

**FACTORS INFLUENCING UTILIZATION AND RETENTION OF CHILD HEALTH
CARDS AMONG CARETAKERS OF CHILDREN 12-23 MONTHS IN RURAL
REJAF, JUBA COUNTY**

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DECLARATION

I hereby declare that this proposal is my own and has not been submitted for any degree or examination in any other university. In all cases where other people's ideas were used, they have been duly acknowledged by complete references.

Full name of student: Anthony Kisanga Lomoro

Signature.....

Date.....

APPROVAL

This proposal has been submitted by my approval.

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Signature..... Date.....

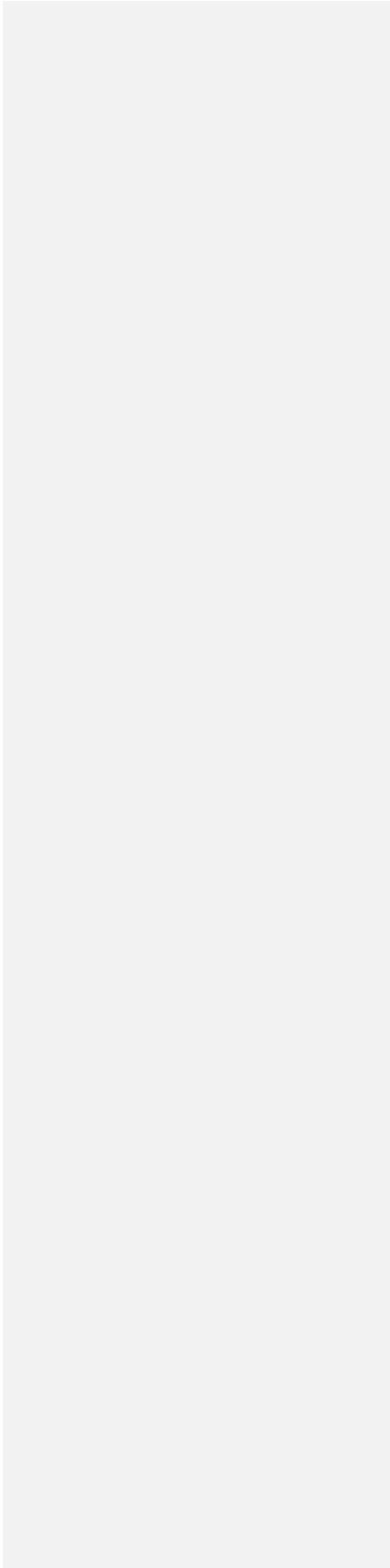


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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study intends to find out factors influencing utilization and retention of child health cards among caretakers of children 12-23 months in Rejaf County in South Sudan. A child health card in this study means a form of home based records kept by the caretaker i.e. mother, father, grandmother etc., which contains information about immunization and other health related services provided to children like growth monitoring.

This study will consider utilization and retention of child health cards as dependent variable while associated factors among caretakers of children 12-23 months as independent variable.

This chapter will also look at the background of the study, the statement of the problem, the purpose of the study, specific objectives of the study, the research question, hypothesis, scope of the study, conceptual framework, significance of the study, justification and operational definitions.

1.2 Background of the study

1.2.1 Historical background

The road to child health also known as child health card was first initiated by Professor David Morley as a strategy for improving the health of young children in the third world countries and later on advocated continuously by World Health Organization (Vlok, 1996).

The work of David Morley that has lasted for over 2 decades now has gained extremely recognition and endorsement from UNICEF child survival program "GOBI" (Growth Monitoring, Oral rehydration, Breast-feeding and Immunization) and according to them this

strategy has a potential of saving over 20,000 children under the age of 5 years (WAGSTAFF & VRIES, 1986).

In Africa the concept of weighing and charting of weight for age graph was initiated in West Africa in the 1950s, two innovative approaches were introduced during this time in making graphing of a child's weight practical, the first innovation was a calendar which showed the child's birth month by which the weights were plotted, the second innovation introduced the charts as a home based and handled by the caretaker of the child which acted as a global record for child health. This initiative spread to Zambia and Sierra Leone and became part of the now well-known growth monitoring, oral rehydration, breastfeeding and immunization (GOBI) which was introduced by UNICEF (David Morley & Megan-Elmore, 2000).

