all the mothers/caregivers take the immunization practice seriously. The practice however must be supported by various factors which include the knowledge about immunization, the positive attitude towards immunization, availability of immunization services, proper

handling of the mothers/caregivers by the immunization service providers and breaking all other barriers of immunization. Various studies have been done to assess the practices of the mothers/caregivers on the immunization practices and utilization of these services that can prevent eradicate preventable diseases therefore reducing on the mortality rates and morbidity which will ensure healthy generations and better world free from disease and its effects. Poor practices towards immunization have been reported towards vaccination services. (Schmidt-Sane et al., 2021) used a cross sectional studied and reported that only 39% of children under 5 years of age had been vaccinated fully. The results were similar with those (Mothiba & Tladi, 2016) , who reported that more than half of children below 5 years had not been fully immunized.

(Malande et al., 2019) reported that the access to immunization centers is difficult due to poor road terrain, which affect effectiveness of outreach program, support supervision and timely delivery of immunization supplies are some of the issues contributing to poor practices towards immunization. Finally, (GebreEyesus et al., 2021) carried out a comparative study and documented poor practices towards immunization. They reported that many health care practitioners were inadequately trained and thus unable to educate mothers about the significance of full immunization. They also urged that the poor storage conditions and cold chain maintenance contributed to inadequate vaccination of children under 5 years.

## **CHAPTER THREE: METHODOLOGY**

### **3.0.Introduction**

This chapter contained information on the methods, which were used in conducting this study. It explores the research design, study setting, population, sampling, data collection methods, data quality control, data analysis plans, administration approval, and dissemination of results.

### **3.1.Study Design**

This was a descriptive cross-sectional study design using a quantitative approach to assess the knowledge, attitudes, and practices of mothers/caregivers towards immunization of children under 5 years. This study design was selected because it was suitable for identifying and describing relationships between two or more variables in a single population at a single point in time.

### **3.2.Study Setting.**

The study was conducted in the postnatal clinic at Awach Health Centre IV, Gulu District which is located in Northern Uganda it's approximately 34km away from Gulu city. It is a government-run healthcare facility and receives an average of 250 patients per day. It offers many health care services including immunization, obstetrics, and emergency care, HIV/AIDS management services, general patient management, laboratory services, nutrition services, family planning services, antenatal and post-natal services, EMTCT, and VCT services among others. The study setting is selected because the problem of low utilization of immunization services for children under 5 years of age was reported on the ground.

### **3.3.Study population**

The primary study included mothers/caretakers and their children under five (5) years of age who had come to the facility attending health care services at Awach Health Centre IV, Gulu District.

### **3.4.Sample size determination.**

The sample size was determined by (Kish and Leslie, 1965), which states that

$$N = \frac{Z^2PQ}{I^2}$$

Where: N =Sample Size

Z=level of confidence =95% (1.96)



P = Proportion of the problem (mothers/caregivers) with inadequate knowledge about immunization of children under 5 years) adapted from previous studies in Uganda about a similar study and is 15.3% (Munebe et al, 2013)

$$Q = 1 - P = 1.5$$

$$I = 5\%$$

$$N = \frac{(1.96)^2 \times 0.153 \times 0.847}{0.05 \times 0.05}$$

$$N = 199 \text{ participants}$$

The sample size was 199 participants.

The sample size was corrected using the Cochran formula for the finite population.

$$N = \frac{no \times n}{no + (n - 1)}$$

Where N is the required sample size.

no is the number of participants calculated using the kish Leslie formula and is 199 participants.

n is the maximum number of participants a researcher can encounter, also called the maximum sample population.

And is the daily maximum sample size x days of data collection

From the nurse at the immunization unit at the study site, about 70 mothers/caregivers come daily and the immunization services are scheduled twice a week. In addition, the researcher collected data for 2 weeks.

Therefore  $n = 70 \times 2 \times 2 = 280$  participants.

$$N = \frac{199 \times 280}{199 + (280 - 1)}$$

$$N = 116 \text{ participants.}$$

Therefore, the sample size was 116 participants. This was selected from all mothers who were 18 years and older and attending maternal child health immunization services at Awach health Centre IV, in Gulu District.

### **3.5. Sampling technique**

Participants were randomly selected from mothers/caregivers that attend immunization health services at Awach health Centre IV

### 3.5.1. Sampling fraction

$$\text{Sampling fraction} = \frac{\text{Sample size}}{\text{Sample population}} = \frac{116}{280} = 0.414 \approx \frac{1}{3}$$

This means that we selected one mother/caregiver from every 3 patients who attend the immunization services at Awach health Centre IV in Gulu district.

### 3.5.2. Sampling procedure

One mother/caregiver was selected out of three attending the immunization services at the health Centre, a count was made starting from the mother/caregivers who reaches first at the unit backward and for every 3<sup>rd</sup> mother/caretaker, she was approached and requested to enroll in the study.

## 3.6. Selection criteria

### 3.6.1. Inclusion criteria

Mothers/caregivers of children under 5 years of age attending health care services who have not yet completed their immunization schedules residing in Gulu District.

Mothers/caregivers who consent to participate in the study.

### 3.6.2. Exclusion Criteria

The study excluded mothers/caregivers with children above 5 years. Mothers/caregivers who are less than 18 years of age.

## 3.7. Definition of Variables

### The independent variables for the study will include:

Social demographic factors of the mother/caregiver: These included the mother/caretaker's age, marital status, educational level, occupation, number of children, religion, residence, and source of information and immunization.

The child's demographic demographics included their age, gender, relationship to the participant, and birth order.

### The dependent variables for the study will include:

Knowledge of mothers about immunization, Attitudes of mothers towards immunization and Practices of mothers towards immunization of children under five years of age.

### **3.8.Data collection procedure**

Data were collected in September 2022 at the study site of Awach Health Centre IV. After review and approval by IRB, Ethical clearance was first obtained from the District Health Officer of Gulu before assessing Awach health Centre IV study site. Participants were selected using the predetermined selection criteria. The selected participants were approached, described the study, and asked to consent. As soon as the participants consented, they were given the data collection tool to fill out. The participants were required to take about 10 to 15 minutes to respond to the data collection tool.

### **3.9.Data Collection tools**

Data were collected using a semi-structured questionnaire developed from an extensive literature search. Most of these have been adapted from previous conducted studies but modified to fit the local settings. The data collection tools have also been translated into the most prevalent local language at the study site. It consisted of five sections arranged according to the objectives of the study. The first section consisted of demographics of the mothers/caregivers and their children and was adapted from previous studies (Mohammed & Al-Zahrani, 2021) and (Gebreyesus et al., 2021). These consisted; the mothers'/caretakers' age, marital status, education level, occupation; the number of children and children under 5 years, religion, and residence. The child's demographics included their age, gender, relationship to the participant, and birth order. The second part included the sources of immunization information. The third, fourth and last sections of the data collection tool were used to collect the knowledge, attitudes, and practices relevant to immunization.

### **10- Item structured questionnaire.**

The knowledge status of the participants was measured by ten (10) knowledge-related questionnaires-participants were given "True" (for a correct answer) and "False" (for incorrect). A correct response for an item was assigned one (1) point, while an incorrect response was assigned zero (0). These questions were adapted from previous studies (Alshammari, Subaiea, Hussain, Moin, & Yusuff, 2018). The knowledge was assessed based on two themes relating to the importance of vaccination and knowledge of diseases controlled by routine childhood immunization.

### **Attitude Likert scale for children's vaccination**

The attitude of participants towards infant immunization was measured using eleven(11) items rated on a five-point Likert scale as "Strongly agree", "Agree", "Uncertain", "Disagree" and "Strongly Disagree". This was adapted from previous studies (Mohammed & Al-Zahrani, 2021). The attitudes were divided into two main subthemes positive and negative attitudes. Every mother/caregiver was instructed to choose one of the five possible responses for each statement. For positive responses, the scoring were as follows: strongly agree = 5, agree = 4, uncertain = 3 and disagree = 2 and strongly disagree = 1. Negative attitudes were scored as follows; strongly agree = 1, agree = 2, uncertain = 3 and disagree =4, and strongly disagree = 5.

### **Observational guide and structured questionnaire**

This was self-generated, with the guidance of the Uganda Immunization schedule and the guidelines, and was used to assess the practice of mother/caregiver towards immunization. It consisted of three close-ended questions: age of first immunization; is the vaccination up to date; and whether they missed any vaccine. The recommended response was assigned a score of one and a non-recommended one, a score of 0, generating a score ranging from 0 to 3.

## **3.10. Definition of the variables**

### **3.10.1. Independent variables.**

Social demographic factors of the mother. These included the mother's/caretaker's age, marital status, education level, occupation; the number of children, religion, residence, and source of immunization information.

The child's demographics include their age, gender, relationship to the participant, and birth order.

### **3.10.2. Dependent variables**

Knowledge, attitudes, and practices of mothers/caregivers towards immunization of children under 5 years.

## **3.11. Quality control**

The quality of data was measured through the principal investigator who made frequent checks on the data collection process to ensure the completeness and consistency of gathered data and daily based corrections were made accordingly. The questionnaire was translated initially from English to Luo (the local language of respondents) by an expert translator and then back to

English to ensure the consistency of the questionnaire and for better quality. The necessary amendments were made upon the identification of ambiguities of the tools made in the wording and logic. The raw data were cleaned, coded, and entered into a personal computer to ensure proper storage. The study tool was pretested among 10 mothers/caregivers who completed immunization at the study site to check for the correctness and appropriateness of the questionnaires.

### **3.12. Data analysis and management**

Data were cleaned, coded, and entered into SPSS) 26.0, for further analysis. Data cleaning was performed to check for accuracy, consistencies, and missing values and variables. Coded and entered data were analyzed at univariate, bivariate and multivariate analysis levels. During data analysis, the principal investigator for easy analysis and understanding read questionnaires from the primary study repository several times.

#### **3.12.1. Univariate data analysis**

Descriptive statistics including the frequency, distribution, mean and standard deviation were used to describe the different continuous and categorical variables.