Globally there is a refocus on the importance of the home based records within maternal and child health services as a vital information resource. However, few reports have been put across about ever and current prevalence of home based records across countries (D. W. Brown & Gacic-Dobo, 2015).

The home based records had been used as part of the national maternal and child health services in both developing and developed countries for documenting information about antenatal checkups, delivery, postnatal care, child immunization, child growth and development with the child vaccination cards most used type of home based records for monitoring national immunization and reliable data source for child immunization (Aiga et al., 2016).

As the health of a child begins as soon as they are born and continues through a routine visits to health facility for monitoring of their growth and development, given that they are vulnerable to diseases that can end up in serious complications, absolute care and monitoring

during this phase of their growth and development can reduce infant mortality and morbidity (Vieira et al., 2016).

Another important information used within the child health card is growth monitoring and promotion which was defined by World Health Organization as part of the nutritional interventions which do not only chart children's weight, but uses the information for the physical growth to counsel caretakers to stimulate actions which can improve children's health and wellbeing (Roberfroid et al, 2005).

Turner & Fuller (2011) also indicated that the child health records have been used for good number of years to monitor health risks and mothers and children holding a child health card are believed to have better health outcomes around the globe.

The growth of children and their physical development are labeled to be an important indicator of the health of the community. During the first 5 years of children development and growth are considered to be the fastest and this stage of growth children are considered more vulnerable to disease infection and nutrition deficiencies.

The monitoring of the health status and development of children needed to be taken seriously within this period to ensure early corrective action is taken to prevent abnormalities; this is only possible with complete and accurate records kept by the caretakers at home and brought to the health facility on routine visit with the child.

To ensure close monitoring of children growth and development it is very healthy to make sure accurate information are kept by the caretaker which will act like a databank for children and this information is mostly contained in home based records which a physical medical document provided by the health authorities through the different health facilities during delivery in health facility or when caretakers take their children for the first time to receive

immunization. The child health cards as a home based record contained immunization received including other health services received by the child, these records are kept by the caretaker (mother, father, grandmother etc.) at home and brought to the health facility during routine health visit by the caretaker whether for vaccination or any other illness that a child experiences (World Health Organization, 2015).

The Child Health Card which was initiated by Prof. David Morley as one of the strategies for improving the health of the children while working in the third world countries where it was used continuously and advocated for by World Health Organization (VLOK, 2008).

The child health card also contained detailed information for identifying the child; like the name of the child, age of the child, different vaccines, and details of weight for age chart. In addition information about vitamin A supplementation which is given every six months to the child is recorded and deworming information.

This information are normally filled by the health workers on the child health card to help inform the caretakers and the health workers about the health and development status of their children which support early decision making for remedial action to be taken.

This kind of monitoring of children health status is very important in the developing countries, where children growth is normally interfered with due to poor nutrition and diseases. According to Tarwa and De Villas, 2007), malnourished children mostly experience more morbidity and mortality from diarrhea, measles and additional infections may result into lasting cognitive and development deficits and reduced physical capacity which will impact negatively on the growth and development of a nation. Therefore, the home based record is a very important tool for the caretakers to monitor how their children health and development is progressing.

The importance of the home based record cannot be underestimated for it ensures that coordination is strengthened, there is continuity of health services between health service providers for children, smoothen communication between caretakers and health workers, empower caretakers through their participation in monitoring health of their children and ensure early health seeking when children's health are deteriorating (Young et al., 2015).

Home based immunization records was introduced in Sri Lanka 4 decades ago and the country has cultivated a culture of responsible ownership and utilization of the home based records with over 90% ownership prevalence which was observed during its coverage surveys (Hasman et al. 2016).

A study conducted in South Africa found out that most caretakers believe that child health cards are only used when children are brought for well-baby clinics not for consultations and suggested that health workers should request for the cards when the caretakers visit a health facility so that they can understand the importance of what is contained in them, the study concluded that the child health cards are not normally used to the extent it is required (Tarwa & De Villiers PR, 2014). This is also part of the global initiative to ensure that both health workers and the communities understand the importance of the child health card for their children growth and development.

1.2.2 Theoretical background

The study will use the health belief model framework of health behavior change by Rosenstock et al., (1994). The health belief model is a psychological model which tries to describe health behaviors by concentrating on attitude and beliefs of individuals (FHI, 2002). This theory was developed in 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services to explain why services offered by the US public health services for tuberculosis were not successful (Taylor et al., 2006). The health

belief model was used to explore multiple short and long term health behavior for a number of years since its initiation and to examine the motivation of caretakers in utilization and retention of child health cards among children 12-23 months in rural Rejaf. According to this theory that there are factors that influence certain particular behaviors, their presence or absence may either encourage or discourage the health related behaviors. The factors are divided into internal factors like knowledge, attitude and beliefs and external factors such as social support (network of influencers in the community), communication, socioeconomic factors, the health system and societal laws and regulations.

The model was also used in some situations like screening services as well as immunization and compliance with medical treatment for diseases like diabetes, renal failure and hypertension (Taylor et al., 2006).

According to the health belief model that as a preventive measure, certain individuals will take health actions if they believe that certain measures will prevent a disease or ill health (Beer et al., 2012). This can be explained through the six elements of the HBM 1) perceived susceptibility to the disease, 2) perceived severity of the disease, 3) perception of benefits against cost 4) Perceived barriers to the condition to be pursued, 5) cues to certain actions which are approaches or information sources that encourages the adoption of certain health behaviors, 6) Self efficacy which is the belief that one can implement those health behavior (Coe et al., 2012). While in this study the researcher will look into the perceived susceptibility of children to vaccine preventable disease and nutritional abnormalities due to caretakers not utilizing and retaining child health cards, perceived severity of children to vaccine preventable diseases and nutritional abnormalities in children, perception of benefits of using and retaining the child health cards and cues to action which in this study will look into the reinforcing factors that will encourage the caretakers to utilize and retain the child health cards.

1.2.3 The conceptual background

According to WHO (2015), Home based vaccination records are called by different names like child health cards, immunization passport, baby book, child health and development passport, family health book, child health records, road to health booklet etc. and are classified into different types which include;

Vaccination card only: this is a document which was designed for the sole purpose of recording only vaccination information about the child.

Vaccination plus card: This document is designed to record vaccinations taken, other health services received by the child during their visit to a health facility including growth and development of the child.

More comprehensive child health books: this include records of child birth characteristics, health services received outside vaccination, guidance to parents on child feeding, developmental milestones, prevention of malaria, diarrhea, family planning and other ailments.

In this study we shall refer to the home based record as “The Child Health Card” which offers one of the cheapest, simple, practical and suitable ways of monitoring the nutritional and immunization status of children from the time they are born up to the age of five years (Mukanga and Kiguli, 2006).

The Home-based records support the collection of data for uses other than through clinical care or distribution of vaccines, such as for quality management and public health monitoring. One way in which information for immunization coverage for monitoring status for young children is collected from a sample of households, are through immunization coverage survey. The surveys used home-based vaccination records accessible in the household to collect documented information on immunization services received by children.

In the absence of the recorded information or completed home-based record, caretakers recall are always depended on to collected information, though there is varied evidence regarding the validity and reliability of recall comparative to health records or immunization cards (WHO, 2016).

1.2.4 Contextual background

The immunization program in South Sudan was established in 2005 after the signing of the comprehensive peace agreement. However, due to constant movement of the population from one area to another and lack of accurate population census figures it was difficult to provide the government with accurate immunization coverage rates that can be used for future planning for the country hence changes in immunization coverage cannot be estimated (Mbabazi et al., 2013).

A community study conducted in South Sudan on immunization in 2011 cited bias as major limitation of the study as it over depended on recall since most caretakers do not own a child health card this needed a concerted effort to educate both the health workers and caretakers about the significance of the child health card (Mbabazi et al., 2013).

Rejaf payam was one of the 16 sub counties/payams of Juba County in Central Equatoria state, South Sudan. It was one of the most populated rural and accessible areas in Juba County. The payam has five bomas namely; Gumbo, Kansuk, Lologo East, Lologo West and Tokiman. Its population according to the 2016 population projection using the disputed 2008 population census figures was 19,767. Although data concerning factors influencing utilization and retention of child health cards among caretakers of children 12-23 months is unavailable, it is worth mentioning that the utilization and retention of child health cards in South Sudan generally is low yet both the government and the development agencies like UNICEF in South Sudan has put enough resources to ensure that each child born and brought

to a health facility has a child health card. Thus the focus on this area is that the population is well served by health facilities including Juba teaching hospitals and Alshabab children hospital that provide maternal and child health services more than the other rural payams and it is more secure to access.