##### **Calculation of scores**

The knowledge was assessed based on two themes relating to the importance of vaccination and knowledge of diseases controlled by routine childhood immunization. A true score was scored 1 and a false one 0, generating a score ranging from 0 to 10. The respondents were graded using the blooms cut off of 80% into sufficient (with a total score  $\geq 8$ ) and insufficient knowledge (with a total score  $< 8$ ).

Attitudes was examined using five possible responses for each statement. For positive responses, the scoring were as follows: strongly agree = 5, agree = 4, uncertain = 3 and disagree = 2 and strongly disagree = 1. Negative attitudes were scored as follows; strongly agree = 1, agree = 2, uncertain = 3 and disagree =4, and strongly disagree = 5. The total mean score for the attitudes ranged from 0 to 5 and participants were grouped using the blooms cut-off of 80% into favorable (with a score  $\geq 4$ ) and unfavorable attitude (with a score  $< 4$ ).

Practice was examined by assigning a recommended response a score of one and a non-recommended one, a score of 0, generating a score ranging from 0 to 3. Practice was categorized,

using the blooms cut-off of 80% into good attitudes (with a total score  $\geq 2.4$ ) and poor attitudes (with a total score  $< 2.4$ )

### **3.12.2. Bivariate data analysis**

In bivariate analysis, descriptive statistics binary logistic regression was used. This was done to establish the relationship between the dependent and the independent variables, and the results of the analysis were mainly presented using text, frequency, and tables. Variables were considered statistically significant with  $p$  less than 0.2.

### **3.12.3. Multivariate data analysis**

Those variables, which revealed a statistically significant association at  $p \leq 0.2$  at bivariate analysis, were selected for a multivariate binary logistic regression. This was done to determine the statistically significant association between independent variables and dependent variables (mothers'/caregivers; knowledge, attitude, and practices towards immunization of infants under 5 years). Association was statistically significant at  $p$  less than 0.05. Variables that were statistically significant in the final model were kept.

## **3.13. Ethical Considerations**

The ethical approval was obtained from the institutional review board (IRB) of Makerere University School of health sciences and permission was granted from the District Health officer of Gulu district before accessing the study site of Awach Health Centre IV. Informed consent was sought from mothers/caregivers before their participation. The research ensured that confidentiality, dignity, respect, and participants' rights were respected. As such, participation was voluntary with participant respondents having a right to withdraw their participation at any stage of the study: therefore, the rights for service of participants were not compromised. Participants' numbers were used instead of their names to protect their confidentiality. Study tools were kept under lock and key and were only accessible by the principal investigator to ensure confidentiality.

## **3.14. Dissemination of results**

The results from the study were compiled into a dissertation that was submitted to Makerere University College of Health Sciences Department of Nursing and Makerere University College of Health Sciences Library (Albert Cook Library). Other copies were submitted to Awach Health

Centre IV, the IRB of Makerere University, and College of Health Sciences for achieving, a copy was submitted to the administration of Gulu while the researcher also retained a copy for future reference.

## **CHAPTER FOUR: RESULTS**

### **4.0.Introduction**

This chapter presents the statistically analyzed data from the study and the interpretation of the information obtained. The sample size of this study was 116 respondents who took part in giving data about knowledge, attitude, and practices towards immunization of children below five years of age. The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 26.0, computer software for statistical analysis and it was transferred to Microsoft office excel to produce good quality tables, charts, and percentages were used on the knowledge, attitudes, and practices of mothers/caretakers towards immunization of children under 5 years at Awach health Centre IV, Gulu district. These included Sociodemographic characteristics of the mothers/caretakers and the children, knowledge, attitudes, and practices; an association between sociodemographic and childhood immunization. Bivariate analysis of sociodemographic and knowledge, bivariate analysis of sociodemographic and attitude, and bivariate analysis of sociodemographic and practice-related association. A multivariate analysis associated with knowledge, attitude, and practices of mothers towards children under 5 years of age in Awach health Centre IV.

### **4.1.Sociodemographic characteristics of the mothers/caregivers**

One hundred sixteen (N=116) mothers and caregivers were enrolled in the study. The majority of the participants (98.3%) were mothers to children. The highest population of respondents 67 (57.8%) were within the age group of 20 to 30 years. The mean age was 25 years (SD±5.86). The minimum number of children under 5 years was 1 and the maximum was 4. Most of the participants 86 (74.1%) had 1-3 children and 25.6% had more than three children. The majority of the respondents (62%) were catholic while 83 (71.6%) were housewives. The majority (58.6%) of the respondents had attended formal primary level and 105 (90.5%) were residence in rural (villages) of Awach in Gulu district.



**Table 4.1: Sociodemographic characteristics of mothers/caretakers at Awach Health Centre IV, Gulu District**

| <b>Variable</b>                    | <b>Frequency<br/>(N=116)</b> | <b>Percentage<br/>(%)</b> |
|------------------------------------|------------------------------|---------------------------|
| <b>Age category</b>                |                              |                           |
| <20                                | 23                           | 19.8                      |
| 20-30                              | 67                           | 57.8                      |
| >30                                | 26                           | 22.5                      |
| <b>Relationship with the child</b> |                              |                           |
| Mother                             | 114                          | 98.3                      |
| Caretaker                          | 2                            | 1.7                       |
| <b>Number of children</b>          |                              |                           |
| 1-3 children                       | 86                           | 74.1                      |
| 4-6 children                       | 23                           | 19.8                      |
| >6 children                        | 7                            | 6                         |
| <b>Marital status</b>              |                              |                           |
| Single                             | 26                           | 22.4                      |
| Married                            | 83                           | 71.6                      |
| Divorced                           | 7                            | 6                         |
| <b>Level of education</b>          |                              |                           |
| Primary                            | 68                           | 58.6                      |
| Secondary                          | 42                           | 36.2                      |
| Tertiary                           | 4                            | 3.4                       |
| no school                          | 2                            | 1.7                       |
| <b>Occupation</b>                  |                              |                           |
| house wife                         | 84                           | 72.4                      |
| Self-employed                      | 24                           | 20.7                      |
| Professional                       | 8                            | 6.9                       |
| <b>Religion</b>                    |                              |                           |
| Catholic                           | 72                           | 62.1                      |
| Moslem                             | 2                            | 1.7                       |
| Protestant                         | 39                           | 33.6                      |
| Others                             | 3                            | 2.6                       |
| <b>Residence</b>                   |                              |                           |
| Urban                              | 11                           | 9.5                       |
| Rural                              | 105                          | 90.5                      |

## Source of information about immunization

The majority of the mothers/caretakers received information about immunization from 1 source 85 (73.3%) while the remaining participants received two 20 (17.2%) and three sources 11 (9.5%). As illustrated in the figure below, most participants received information about immunization from the hospital (73 participants) or the health care worker (64). Only a few participants heard from the radio (8), the television (6), or from friends and relatives (7).

## 4.2.Socio-demographics of the children

A total of 116 children were enrolled in the study, the majority 62(53.4%) were female. Most of the children were within the age group of 3 to 9 months 41 (35.3%). The minimum age of children was 1 day and the maximum was 88 weeks (1 year and 6 months). The mean age was 18.6 weeks (SD  $\pm$  6.8). Majority 102 (87.9) were between (1 to 5) of birth order, the minimum was 1 and the maximum was 10. The mean birth order was 2.8 (SD  $\pm$ 2.1) (Table 2).

**Table 4.2: Socio-demographic characteristics of children to mothers/caretakers at Awach health center IV**

|                    | Frequency (N=116) | Percent (%) |
|--------------------|-------------------|-------------|
| <b>child age</b>   |                   |             |
| <3 months          | 48                | 41.4        |
| 3 to 9 months      | 41                | 35.3        |
| >9 months          | 27                | 23.3        |
| <b>Sex</b>         |                   |             |
| Male               | 54                | 46.6        |
| Female             | 62                | 53.4        |
| <b>birth order</b> |                   |             |
| 1 to 5             | 102               | 87.9        |
| 6 to 10            | 14                | 12.1        |

### **4.3. Knowledge of mothers/caregivers towards immunization of children under 5 years at Awach Health Centre IV, Gulu District**

Knowledge of mothers/caretakers towards immunization of children under 5 years of age was assessed using 10 knowledge items on importance of immunization and immunizable diseases. Majority of the respondents were aware that immunization can prevent infectious diseases (89.7%), maintain child health (88.8%) and reduce child mortality rate (71.6%). Regarding knowledge about immunizable diseases, majority of the respondents were aware that measles 94 (81.0%), polio 99 (85.3%), diphtheria, tetanus, and pertussis (DPT) 77(66.4%) can be controlled by routine childhood immunization. However, majority of the respondents were not aware that diarrhea 73 (62.9%), Tuberculosis 64 (55.2%) and hepatitis B virus, 86 (74.1%) can be controlled by routine immunization.

The total Knowledge score was calculated by assigning 1 to a correct response and 0 to an incorrect response and summing up the scores for each participant. The minimum knowledge score was 2 and the maximum was 10. The mean score was 6.31 (SD = 1.9). Knowledge was graded basing on blooms cut off of 80%, with a score  $\geq 8$  considered sufficient knowledge and  $<8$  considered insufficient knowledge. Majority of mothers/caretakers (73.3%) had insufficient knowledge towards immunization.