1.3 Problem Statement

Data on factors influencing utilization and retention of child health cards among children 12-23 months old in South Sudan are scanty and apparently no such study on factors influencing utilization and retention of child health card among caretakers of children 12-23 months had been carried out in the country that has low ownership of child health cards at 65.7% while retention is even lower at 51% as documented in an EPI coverage survey carried out in 2011 (Mbabazi et al., 2013). Although the Ministry of Health and other development agencies like UNICEF have invested heavily in procurement of child health cards, training of health workers on how to use this cards and ensuring that all children below the age of 5 years receive a child health card as soon as they are delivered in the health facility or as soon as they visit a health facility for the first time this initiative has not realized its full intention.

The low utilization and retention of the child health cards among caretakers will compromise the ability of the government and the development agencies to use the available data for proper planning and monitoring of immunization services in the country as they rely on data from caretakers recall which sometimes might not be valid.

The inability of the government to monitor the immunization status of the children due to low utilization & retention of the child health cards has resulted into sporadic outbreaks of vaccine preventable disease which has contributed to high child morbidity and mortality as

mentioned in a report that 25% of children in South Sudan die before their fifth birthday (Rau, 2015) . Therefore, the purpose of this study is to examine factors influencing utilization and retention of child health card among caretakers of children 12-23 months in rural Rejaf with the hope that solutions can be sought to address the low utilization & retention of the Child Health Card (CHC).

1.4 Purpose of the study

The major objective of this study is to find out the factors influencing utilization and retention of child health cards among caretakers of children 12-23 months in Rural Rejaf, Juba County-South Sudan.

1.4.1 Specific Objectives:

1. To find out how predisposing factors influences the decision of a caretaker of children 12-23 months to utilize and retain child health card.
2. To determine how enabling factors influences the utilization and retention of child health cards among caretakers of children 12-23 months.
3. To investigate how reinforcing factors influences the utilization and retention of child health cards among caretakers of children 12-23 months.

1.5 Research Question

1. What are the predisposing factors that influences the utilization and retention of child health cards among caretakers of children age 12-23 months own child health card?
2. What are the enabling factors that influence the utilization and retention of child health cards among caretakers of children 12-23 months?

3. What are the reinforcing factors that influence the utilization and retention of child health cards among caretakers of children 12-23 months?

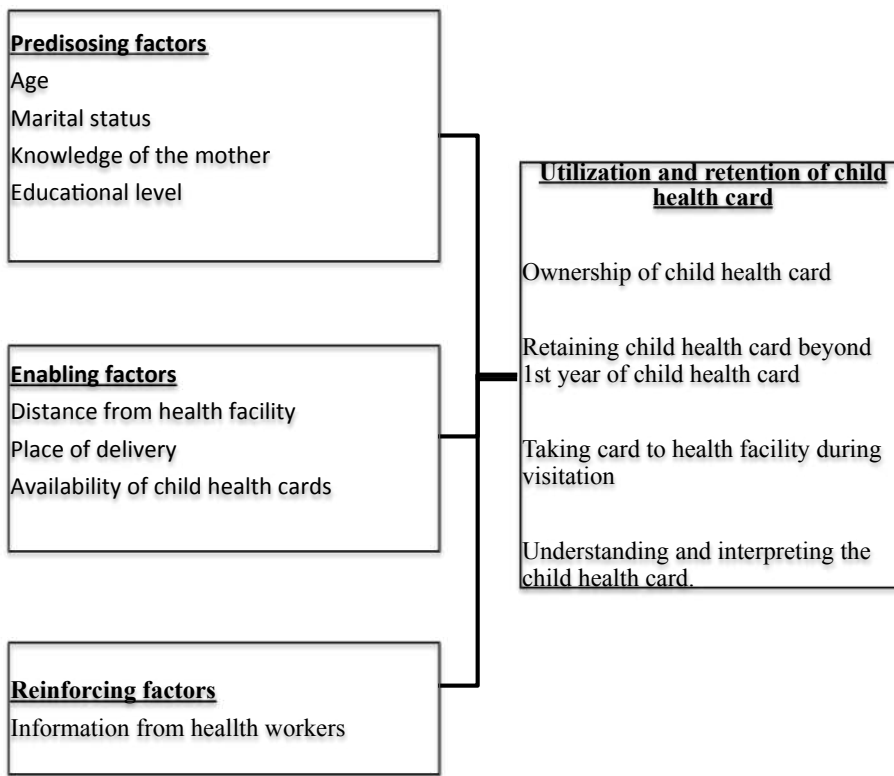
1.6 Hypothesis

1. Predisposing factors significantly influences utilization and retention of child health cards among caretakers of children 12-23 months
2. Enabling factors strongly influence utilization and retention of child health cards among caretakers of children 12-23 months.
3. Reinforcing factors are associated with utilization and retention of child health cards among caretakers of children 12-23 months.

1.7 Conceptual framework

Independent variables

Dependent variable



Source: Conceptual framework adapted and modified from Green and Kreuter, 1999

The conceptual framework of this study will be based on the Green and Kreuter's framework for determinants of behavior change. The above conceptual frame illustrates the relationship between dependent variable which is utilization and retention of child health card and independent variable which are the associated factors which are grouped into three classes, predisposing factors which include; age, marital status, level of education and knowledge of the caretakers, enabling factors which includes distance from the health facility, place of delivery, family size, and availability of child health card at the facility, information from the

health workers to caretakers is considered as reinforcing factor which will determine the behavior of the caretakers to utilize and retain child health cards. Health workers in this study will include community health workers, vaccinators, maternal and child health workers. Utilization and retention of child health cards by caretaker will be the intervention in this study and it is shown through ownership of child health card by caretakers, possessing the card beyond the first year of child birth, taking the child health card every time when a caretaker visits a health facility, understanding and ability of the caretakers to interpret the child health card.

1.8 Scope of the study

Content scope: The study will entirely focus on factors influencing utilization and retention of child health card as a form of home based records among caretakers of children 12-23 months old in Rejaf, Juba County in South Sudan. The independent variable for this study will be the associated factors which is both internal and external while dependent variable for this study will be utilization and retention of child health cards.

Geographical scope: This study will use the WHO 30 by 7 methodologies for data collection, meaning that 30 villages will be randomly selected within rural Rajaf and all functional health facilities will be included in the study conveniently.

Time scope: The study is anticipated to begin from October 2016 till August 2017 and all health facilities operating at the time of the study shall be included as part of the sampled population.

1.9 Justification of the study

Data on factors influencing utilization and retention of child health cards among children 12-23 months in South Sudan are scanty and apparently no such study has been carried out in the

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country .This research will generate data which will help health planners and decision makers to enable them to focus on intervention that will address the issues relate to low utilization and retention of child health cards in South Sudan.

1.10 Significant of the Study

It is important that factors influencing utilization and retention of child health card among caretakers of children 12-23 months are studied in this area (Rejaf) of South Sudan.

This is anticipated to produce information that shall be used by the Ministry of Health in the Republic of South Sudan to plan effective and efficient home based records by addressing the root cause of barriers that affect negatively the utilization and retention of child health cards as an important form of home based records. This study is also aimed at equipping policy makers with improved data which shall be used for timely decision making on policies related to management of home based record in the country. This study will also help other researcher in ensuring that the outcome of the study is availed for further research on the same area and act as a partial fulfillment for the requirement of Master Degree in Monitoring and Evaluation for the researcher.

1.11 Operational definition of terms and concepts

Home Based Records: These are information which is not in electronic form that is kept by the caretakers at the households and contain information about the health and wellbeing of their children.

Caretakers: This include mother, father, grandmothers, grandfathers, aunt, brothers, sisters or any other adult who is taking care of children and ensure their wellbeing.

Utilization: the measure of population's use of what is available at their disposal.

Retention: The act of keeping something in one's possession for long period of time without losing it.

Influence: The ability to affect someone's decisions to use or not to use something available.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will look into what other researchers have done in the area of factors influencing utilization and retention of child health cards among caretakers of children 12-23 months in rural Rejaf, in Juba county of South Sudan. It will also give empirical review of other studies within this topic globally, in Africa and within South Sudan.