**Table 4.3: knowledge of mothers/caretakers about immunization of children under 5 years at Awach Health Centre IV, Gulu District**

| <b>Knowledge item Assessed</b>                   | <b>Frequency (N = 116)</b> | <b>Percent (%)</b> |
|--|----------------------------|--------------------|
| <b>Knowledge on the benefits of immunization</b> |                            |                    |
| <b>Can prevent infectious diseases</b>           |                            |                    |
| False  | 12                         | 10.3               |
| True   | 104                        | 89.7               |
| <b>maintains child health</b>                    |                            |                    |
| False  | 13                         | 11.2               |
| True   | 103                        | 88.8               |
| <b>reduces child mortality rate</b>              |                            |                    |
| False  | 33                         | 28.4               |
| True   | 83                         | 71.6               |
| <b>Knowledge about immunizable diseases</b>      |                            |                    |
| <b>Measles</b>                                   |                            |                    |
| False  | 22                         | 19                 |
| True   | 94                         | 81                 |
| <b>Tuberculosis</b>                              |                            |                    |
| False  | 64                         | 55.2               |
| True   | 52                         | 44.8               |
| <b>Polio</b>                                     |                            |                    |
| False  | 17                         | 14.7               |
| True   | 99                         | 85.3               |
| <b>Pneumonia</b>                                 |                            |                    |
| False  | 69                         | 59.5               |
| True   | 47                         | 40.5               |
| <b>Diarrhoea</b>                                 |                            |                    |
| False  | 73                         | 62.9               |
| True   | 43                         | 37.1               |
| <b>Dpt</b>                                       |                            |                    |
| False  | 39                         | 33.6               |
| True   | 77                         | 66.4               |
| <b>Hbv</b>                                       |                            |                    |
| False  | 86                         | 74.1               |
| True   | 30                         | 25.9               |
| <b>grade of knowledge</b>                        |                            |                    |
| insufficient knowledge                           | 85                         | 73.3               |
| sufficient knowledge                             | 31                         | 26.7               |
| <b>Total</b>                                     | <b>116</b>                 | <b>100</b>         |

#### **4.4. Attitudes of mothers /caregivers towards immunization of children below 5 years at Awach Health Centre IV, Gulu District**

Attitudes towards immunization was examined using a 5-point attitude scale on the positive and the negative attitudes. Regarding positive attitudes, majority of participants agreed that vaccination is safe (66.6%), must be given according to the schedule (58.6%) and can recommend others to vaccinate their children (62.9%). Regarding negative attitudes, 33.3% agreed that vaccines has severe side effects, while 46.6% disagreed that side effects of vaccines can cause death. Most of the respondents strongly disagreed that vaccination is more important for boys than girls (44.8%).

The attitude items were scored from 1 to 5 for positive attitudes and 5 to 1 for negative attitudes and the mean score of each individual was calculated. The minimum and the maximum respectively were 2.91 and 5, while the mean score was 3.92 (SD = 0.38). Attitude was graded using the blooms cut-off of 80%, with an overall score  $\geq 4$  graded favorable knowledge and  $< 4$  as unfavorable attitude. Majority of participants (53.4%) had unfavorable attitudes towards immunization of children under 5 years.

**Table 4.4: Attitudes of mothers /caregivers towards immunization of children below 5 years at Awach Health Centre IV, Gulu District**

| <b>Attitude item</b>  | <b>SD (%)</b> | <b>D (%)</b> | <b>UC (%)</b> | <b>A (%)</b> | <b>SA (%)</b> |
|---|---------------|--------------|---------------|--------------|---------------|
| <b>positive attitudes</b>   |               |              |               |              |               |
| vaccination is important  | -             | -            | 1(0.9)        | 74(63.8)     | 41(35.3)      |
| vaccination is safe   | -             | 2(1.7)       | 9(7.8)        | 77(66.4)     | 28(24.1)      |
| vaccination is the best for each infant                                     | -             | 4(3.4)       | 17(14.7)      | 71(61.2)     | 24(20.7)      |
| recommend others to vaccinate their children                                | -             | 6(5.2)       | 10(8.6)       | 73(62.9)     | 27(23.3)      |
| vaccination must be given according to the schedule                         | -             | 6(5.2)       | 24(20.7)      | 68(58.6)     | 18(15.5)      |
| vaccination is effective in the prevention of infectious diseases           | 2(1.7)        | 8(6.9)       | 14(12.1)      | 78(67.2)     | 14(12.1)      |
| vaccination reduces the mortality rate                                      | 2(1.7)        | 11(9.5)      | 23(19.8)      | 59(50.9)     | 21(18.1)      |
| <b>Negative attitudes</b>   |               |              |               |              |               |
| vaccines have severe side effects   | 28(24.1)      | 25(21.6)     | 13(11.2)      | 39(33.6)     | 11(9.5)       |
| infants get infected with the disease that they have been immunized against | 27(23.3)      | 50(43.1)     | 26(22.4)      | 9(7.8)       | 4(3.4)        |
| side effects of vaccines can cause death                                    | 44(37.9)      | 54(46.6)     | 10(8.6)       | 6(5.2)       | 2(1.7)        |
| vaccination is more important for boys than girls                           | 52(44.8)      | 41(35.3)     | 15(12.9)      | 3(2.6)       | 5(4.3)        |

**Abbreviations:** SD, Strongly disagree; D, Disagree; UC, Uncertain; A, Agree; SA, Strongly Agree.

#### 4.5. Practices of mothers/caretakers towards immunization of children under 5 years at Awach Health Centre IV, Gulu District

Three items adopted from the child immunization card examined practice towards immunization. Participants were asked the date of first immunization, whether immunization of their child is up to date and whether they missed any vaccine. Most of the child's immunization were up to date (87.9%) and the majority did not miss any immunization (89.7%). The minimum age of first immunization was 1 day and the maximum was 30 days. The mean age of first immunization was 5.7 days (SD  $\pm$ 5.6). Majority of children (76.7%) received the first immunization beyond 1 day. A minority (10.3%) of the Children missed one vaccine of Bacilli Calmette Guerin (BCG).

The total practice score was calculated by a assigned 1 to a correct response and 0 to an incorrect one and summing the scores. The minimum and maximum score of practice was 0 and 3 respectively and the mean score was 2.01 (SD = 0.8). Practice was graded basing on the blooms cut-off of 80% into good practice (with a score  $\geq$ 2.4) and poor practice (with a score of  $<$ 2.4). Majority of participants (77.6%) had poor practice towards immunization.

**Table 4.5: Practices of mothers/caretakers towards immunization of children under 5 years of age at Awach Health Centre IV, Gulu district**

| <b>Practice item</b>  | <b>Frequency<br/>(N = 116)</b> | <b>Percent<br/>(%)</b> |
|---|--------------------------------|------------------------|
| <b>Age of first immunization</b>  |                                |                        |
| Not at birth  | 89                             | 76.7                   |
| at birth  | 27                             | 23.3                   |
| <b>is the child's immunization up to date</b>                                   |                                |                        |
| No  | 14                             | 12.1                   |
| Yes   | 102                            | 87.9                   |
| <b>has the child missed any vaccines<br/>as per their immunization schedule</b> |                                |                        |
| Yes   | 12                             | 10.3                   |
| No  | 104                            | 89.7                   |
| <b>Grade of practice</b>  |                                |                        |
| Poor  | 90                             | 77.6                   |
| Good  | 26                             | 22.4                   |
| <b>Total</b>  | <b>116</b>                     | <b>100</b>             |

#### **4.6. Bivariate and multivariate analysis of the association of sociodemographic characteristics with the knowledge of mothers/caregivers towards immunization of children under 5 years**

In bivariate analysis, participants who had a secondary level of education or higher were 5.34 times more likely to have a sufficient knowledge towards immunization of children under 5 years compared to participants with primary level of education or lower (COR = 5.34; 95% CI = 2.19-12.98;  $p = 0.000$ ). Similarly, professionals were 10.26 times more likely to have a sufficient knowledge towards immunization of children under 5 years than housewives (COR = 10.26; 95% CI = 1.91-55.07;  $p=0.007$ )

Multivariate analysis was performed to control for confounders only for the independent variables that were statistically significant at the bivariate analysis with a p-value of less than 0.05. The variables were jointly analyzed to attain adjusted odds ratios. The variable included were, participants level of education and occupation. Variables that were statistically significant with  $p<0.05$  in the final model were kept.

Participants who had a secondary level of education or higher were 4.28 times more likely to have sufficient knowledge towards immunization of children under 5 years than participants who had a primary level of education or lower (AOR= 4.28; 95% CI = 1.65-11.13;  $p = 0.003$ ).



**Table 4.6: Bivariate and multivariate analysis of the association of sociodemographic with the knowledge of mothers/caregivers towards immunization of children under 5 years**

|                                    | Sufficient knowledge |     | COR (95% CI)       | p-value | AOR (95% CI)             | p-value       |
|------------------------------------|----------------------|-----|--------------------|---------|--------------------------|---------------|
|                                    | No                   | Yes |                    |         |                          |               |
| <b>level of education</b>          |                      |     |                    |         |                          |               |
| primary or lower                   | 61                   | 10  | Ref.               |         | Ref.                     |               |
| Secondary or higher                | 24                   | 21  | 5.34 (2.19-12.98)  | 0.000*  | <b>4.28 (1.65-11.13)</b> | <b>0.003*</b> |
| <b>Occupation</b>                  |                      |     |                    |         |                          |               |
| house wife                         | 65                   | 19  | Ref.               |         | Ref.                     |               |
| self employed                      | 18                   | 6   | 1.14 (0.4-3.28)    | 0.807   | -                        | -             |
| Professional                       | 2                    | 6   | 10.26 (1.91-55.07) | 0.007*  | 4.15 (0.71-24.3)         | 0.114         |
| <b>Religion</b>                    |                      |     |                    |         |                          |               |
| Catholic                           | 53                   | 19  | Ref.               |         |                          |               |
| Moslem                             | 1                    | 1   | 2.789 (0.17-46.84) | 0.476   |                          |               |
| Protestant                         | 30                   | 9   | 0.84 (0.34-2.08)   | 0.701   |                          |               |
| Others                             | 1                    | 2   | 5.58 (0.48-65.11)  | 0.17    |                          |               |
| <b>Residence</b>                   |                      |     |                    |         |                          |               |
| Urban                              | 7                    | 4   | Ref.               |         |                          |               |
| Rural                              | 78                   | 27  | 0.61 (0.16-2.23)   | 0.451   |                          |               |
| <b>relationship with the child</b> |                      |     |                    |         |                          |               |
| Mother                             | 84                   | 30  | Ref.               |         |                          |               |
| Caretaker                          | 1                    | 1   | 2.8 (0.17-46.18)   | 0.472   |                          |               |
| <b>sex of the child</b>            |                      |     |                    |         |                          |               |
| Male                               | 37                   | 17  | Ref.               |         |                          |               |
| Female                             | 48                   | 14  | 0.64 (0.28-1.45)   | 0.282   |                          |               |
| <b>birth order</b>                 |                      |     |                    |         |                          |               |
| 1 to 5                             | 74                   | 28  | Ref.               |         |                          |               |
| 5 to 10                            | 11                   | 3   | 0.72 (0.19-2.78)   | 0.634   |                          |               |
| <b>marital status</b>              |                      |     |                    |         |                          |               |
| Single                             | 22                   | 4   | Ref.               |         |                          |               |
| Married                            | 63                   | 27  | 2.36 (0.74-7.5)    | 0.146   |                          |               |
| <b>mothers age</b>                 |                      |     |                    |         |                          |               |
| <25 years                          | 45                   | 17  | Ref.               |         |                          |               |
| ≥ 25 years                         | 40                   | 14  | 0.93 (0.41-2.12)   | 0.856   |                          |               |
| <b>number of children</b>          |                      |     |                    |         |                          |               |
| 1 to 3 children                    | 62                   | 24  | Ref.               |         |                          |               |
| > 3 children                       | 23                   | 7   | 0.79 (0.3-2.07)    | 0.626   |                          |               |

| <b>child age</b> |    |    |                  |       |   |   |
|------------------|----|----|------------------|-------|---|---|
| <3 months        | 39 | 9  | Ref.             |       |   |   |
| 3 to 9 months    | 27 | 14 | 2.25             | 0.102 | - | - |
| >9 months        | 19 | 8  | 1.83 (0.61-5.48) | 0.284 |   |   |

Note: \* Indicates statistical significance at p <0.05

Abbreviations: **COR**, Crude Odds Ratios; **AOR**, Adjusted Odds Ratio, **CI**, Confidence Interval; **Ref.**, Reference.

#### **4.7. Bivariate and multivariate analysis of the association of sociodemographic characteristics and attitude towards immunization of children under five years in Awach health Centre IV**

In bivariate data analysis, participants whose children were male were 3.07 times more likely to have a favorable attitude towards immunization of children under 5 years than participants whose children were girls (COR = 3.07; 95% CI = 1.44 - 6.55; p=0.004). Similarly, married participants were 2.97 times more likely to have a favorable attitude towards immunization of children under 5 years than single participants (COR= 2.97; 95% CI = 1.14 -14.75; 0.026).

In multivariate data analysis, mothers/caretakers whose children were boys were 3.67 times more likely to have a favorable attitude towards immunization of children under 5 years than mothers/caretakers whose children were girls (AOR = 3.67; 95% CI = 1.55-8.65; p = 0.003). Finally, married mothers/caregivers were 4.28 times more likely to have a favorable attitude towards immunization of children under 5 years than single mothers/caretakers (AOR = 4.28; 95% CI = 1.46-12.51; p=0.008).

**Table 4.7: Bivariate and multivariate analysis of the association of socio-demographics and attitude towards immunization of children under five years in Awach health Centre IV**

| Variable                           | Favourable attitude |     | COR (95% CI)      | p-value | AOR (95% CI)             | p-value       |
|------------------------------------|---------------------|-----|-------------------|---------|--------------------------|---------------|
|                                    | No                  | Yes |                   |         |                          |               |
| <b>level of education</b>          |                     |     |                   |         |                          |               |
| primary or lower                   | 42                  | 29  | Ref.              |         | Ref.                     |               |
| Secondary or higher                | 20                  | 25  | 1.81 (0.85-3.85)  | 0.123   | 1.48 (0.64-3.4)          | 0.362         |
| <b>Occupation</b>                  |                     |     |                   |         |                          |               |
| house wife                         | 47                  | 37  | Ref.              |         |                          |               |
| self employed                      | 12                  | 12  | 1.27 (0.51-3.15)  | 0.606   |                          |               |
| Professional                       | 3                   | 5   | 2.12 (0.48-9.44)  | 0.325   |                          |               |
| <b>Religion</b>                    |                     |     |                   |         |                          |               |
| Catholic                           | 39                  | 33  | Ref.              |         |                          |               |
| Moslem                             | 1                   | 1   | 1.18 (0.07-19.64) | 0.907   |                          |               |
| Protestant                         | 22                  | 17  | 0.91 (0.42-2)     | 0.821   |                          |               |
| Others                             | 0                   | 3   | –                 | 0.999   |                          |               |
| <b>Residence</b>                   |                     |     |                   |         |                          |               |
| Urban                              | 7                   | 4   | Ref.              |         |                          |               |
| Rural                              | 55                  | 50  | 1.59 (0.44-5.76)  | 0.479   |                          |               |
| <b>relationship with the child</b> |                     |     |                   |         |                          |               |
| Mother                             | 61                  | 53  | Ref.              |         |                          |               |
| Caretaker                          | 1                   | 1   | 1.15 (0.07-18.85) | 0.922   |                          |               |
| <b>sex of the child</b>            |                     |     |                   |         |                          |               |
| Male                               | 21                  | 33  | 3.07 (1.44-6.55)  | 0.004*  | <b>3.67 (1.55-8.65)</b>  | <b>0.003*</b> |
| Female                             | 41                  | 21  | Ref.              |         | Ref.                     |               |
| <b>birth order</b>                 |                     |     |                   |         |                          |               |
| 1 to 5                             | 56                  | 46  | Ref.              |         |                          |               |
| 5 to 10                            | 6                   | 8   | 1.62 (0.53-5.02)  | 0.4     |                          |               |
| <b>marital status</b>              |                     |     |                   |         |                          |               |
| Single                             | 19                  | 7   | Ref.              |         | Ref.                     |               |
| Married                            | 43                  | 47  | 2.97 (1.14-7.75)  | 0.026*  | <b>4.28 (1.46-12.51)</b> | <b>0.008*</b> |
| <b>mothers age</b>                 |                     |     |                   |         |                          |               |
| <25 years                          | 36                  | 26  | Ref.              |         |                          |               |
| ≥ 25 years                         | 26                  | 28  | 1.49 (0.72-3.11)  | 0.286   |                          |               |
| <b>number of children</b>          |                     |     |                   |         |                          |               |
| 1 to 3 children                    | 48                  | 38  | Ref.              |         |                          |               |
| > 3 children                       | 14                  | 16  | 1.44 (0.63-3.32)  | 0.388   |                          |               |
| <b>child age</b>                   |                     |     |                   |         |                          |               |
| <3 months                          | 29                  | 19  | Ref.              |         | Ref.                     |               |

|               |    |    |                  |       |                 |       |
|---------------|----|----|------------------|-------|-----------------|-------|
| 3 to 9 months | 21 | 20 | 1.45 (0.63-3.38) | 0.384 | -               | -     |
| >9 months     | 12 | 15 | 1.91 (0.74-4.96) | 0.185 | 1.42 (0.5-4.01) | 0.511 |

Note: \* Indicates statistical significance at  $p < 0.05$

Abbreviations: **COR**, Crude Odds Ratios; **AOR**, Adjusted Odds Ratio, **CI**, Confidence Interval; **Ref.**, Reference.

#### **4.8. Bivariate analysis of sociodemographic and practices towards immunization of children under five years in Awach health Centre IV**

There was no statistical significance between sociodemographic characteristics and the practice of participants towards immunization

**Table 4.8: Bivariate analysis of the association of sociodemographic and practices towards immunization of children under five years in Awach health Centre IV**

| Variable                           | Grade of practice |      | COR (95% CI)      | p-value |
|------------------------------------|-------------------|------|-------------------|---------|
|                                    | poor              | good |                   |         |
| <b>level of education</b>          |                   |      |                   |         |
| primary or lower                   | 56                | 15   | 1                 |         |
| Secondary or higher                | 34                | 11   | 1.21 (0.5-2.93)   | 0.677   |
| <b>Occupation</b>                  |                   |      |                   |         |
| house wife                         | 67                | 17   | 1                 |         |
| self employed                      | 18                | 6    | 1.31 (0.45-3.82)  | 0.616   |
| Professional                       | 5                 | 3    | 2.37 (0.51-10.89) | 0.269   |
| <b>Religion</b>                    |                   |      |                   |         |
| Catholic                           | 56                | 16   | 1                 |         |
| Moslem                             | 2                 | 0    | 0                 | 0.999   |
| Protestant                         | 29                | 10   | 1.21 (0.49-2.99)  | 0.685   |
| Others                             | 3                 | 0    | 0                 | 0.999   |
| <b>Residence</b>                   |                   |      |                   |         |
| Urban                              | 8                 | 3    | 1                 |         |
| Rural                              | 82                | 23   | 0.75 (0.18-3.05)  | 0.685   |
| <b>relationship with the child</b> |                   |      |                   |         |
| Mother                             | 89                | 25   | 1                 |         |
| Caretaker                          | 1                 | 1    | 3.56 (0.22-58.96) | 0.375   |
| <b>sex of the child</b>            |                   |      |                   |         |
| Male                               | 45                | 9    | 1                 |         |
| Female                             | 45                | 17   | 1.89 (0.76-4.68)  | 0.17    |
| <b>marital status</b>              |                   |      |                   |         |
| Single                             | 20                | 6    | 1                 |         |
| Married                            | 70                | 20   | 0.95 (0.34-2.69)  | 0.927   |
| <b>mothers age</b>                 |                   |      |                   |         |
| <25 years                          | 49                | 13   | 1                 |         |
| ≥ 25 years                         | 41                | 13   | 1.1 (0.5-2.86)    | 0.689   |
| <b>number of children</b>          |                   |      |                   |         |
| 1 to 3 children                    | 66                | 20   | 1                 |         |
| > 3 children                       | 24                | 6    | 0.83 (0.3-2.3)    | 0.713   |
| <b>child age</b>                   |                   |      |                   |         |
| <3 months                          | 33                | 15   | 1                 |         |
| 3 to 9 months                      | 34                | 7    | 0.45 (0.16-1.25)  | 0.127   |
| >9 months                          | 23                | 4    | 0.38 (0.11-1.3)   | 0.124   |

## CHAPTER FIVE: DISCUSSION

### 5.0.Introduction

This chapter examines the findings of the study to the existing literature in a similar context. The chapter is sectioned following the proposed objectives of the study and an examination of the findings of each objective. The aim of this study was to assess the knowledge, attitudes, and practices of mothers/caregivers towards immunization of children under 5 years at Awach Health Centre IV, Gulu District. In addition, the study also determined the association of sociodemographic characteristics and the mothers/caretakers' knowledge, attitudes and practices towards immunization of children under 5 years. The study revealed that majority of participants had insufficient knowledge (73.3%), while 53.4% had unfavorable attitudes and only 22.4% had good practices towards immunization of children under 5 years.

### 5.1.Knowledge of mothers about immunization of children under 5 years

The knowledge of the respondents was measured using whether the respondents had heard about immunization could prevent infectious diseases, maintain child health, reduces the child mortality and the knowledge about vaccine-preventable diseases.

The knowledge of immunization of children for the majority of the respondents (73.3%) was insufficient. This is lower compared with study in Egypt at 89.2% (Ahmed SM, 2013), and, Saudi Arabia at 87.2% (Habib RF, 2018), and higher in studies in Nepal at 72.7%, Nigeria at 72% (Adefolalu, Kanma-Okafor, & Balogun, 2019), and India 72.7% (Kumar PRT, 2018). The findings are also higher than those of studies done in Egypt 31.2% (Ramadan HA, 2016), South India 50.43% (Sankar BK, 2018), and Lithuania 36.3% (Šeškute M, 2018). The inconsistency may be due to differences in socio-demographic characteristics, sample size, study setting, and/or educational backgrounds of the participants and their occupations. These results could be attributed to the fact that the majority of the respondents were in rural areas with insufficient level education and were unable to understand immunization. This was supported by a study conducted in North west Ethiopia which revealed that Parents who were in secondary or higher level of education were 2.788 folds more likely to be knowledgeable about childhood immunization than primary or lower level. (Gebreyesus et al., 2021). It was also further demonstrated in studies done in Egypt (Ahmed SM, 2013), Nigeria (Chris-Otubor GO, 2015),



Malaysia (Awadh AI, 2014), and India (Mugada V, 2017). Another probable reason for these results is absence of sensitization and education of others/caregivers on the benefits of immunization and vaccine-preventable diseases during routine immunization services. Lastly, the lack of sensitization and community outreaches about immunization could also be a significant reason behind the results.

Most respondents had about immunization from the hospitals (46.2%) and healthcare personnel (40.5%), This is similar to findings of a study done in Nigeria where the major source of information was ante-natal clinics (Odia, Okafor, & Roberts, 2015). This indicates that health workers should be empowered and encouraged to educate the population on immunization practices. Communication channels like radios and tv stations should also be routinely employed to provide information about immunization. This is because these means have greater population coverage.

Ministry of health provides routine immunization for several childhood diseases, including polio, measles, tuberculosis, pneumonia, hepatitis, diarrhea, diphtheria, tetanus and whooping cough. In this study however, the recognizable immunization-preventable diseases by most of the respondents were polio (85.3%), measles (81.0%), and diphtheria, tetanus, and whooping cough diseases (66.4%). These results are comparable to a study in Sudan (84.8% knew polio, 65% knew measles, and 65.2% knew DPT) (Mohammed & Al-Zahrani, 2021), and in Rural Uganda (81.3% knew polio, while 77.5% knew measles (Bryan J et al., 2016). The probable reason for the results in this study is because the effects of polio and measles were more visible than other immunizable diseases like Hepatitis B and Tuberculosis (Odia et al., 2015). Another probable reason could be that there have been more outbreaks of polio and measles within communities and individuals are usually familiar with them. The results also show that some respondents were not aware that pneumonia (59.5%) and diarrhea (62.9%) were controlled by routine immunizations. This has implications for pneumonia and diarrhea control since they are significant causes of mortality among children below 1 year in Uganda.

### **5.1.2. Association of sociodemographics and mothers/caregivers' knowledge towards immunization of children under 5 years**

The results showed that mothers/caregivers who had secondary and higher level of education were 4.28 times more likely to have a good knowledge about immunization than housewives.

This result is consistent with a study in Sudan (Mohammed & Al-Zahrani, 2021), and . These results are probably attributed to the fact that women with secondary or higher level of education have higher knowledge about immunization and therefore the perceived benefits of immunization. This has been illustrated in a study which showed that parents who had tertiary level of education were 5.33 times more likely to have a good knowledge about immunization than parents who did not study (Gebreyesus et al., 2021).

## **5.2. Attitude of mothers towards immunization of children under 5 years**

The attitude towards immunization was measured using the respondents' behaviours, views, and thinking about immunization. Positive attitudes towards immunization motivate mothers/caretakers to go for immunization services. The positive attitudes assessed in this study involved if immunization is important, is safe, the best for every child, recommended for every child, should be given according to schedule, and is effective in preventing infectious diseases. In this study, the majority of participants agreed that vaccination is important (63.8 %), vaccination is safe (66.4%), and is the best for every child (61.2%). Moreover, 35%, 42.1% and 20.7% respectively strongly agreed to the attitudes questions. This findings are similar to study in Namuwongo, Uganda (IMMACULATE, 2011). The results were however higher than those of a study in Sudan which reported that 58.1% agreed that vaccination is important, while only 52.9% agreed vaccination is safe (Mohammed & Al-Zahrani, 2021). Another study reported that 95% of mothers agreed that vaccination is beneficial (Wedad M et al., 2021).

Negative attitudes predispose to a poor practice towards immunization of children less than 5 years. This has been shown in, for example, numerous studies that mothers with negative attitudes tend to fear and therefore be reluctant in taking their children for immunization. In this study, however, majority of mothers disagreed or strongly disagreed that infants are infected with the disease that they are immunized against (66.4%), side effects of vaccines cause death (84.5%) and vaccination is more important for boys than girls (80.1%). These results are higher than in a similar study in Sudan which reported that only 4.8% disagreed that infants get infected with the diseases they have been immunized against, 33.3% disagreed that vaccines cause death, while only 4.8% disagreed that vaccination is important for boys than girls (Mohammed & Al-Zahrani, 2021). Another contrasting finding was seen in Pakistan, which showed a negative

attitude towards immunization among the parents who had taken their children for immunization (Asim M, et al, 2012). The parents claimed that immunization had various side effects. The fact that the side effects were reported in this study the advantages of immunization outweighed the side effects

In the current study, the majority of participants (53.4%) had unfavourable attitudes toward immunization. This is similar to finding in a study in Sudan (Mohammed & Al-Zahrani, 2021) . The unfavorable attitudes towards immunization observed in this study was probably attributed to low levels of education observed in the majority of the respondents. This was shown by one study in which showed that respondents who attended primary and secondary school were less likely to have a favorable attitude towards immunization than parents who attended higher education (GebreEyesus et al., 2021). This was further supported by the study done in Malaysia (Aziz S, 2019) and Europe (Stefanoff P, 2010). The reason behind this association might be that educated parents may have more opportunities to understand vaccination and its benefit than illiterate parents and this may create a favorable attitude toward infant immunization than illiterates. Besides, this education level has an impact on parents' beliefs and attitudes, and the higher the education level, the higher the acceptance level among the parents and the more positive their attitude toward the acceptance of vaccination (GebreEyesus et al., 2021).

The poor attitudes towards immunization observed in this study can also be attributed to poor knowledge observed among respondents. The effect of knowledge on attitudes towards immunization was demonstrated in a study done in Ethiopia where respondents who had good knowledge about infant immunization were 4.592 times more likely to have a favorable attitude towards infant immunization than their counterparts (GebreEyesus et al., 2021). Adequate knowledge helps to address the negative beliefs of participants hence improving their attitudes toward immunization. These results should thus act as benchmarks for improving attitudes towards immunization in different communities in Uganda.

### **5.2.2. Association between sociodemographics and mothers/caregivers' attitudes towards immunization of children under 5 years**

This study revealed that having a male child was about four times likely to attribute to the mothers /caregivers' attitude towards childhood immunization compared to those with female children. This can be seen as a misconception that can either have a source of influence or a

deliberative Processes as reported by a study conducted in Alberta, where mothers' levels of conviction and motivation provided a context for understanding their decision making perspectives pertaining immunization (McNeil et al., 2019)

The results also showed that mothers/caregivers whose children were male were 3.67 times more likely to have a favorable attitude towards immunization of children under 5 years and those whose children were female. A possible reason for this are the socio cultural factors, in which the society usually prefers the health of boys to girls. This may also show that parents may be less likely to take girls for immunization services, and therefore girls may be less likely to initiate and complete their immunization. This gender difference suggests a higher risk of mortality, especially girls, in the future from immunizable diseases. Thus, health care workers and the ministry of health are entitled to offset interventions to solve the persistence in the gender differentials in immunization.

In this study, mothers/caregivers who were married were about four times more likely to have a favorable attitude towards immunization than the single ones. This is similar to these studies (Kuroda et al., 2022; Ozigbu, Olatosi, Li, Hardin, & Hair, 2022). This is because it is believed that married women are encouraged by their partners to take their children for immunization and they benefit from spousal support since the mothers are left with only the responsibility of nursing the children thus being able to get practice on the vaccination of their children. The results are also comparable to other study in Saudi Arabia (Abduraheem, 2022).

### **5.3. Practices of mothers/caregivers towards immunization of children under 5 years**

The practices of immunization were measured using the immunization schedule where the respondents were asked whether their child's immunization was up-to-date, or whether they had missed any vaccine and the child's first age of immunization. As per the immunization schedule, a newborn is supposed to receive the BCG and oral polio zero (0) vaccines at birth. The findings of this study demonstrated that only 22.4% of the respondents had good practices towards immunization of children under 5 years. These findings are compared to a study in Addis Ababa 84% (Birhanu, Anteneh, Kibie, & Jejaw, 2016), Libya 81% (MAM, 2011), Nigeria 76.6% (Chris-Otubor GO, 2015), Saudi Arabia 77.7% (KM, 2017), and India 90.20% (Sankar BK, 2018).

This study also demonstrated that 76.7% of children did not receive their first vaccination at birth. This is against the UNEPI recommendation that polio and BCG vaccines should be given on the first day of life. In addition, 10.3% of the respondents missed the BCG vaccine within the first week. The results are lower than in another study in Namuwongo, Uganda, which showed that 26 % of the participants missed polio 0 and BCG at birth (IMMACULATE, 2011). This is probably because mothers were weak after delivery and they could not pay enough attention to immunization or some caregivers were not available during delivery therefore they did not know whether it was given or not given. Another probable reason could be the vaccine was out of stock at the time of delivery. The results imply that children either miss these vaccines or receive them late, which might reduce their efficiency in preventing polio and tuberculous disease. This can be an avenue to outbreak for the diseases, which have not be vaccinated for.

As a strength, this study provides good supplementary information for stakeholders who want to undertake any further interventions, for instance at national, regional, community and health facility levels, so that a valid and standardized way for assessing maternal/ caregiver KAP towards infant immunization is ascertained. Furthermore, the study can also be used while conducting future research to find out the effect of the findings listed herein.

Finally, no sociodemographic characteristics were significantly associated with mothers/care givers practices towards immunization of children under 5 years.

#### **5.4. Study limitation**

The study was conducted with small sample size and thus the result should not be generalized to the whole district or country.

The data were collected through self-administered questionnaires. Considering the different educational backgrounds of the participants, this may be subjected to social desirability bias.

## **CHAPTER SIX:-CONCLUSIONS AND RECOMMENDATION**

### **6. Introduction**

This chapter presents conclusions drawn from the study, recommendations, and implications for practice.

#### **6.1. Conclusions**

Despite the fact that majority of participants had insufficient knowledge about infant immunization, most of them received information on immunization from the hospital.

Although most respondents had an unfavorable attitude towards infant immunization, majority of them agreed that vaccination is crucial and safe for the health of the infant. They also showed poor practices in relation to childhood vaccination, although most of the childhood immunization schedules were up to date and a majority number of children did not miss any immunization

Married women/caregivers, secondary or higher level of education of the mothers/ caregivers and as well as the male child were found to be statistically significant predictors of maternal/caregivers' towards childhood immunization. The child's sex (male) and married women/caregivers showed statistical significance with mothers /caretakers' attitude towards childhood immunization, whereas secondary or higher level of education was statistically associated with insufficient knowledge towards childhood immunization.

According to this study, public health education should be intensified to improve the knowledge, attitude, and practice of mothers/caregivers on childhood immunization. Continuous professional development sessions should also be provided to health service providers in hospitals to properly deliver with purpose to shape knowledge and attitude during dissemination of information to mothers/caregivers.

#### **6.2. Recommendations**

The researcher, therefore, draws the following recommendations from this study.

##### **To the Ministry of Health**

The Ministry of Health should improve upon its national sensitization programs aimed at mothers/caregivers of children under 5 years about the importance of immunization as well as the dangers of not fully immunizing their children.

The Ministry of Health should also ensure that all hospitals and health institutions are well facilitated to offer mobile immunization services to bring services near the people and improve coverage and accessibility to the services for those who cannot get to the health facilities.

To ensure adequate supplies of vaccines in order to prevent vaccine stock-outs.

### **Health workers of Awach Health facility**

The attitude of the mothers/caregivers should be boosted by putting more emphasis on the importance of immunization and the dangers of not immunizing children below five years.

The mothers/caregivers should be motivated through community-based health education, to take the children below five years for immunization according to the Uganda immunization schedule and be informed all children has right to be immunized

### **Researcher**

Further studies should be considered using a larger sample size to measure the knowledge, attitude, and practices of children under 5 years over a specified period for the results to be more generalizable

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## APPENDICES

### **Appendix I: Informed Consent form of research participants aged 18 years and above**

**Title of the study:** knowledge, attitude and practices of mothers/caregivers towards immunization of children under 5 years of age in Awach health Centre IV, Gulu district.

#### **Investigators**

Name: Oloya Vincent

Institution: Makerere University

Contact: 0774566196

Email: [vinceoloya@gmail.com](mailto:vinceoloya@gmail.com)

**Study sponsor:** Self-sponsored

#### **Background and rationale of the study.**

Childhood immunization is an important tool for controlling and eliminating life threatening infectious diseases. The ministry of health recommends the provision of accessible, efficient and quality immunization services. The attendance of these immunization services is greatly influenced by the knowledge, attitudes and practices of mothers/caregivers towards immunization of children aged below 5 years. This is because they have the primary obligation of taking these children for immunization. In 2018, moreover, MOH, reported that the coverage of immunization of children is below that planned in the standard development goals. This study therefore intends to examine the knowledge, attitude and practices of mothers/caregivers towards immunization of children under 5 years of age in Awach health Centre IV, Gulu district.

#### **Purpose**

To examine the knowledge, attitudes and practices of mothers/caregivers towards immunization of children aged below 5 years in Awach health center in Gulu District.

#### **Procedures**

Data will be collected in the august 2022 at the study site. Ethical clearance will first be obtained from Awach health Centre IV before accessing the study site. Participants will be selected using the predetermined selection criteria. The selected participants will be approached, described the study and asked to consent. As soon as the participants consent, they will be presented the data collection tool, which they will be required to fill. The participants will be required to take a minimum of about 15 minute to respond to the data collection tool.

**Who will participate in the study?**

This study will involve all mothers/caretakers and their children who attend immunization services at Awach Health Centre IV, Gulu District. All participants who consent to participate in the study

**Risks and discomforts.**

The participant will take off about 15 minutes of their scheduled time to participate in the research study. In addition, there is some sensitive information, which may be asked, and it is unpleasing for the participant to reveal.

**Benefits**

The study intends to identify the gaps in attitude, knowledge and practices towards immunization. Responsible stakeholders can then use these gaps to develop interventions and actions and the problems can be corrected.

Stakeholders can design and implement special actions towards those mothers and their children who are especially at risk of inadequate knowledge, attitude and practices towards immunization. There is though no immediate direct benefit to the participant as in the due course of the study but will be indirectly through their children.

**Cost**

Participation in the study is free and at the will of the participant. Therefore, there will be no extra cost incurred by the participant

**Compensation for participation in the study**

No compensation will be provided to a participant for participating in the study. If any participant is injured during the course of the study, the principal investigator will be responsible for all the expenses to ensure that the participant is treated as expected.

**Reimbursement**

The participant will be found at the static immunization Centre when she has come for treatment or brought the child for routine immunization visit and will only be involved in the study once. No transport costs or refunds will be involved in the study.

**Questions about the study**

Participants with questions regarding or related with the study can ask them be during or immediately after data collection. If the participant requires further clarifications or has other questions, he/she can reach the principal investigator at +256774566196 and

[oloyavincen56@gmail.com](mailto:oloyavincen56@gmail.com).

**Questions about the participants rights**

Participants who have questions regarding their welfare and rights as research participants can have their questions addressed by the MakSHSIRB Ag. Chairperson Dr.Kalidi Rajab on telephone number +256 776798978 or +256 0200903786)

**Dissemination of the study feedback or study findings and progress of the study.**

Copies of this study will be able to be accessed at the records office of Gulu, Library at the Department of Nursing and the Albert cook library, which is situated at the college of health sciences and Makerere University

**Statement of voluntariness.**

Participation in this study is voluntary and participants may join at their own free will, participants also have a right to withdraw from the study at any time and no penalty will be put on her or given.

**Ethical approval of the research study.**

This study has been approved by Makerere University School of Health Sciences Research and Ethics Committee /IRB) which is an accredited Ugandan based Research and Ethics Committee/IRB.

**Confidentially**

The information that will be collected will be kept anonymous and confidential in accordance with the international and local ethical standards governing research involving humans as research participants. My identity will be concealed and my name will not appear anywhere on the coded forms with the information. The study team will be the only one with the authority to access the collected data. However, the School of Health Sciences Research and Ethics Committee and the Uganda National Council for Science and Technology (UNSCT) may have access to private information that identifies the research participants by name where applicable. The filled questionnaire or any other filled data collection form will be kept under strict lock and key, and information on computers will be kept confidential with password protection respectively. For any further questions, I may contact the Chairperson of the School of Health Sciences Research and Ethics Committee (MakSHSREC) on (+256) +256 776798978 / (+256) 0200903786 or Uganda National Council of Sciences and Technology on Tel: (+256)-041-4705500).

**STATEMENT OF CONSENT**

..... Has described to me what is going to be done, the risks, the benefits involved and my rights regarding this study. I have been informed about the study in which I am voluntarily agreeing to take part. In the use of this information, my identity will be concealed. I am aware that I may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

Name of research participant.....Age.....

Signature/thumbprint



Date (DD/MM/YY).....

*(Witness for illiterate and mentally incapacitated or physically handicapped participants who signs with thumbprint should be provided below)*

Name of Witness .....

Signature .....

Date (DD/MM/YY).....

**Appendix II: Data collection tool**

My name is Oloya Vincent, a student of Makerere University. I am carrying out a study to assess the knowledge, attitudes, and practices of mothers towards immunization of children under 5 years of age at Awach Health Centre IV, Gulu district. You have voluntarily consented to participate in the study and all the information you give will be kept confidential.

|             |                   |                           |       |
|-------------|-------------------|---------------------------|-------|
| <b>Date</b> | ...../...../..... | <b>Participant number</b> | ..... |
|-------------|-------------------|---------------------------|-------|

**Instructions**

**1. Please respond/answer all questions asked .2 Please as answer as truthfully as possible**

**Section A: Demographic and Social Characteristics**

1. Age of mother/caretaker.....
- 2) Marital Status
  - a. Single
  - b. Married
  - c. Divorced
- 3) Level of education
  - a. Primary only
  - b. Secondary
  - c. Tertiary
  - d. No schooling
- 4) Occupation
  - a. House wife
  - b. Self employed
  - c. professional
- 5) How many children do you have? .....
- 6) Number of children under 5 years of age.....
- 7) Religion
  - a. Catholic
  - b. Moslem
  - c. Protestant
  - d. Others (Specify).....
- 8) Residence
  - a. Urban
  - b. Rural

Source of information about immunization (Select all that apply)

- a. Health worker
- b. Television
- c. Radio
- d. Hospital



e. Friends and relatives

**Source: (Mohammed & Al-Zahrani, 2021)**

**Section A (ii). Child's socio-demographic characteristics.**

How old is your child.....

Relationship with the child

- a). Mother
- b). Caretaker.

Sex of the child

- a). Male
- b). Female

Birth order of the child .....

**Source: (Gebreyesus et al., 2021)**

**Section B: Tool to assess knowledge of mothers/caregivers towards immunization of children under 5 years of age.** Please respond to the following with either true or false

| <b>Importance of vaccination</b>                              | True(1) | False(0) |
|---|---------|----------|
| Can prevent infectious diseases                               |         |          |
| Maintain child health   |         |          |
| Reduce child mortality rate                                   |         |          |
| <b>Diseases controlled by routine childhood immunization.</b> |         |          |
| Measles   |         |          |
| Tuberculosis  |         |          |
| Polio   |         |          |
| Pneumonia   |         |          |
| Diarrhea  |         |          |
| Diphtheria, tetanus, and whooping cough diseases              |         |          |
| Hepatitis B virus   |         |          |

Source: (Thamir M Alshammari et al., 2018)

**Section C: Attitude Likert scale to assess the attitudes towards immunization of children under 5 years of age.** Please choose from three of the possible responses by ticking strongly agree, agree, uncertain, disagree or strongly disagree under each statement

| <b>Positive attitudes</b>  | Strongly agree(5) | Agree (4) | Uncertain (3) | Disagree (2) | Strongly disagree (1) |
|--|-------------------|-----------|---------------|--------------|-----------------------|
| Vaccination is important   |                   |           |               |              |                       |
| Vaccination is safe  |                   |           |               |              |                       |
| vaccination is the best for each infant                                      |                   |           |               |              |                       |
| Recommend others to vaccinate their children                                 |                   |           |               |              |                       |
| Vaccination must be given according to Schedule                              |                   |           |               |              |                       |
| Vaccination is effective in the prevention of infectious Diseases            |                   |           |               |              |                       |
| Vaccination reduces the mortality rate                                       |                   |           |               |              |                       |
| <b>Negative attitudes</b>  | Strongly agree(1) | Agree (2) | Uncertain (3) | Disagree (4) | Strongly disagree (1) |
| Vaccines have severe side effects  |                   |           |               |              |                       |
| Infants get Infected with the disease which they have been immunized against |                   |           |               |              |                       |
| Side effects of vaccines can cause death                                     |                   |           |               |              |                       |
| Vaccination is more important for boys than girls.                           |                   |           |               |              |                       |

**Source:** (Mohammed & Al-Zahrani, 2021)

**Section D: Tool to assess the practice of mother/caregiver towards immunization of children under 5 years of age.**

**Ask the mother/caretaker to provide the child’s immunization card. Use it to assess the practice by providing responses to the following questions.**

1. At what age did the child get his/her first vaccine.....

2. Is the child's immunization schedule up to date... ..
3. Has the child missed any vaccines as per their immunization schedule.....
4. If yes, how many vaccines have she/he missed? .....

Source :( Uganda immunization child health card, 2016)

*Thank you so much for your participation*

## **APPENDICES Translated In Luo**

### **Appendix I: Yeyo pa dano me mwaki apara boro oceto kede malo**

**Title of the study:** Ngec, neno ki yele pa megii lutino/lugwok lutino i kit me gwer pa lutini me mwaki abic odok kede piny i Awach oyat mi agwen, Gulu District.

**Investigators:** Name: Oloya Vincent

Institution: Makerere University

Contact: 0774566196

Email: [vinceoloya@gmail.com](mailto:vinceoloya@gmail.com)

Study sponsor: Self-sponsored

#### **Background and rationale of the study.**

Gwer pa lutini tye gin ma Pire tek me gengo ki me juko tworo ma tworo rwenyo kwo. Ministry me yot kot cwako yub me gwer ma dano tworo nongo, dok tye pi kare duc ki dok no tye maber pi dano. Gwer man tye gin ma icung ikom pillar me ngec, neno ki tic pa mege lutini I kit me gwer pa lutini me mwaki abic odok kede piny, pien gin gi tye ki katale me cwalo lutini gi ka gwer. I mwaka 2016, Ministry me yot kom, i repote owaco ni gwer pa lutini me mwaki abic odok kede piny obedo lapiny tutwal macolo gamente ono oyube pire. Kwan man dong tye me ngeyo ngec pa dano ikit me gwer, neno gi i kit me gwer ki tic pa megii lutini/lugwok lutini I kit me gwer pa lutini me mwaki abic odok kede piny i Awach Health Center IV, Gulu District.

#### **Me ngeyo**

Me ngeyo matut ikom ngec, neno pa dano, ki tic pa megii lutini/lugwok lutini I kit me agwer pa lutini me mwaki abic odok kede piny i Awach Health Center IV, Gulu District.

#### **Yori me coko data**

Coko data bi time July 2022 Kama Kwan bi bedo iye. Ngongo tworo me me Kwan man ki bi yero gi dok ki bi tito bot gi gin pi kwan man pe winye ma meg-gi. Coko data ki bot Awach health Centre IV bitime ma pwud pe wa ceto Kama Kwan bi bedo iye. Dano Jami onyo tool/form me coko data ki bi miyo bot dano cut ka gin oyer me konyo I kit me coko ngec ma gibi pongo pi dekika ma romo apara bic.

#### **Jo mene matwero gamo lapeny mikwan man**

Kwan man kwako megii lutini/lugwok lutini ki lutini gi ma nongo gwer i Awach Health Centre IV, Gulu District. Jo ducu ma onyutu yeyo gi (consent) me Kwan man gibi pongo lapany me I Kwan man.

#### **Adwogi pa gin ma tye anyim ki bedo agonya.**

Jo ma gibi konyo i Kwan man, bi miyo dekika ma roma apara bic. Kwan man kono tye ki ngec ma pire tek ma omyero pa okat woko.

#### **Faida**

Kwan man dong tye me ngeyo bur i kit pa dano ikom gwer, ngec pa dano ki tic pa dano ikom gwer. Jo ma loyo kit me gwer twero tic ki bur man me kati ki gin ma romo culu bur man dok kit ma peki ma pat pat twero gik. Jo ma loyo kit me gwer twero kati ki yub me konyo megi lutini ki lutini gi ma pe gi tye ki ngec ma oromo ikit me gwer. Jo ma gi bikonyo ikwan man dong kono pe gibinongo bakacik/faida cutcut pien Kwan man bi wok ki bot lutini gi.

### **Yoo mukene**

Pi man, kwan man pe tye ni omyero itim kede i deg, jo ma gibi mine me konyo kwan man tyero kwero me gamo lapeny ma I form kace ginongo pe me gamo ne.

### **Acara**

Mine me konyo i Kwan man bibedo me nono dok bot ngat ma mito. Jo ma gibi mine mi Kwan pe bi cula cul mo pire.

### **Abal kare me mine pe Kwan man**

Cul mo bibedo peke bot ngat ma ojale me konyo i Kwan man. Ka ngat ma ojale me konyo I Kwan man onongo awano, ngat ma tye ka koko information me Kwan man bi culu pi acara duc.

### **Abal kari**

Ngat ma bikonyo pikwan man, omyero obed kama kitimo gwer iye ka en obino kanongo gwer onyo okello latin ka gwer kit me kitimo kare duc, dok bikonyo ikwan man wang kicel keken. Transport onyo dwoko transport mo bidedo peke pi Kwan man.

### **Lapeny**

Ngat mo keken ma tye ki lapeny ma kwako kit me Kwan man tyero penyo ne i kare ma Kwan man bi time onyo cutcut inge tyeko gamo lapeny ma i karatac man. Ka ngat mo mito ngeyo ngec matut onyo tye ki lapeny mo, en twero goyo cim bot ngat malayo pi koko ngec I form man i namba +256774566196 onyo twero coyo e-mail bote, [oloyavincen56@gmail.com](mailto:oloyavincen56@gmail.com)

### **Questions about the participants rights**

Participants who have questions regarding their welfare and rights as research participants can have their questions addressed by the MakSHSIRB Ag. Chairperson Dr. Kalidi Rajab on telephone number +256 776798978 or +256 0200903786)

### **Peny/Nyeyo matut pi cik makwako lugam peny man**

Jo ducu ma tye ki peny i kom twero mameg-gi makwako peny man twero calo peny gi bot MakSHSIRB Ag. Chairperson Dr. Kalidi Rajab I namba +256 776798978 or +256 0200903786)

### **Gin ma dice pe**

Mine me konyo i kwan man be pibedo labongo dic mo. Ngat mo keken twero mine me gamo dok pe me gamo la peny man I kare mo keken. Ngat mo keken ma omine me gamo peny man twero weko gamo peny man ka en mito.

**Gin me mwung**

Ngec ma kwako komi kibi gwoko maber, dok ki bitiyoy kede ikit me Kwan man keken dok ngat mo pi bi ngeyo ni in igamo lapeny man. Ngec madok ikoma dok ki nginga pe bi nen ikaratac onyo kama ngec kitwero poko iye. Jo matye kacoko ngec aye bibedo ki twero me ngiyo onyo neno data/ngec ma kicoko ni. Omyero kono ibed ki ngec ni, School me Health Sciences Research dok ki Ethics Committee dok ki Uganda National Council for Science and Technology (UNSCT) twero bedo ki twero macalo ngeyo in ki nginge.

Jami(Ngec) ma dok I kom lagam peny man kibi gwoko maber kit ma cik mito. Nginga pebededo nen kamo (Pe obikati) keken. Computer ki karatac me kwan man ki bi pwungo dok ki password ma petwero kato woko. Pi lapeny mo keken, I romo miyo ngec bot Chairperson, School of Health Sciences Institutional Review Board (MakSHS-IRB) on (+256) 772-404970 / (+256) 0200903786 / or Uganda National Council of Sciences and Technology. Tel: (+256)-41-250

**Yeyo me mine mi gamo lapeny me Kwan man**

..... Otito bota ngo ma kibi timo, jami ma adwogi ne pen gene, faida me kwan man, dok kitwero na makwako kwan man. Ki ngango an pi Kwan man dok aye me mine pi Kwan man labongo dic mo keken. Dok atye ki ngec ni, atwero weko onyo pe mi mede ma gamo lapeny man icawa mokeken. Itye ki ngec ni, keto cinga I karatac man petwero kwanyo twero ma atye kwede ento ngutu ni kinyanga pi Kwan man. Copy me karatac man ki bi mi na.

Nying lagam lapeny man..... Mwaka ni adi.....

Ket Cingi/Diyo Cing



no dwe (DD/MM/YY).....

*(Ngat ma cung pi jo ma pe twero Kwan dok ki jo ma wigi pe nen mabe onyo joo ma tye ki goro me kom ma keto cingi ki diyone adiya omyero odi cingi piny kany)*

Nying Lacungu .....

Ket Cingi .....

Nino Dwe (DD/MM/YY).....

**Wiye Matidi Me Ariyo: Jami ma konyo koko data**

Nyinga ki lwongo ni, **Oloya Vincent**, Latin kwan me Makerere University. Atye kacoko ngec man me niang pi ngec, kit pa mege ki tic gi ma dok ikit me gwer pa lutini me mwaki abic odok kede piny I Awach ot yat me angwe, Gulu district.

An amine me konyo pe Kwan man, dok ngec mo keken ma imiyo pe bikato woko.

|                 |                   |                    |       |
|-----------------|-------------------|--------------------|-------|
| <b>Nino Dwe</b> | ...../...../..... | <b>Nama Cim Ni</b> | ..... |
|-----------------|-------------------|--------------------|-------|

**Kit ma omyero igam ki peny man**

**1. Dong walegi ni igam lapeny weng ma ki peny**

**2. Dong walegi igam lapeny man ki ngec duc**

**Section A: Ngec ma dok i kom lagam peny man ki kit ma kwo kwede**

Mwaka pa min latin/lagwok... ..

2) Kit me nyom

- a. Pe Anyome
- b. Anyome
- c. Keny wa oketo

3) Okwano ogik i kalac adi

- a. Kwan me kilac acel mecoto wa ikilac abiro keken
- b. Kwan me cinia acel me ceto wa cinia acel
- c. Kwan me tic cing
- d. Pe okwano

5) En tiyo tic ango

- a. Dako Ot
- b. Tic cing
- c. Tic Office

5) Itye ki lutini adi? .....

6) Lutini adi ma mwaki gi tye abic odok kede piny.....?

7) Dini ngo

- a. Katoli
- b. Dini Cilam
- c. Protanti
- d. Ka mukene, coo kany .....

8) Ibedo kwene

- a. Town/Lai
- b. Caro

Onongo ngec nining ikit me gwer (Yer lagam ducu ma rwate)

- a) Lutic me yot
- b) I cinema

- c) Radio
- d) Ot Yat
- e) Lurem ki wadi ni (Friends and relatives)

Source: (Mohammed & Al-Zahrani, 2021)

**Section A (ii).Ngeyo kit pa Latin**

Latin ni tye mwaki adi .....

Ilwongo latini nining

- a). Min Latin
- b). Lagwok Latin.

Latin ango

- a). Awobi
- b). Anyaka

Latin me namba adi.....

Source: (GebreEyesus et al., 2021)

**Section B: Jami me ngeyo ngec pa mege lutini onyo lugwok lutini ikit me kwere pa lutini me mwaki abic odok kede piny**

Walegi ni I gam peny ki “Kakare” onyo “Pe kakare”

| <b>Ber pa Gwer</b>               | <b>Ka Kakare (1)</b> | <b>Pe Kakare (0)</b> |
|----------------------------------|----------------------|----------------------|
| Twero gengo two marac            |                      |                      |
| Gwoko yot kom pa latin           |                      |                      |
| Dwoko piny too marac pa lutitni  |                      |                      |
| <b>Two ma twero juke ki gwer</b> |                      |                      |
| Anyoo                            |                      |                      |
| Aona opiyo                       |                      |                      |
| Two ich akaya                    |                      |                      |
| Lamokojulu ,                     |                      |                      |
| Two mamako dok balo acwiny       |                      |                      |
| kweyo cogo pa dano               |                      |                      |
| Two ma onyo kom,                 |                      |                      |

Source: (Thamir M Alshammari et al., 2018)



**Section C: Ngeyo kit pa dano I kit ma agwera pa lutini me mwaki abic odok kede piny**

Walegi ni iyer acel I kin lagam adek ma miyoni (“aye matek (5)”, “aye (4)”, “pe angeyo (3)”, “pe aye(2)”, “akwero matek (1)”

|  |               |         |               |           |                  |
|--|---------------|---------|---------------|-----------|------------------|
| <b>Neno/Kit ma atir pa dano ma dok ikom gwer</b>       | aye matek (5) | aye (4) | pe angeyo (3) | pe aye(2) | akwero matek (1) |
| Gwer tye gin ma pie tek                                |               |         |               |           |                  |
| Gwer tye labongo ayela mo                              |               |         |               |           |                  |
| Gwer gwoko yot kom pa latin maber                      |               |         |               |           |                  |
| Gwer tye gin maber bot latin mo keken                  |               |         |               |           |                  |
| Dong atito ki dano mukene megwero lutini gu            |               |         |               |           |                  |
| Gwer omyero kitim macalo kat cik me yot kom cimo kwede |               |         |               |           |                  |
| <b>Neno/Kit ma pe atir pa dano ma dok ikom gwer</b>    | aye matek (1) | aye (2) | pe angeyo (3) | pe aye(4) | akwero matek (5) |
| Gwer kelo jami marac I kom dano.                       |               |         |               |           |                  |
| Lutini twero nongo two ma kigwero gi iye               |               |         |               |           |                  |
| Adwogi pa gwer kelo too                                |               |         |               |           |                  |

**Source:** (Mohammed & Al-Zahrani, 2021)

**Section D: Gin tic me ngeyo kit pa megi lutino ikom gwer pa lutini me mwaki abic odok kede piny**

**Peny min latin/lagwok Latin me miyo karatac/card me gwer pa latin. Tii kwede me ngeyo kit ma Meg gi madok I kom gwer.**

1. Latini ongongo gwer me acel ki mwaka adii .....
2. Dong kit me gwer pa latini tye dok rwate ki kare ma omyero obed kwede? ... ..
3. Tika latini okeng gwer mo kit ma cik me gwer cimo kwede .....
4. Ka okeng, agwera adii ma en okeng? .....

*(Apwoyo matek me gamo peny man )*

**APPENDIX III: Estimated Budget**

| <b>1</b> | <b>Stationary</b>                             | <b>Quantity</b> | <b>Unit Price</b> | <b>Total Cost</b> |
|----------|---|-----------------|-------------------|-------------------|
| a        | Photocopying Paper                            | 2 Reams         | 25, 000           | 50, 000           |
| b        | File Folders                                  | 3 Pcs           | 1000              | 3000              |
| c        | Flash disk                                    | 1               |                   | 30, 000           |
| d        | Pens  | 3               | 1000              | 3000              |
| <b>2</b> | <b>Typing Services</b>                        |                 |                   |                   |
| a        | Question guides                               | 196             | 1000              | 196,000           |
| b        | Proposal (Printing and Binding)               | 3 Copies        | 50,000            | 150,000           |
| c        | Report (Printing and Binding)                 | 3 Copies        | 80,000            | 280,000           |
| <b>3</b> | <b>Data Collection</b>                        |                 |                   |                   |
| a        | Transport (To and from Gulu)                  |                 | 50,000            | 200, 000          |
| b        | House Rent                                    | 14 days         | 100,000           | 100,000           |
| c        | Meals (Breakfast, Lunch and Supper)           | 14 Days         | 20                | 200, 000          |
| <b>4</b> | <b>Literature Search(Libraries, internet)</b> | Makair          |                   | 100,000           |
| <b>5</b> | <b>COVID-19 Requirements</b>                  |                 |                   |                   |
| a        | <b>Hand sanitizers</b>                        | 7 bottles       | 5000              | 35000             |
| b        | <b>Face marks</b>                             | 21 pcs          | 1000              | 21,000            |
| <b>6</b> | <b>IRB Payment</b>                            | once            | 50000             | 50000             |
|          | Grand Total                                   |                 |                   | 1,418,000         |

**APPENDIX IV: Work Plan**

| Contents | Activity                | Months in (2022) |     |     |     |     |     |     |     |      |     |
|----------|-------------------------|------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|
|          |                         | Jan              | Feb | Mar | Apr | May | Jun | Jul | Aug | sept | oct |
| 1        | Writing proposal        |                  |     |     |     |     |     |     |     |      |     |
| 2        | Data Collection         |                  |     |     |     |     |     |     |     |      |     |
| 3        | Data Analysis           |                  |     |     |     |     |     |     |     |      |     |
| 4        | Report Writing          |                  |     |     |     |     |     |     |     |      |     |
| 5        | Report Binding          |                  |     |     |     |     |     |     |     |      |     |
| 6.       | Final Report Submission |                  |     |     |     |     |     |     |     |      |     |

**Appendix V: Covid-19 risk management plan**

Date.....

**Research study title: knowledge, attitude and practices of mothers/caregivers towards immunization of children under 5 years of age in Awach Health Centre IV, Gulu district.**

Name of the principle investigator: Oloya Vincent (vinceoloya@gmail.com)

Contact: 0774566196

Name of the co-investigator.....

**RESEARCH STUDY SITES: in Awach Health Centre IV, Gulu District**

| <b>ACTIVITIES THAT POSE RISK TO COVID-19 INFECTIONS</b>          | <b>PERSONS AT RISK</b>           | <b>MEASURES TO BE TAKE FOR PREVENTION</b>  | <b>PERSON RESPONSIBLE</b>    | <b>REMARKS</b>  |
|--|----------------------------------|--|------------------------------|---|
| During the time of transportation to the site of data collection | Interviewer                      | <ul style="list-style-type: none"> <li>• Wearing facemask.</li> <li>• Social distance of at least one meter</li> <li>• Use of Hands sanitizer</li> </ul>   | Interviewer responsibility.  | Adhere to SOP standards whenever in the public means of transport |
| During interaction and distribution of study guide.              | Interviewer and the participants | <ul style="list-style-type: none"> <li>• Observe standard operating procedures according to the ministry of Health</li> <li>• Hands hygiene with hand sanitizer</li> <li>• Social distancing at least I meter</li> </ul> | Participants and interviewer | Adhere to ministry of health guidelines of COVID-19 and Sops      |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  | <ul style="list-style-type: none"><li>• Wear of surgical face mask</li></ul> |  |  |
|--|--|--|--|--|