2.2 Theoretical Review

The world had experienced great lifestyle related health challenges as such researchers and health practitioners have taken upon themselves to focus on promoting different health behavior change interventions such as theory of planned, the trans theoretical model and the health belief model (Orji et al., 2012).

Hence this study will focus specifically on the Health Belief Model of behavior change by Rosenstock et al. (1966). This health belief theory which was developed in the 1950's was to find out why some people in the community fail to undertake some preventive health measures and this model continued to command as one of the most used theories worldwide (Orji et al., 2012 and Taylor et al., 2006).

Rosenstock (1966) Health Belief Model was developed to explain which behaviors should most be targeted during social mobilization campaigns or during health sessions focusing on maternal and child health to cause positive health behavior.

The HBM explains that an individual likelihood of engaging in health related behavior is determined by certain factors such as how he/she perceives a negative health outcome to be severe, perceives themselves to be susceptible to it, perceives the benefits to behaviors which

reduce the likelihood of that outcome to be high, and perceives the barriers to adopting those behaviors to be low, then the behavior is likely to happen (Orji et al., 2012).

According to this theory that there are factors that influence certain particular behaviors, their presence or absence may either encourage or discourage the health related behaviors. The factors are divided into internal factors like knowledge, attitude and beliefs and external factors such as social support (network of influencers in the community), communication, socioeconomic factors, the health system and societal laws and regulations (Cole E et al., 1992).

The theory argues that people will only get motivated to perform certain health behaviors when they believe that they are susceptible to certain particular negative health outcome and they cannot act on any preventive measures if they think that a negative outcome is unlikely to worry them, this is due to their individual perception of variables that can predict their behaviors (Rosenstock, 1966). For example a caretaker cannot utilize or retain a child health card if they do not think it might lead to under vaccination/over vaccination of their children or result into any malfunction to the health of their children like being infected by vaccine preventable disease because their children are being under immunized or lack of monitoring the growth and development of the child which might result into malnutrition.

2.3 Conceptual review

The study referred to the PRECEDE-PROCEED conceptual model, a cost effective model developed by Lawrence Green in 1974 to aid health program, policy makers and evaluators to analyze and design health intervention efficiently (Wikipedia, 2016). The main purpose of the PRECEDE PROCEED Model is guiding attention to outcome instead of inputs. The model guides planners through a process which begins with desired results and works backwards in the cause chain to identify combination of strategies for attaining the objectives (Crosby &

Noar, 2011). The model regards behavior change as being influenced by both individuals and environmental factors and is categorized into two parts; educational diagnosis (PRECEDE) and ecological diagnosis (PROCEED). The PRECEDE-PROCEED Model is participatory in nature and it is believed to be one of the effective concepts in developing a community health promotion and public health interventions. It is based on the principle that behavior change is voluntary and that health interventions can be more effective if the people who are affected by them and implement them are involved in its planning and evaluation.

The model identifies educational diagnosis as a phase in assessing causes of health behaviors and categorizes them into three factors which includes;

1) Predisposing factors: these are attributes of an individual or the community that inspires behavior prior to happening of that behavior: **2) Enabling factors:** this is the situation in an environment that facilitates actions needed to achieve particular [behavior](#); **3) Reinforcing factors:** these factors that aid to strengthen the incentives for behavior change by rewarding or punishing anticipated as a result of a behavior. These factors if well modified will result into the expected behavior change as explained below.

2.3.1 Predisposing factors:

Marital status

A study in Bangladesh to assess the retention and perceived usefulness of home based cards cited that marital status is not significantly associated with card possession and retention.

However, this was in contrast with the study conducted in Tanzania where marital status was shown to be significantly associated with higher ownership and retention of child health card (Simba, 2009). This study has shown that marriage can also positively influence the

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ownership and retention of child health cards, this might be because the spouse was able to remind themselves whenever their partners visit a health facility or in some facilities both parents are required to escort their partners to the health facility and in most cases married couples are more careful in storing their items.

Age of the mother:

Age of a caretaker was viewed to have extreme influence on their decision to own and retain child health card. A cross sectional study was conducted in western rural Nepal on factors associated with ownership of child health card among caretakers, the finding revealed that the age of the mother is statistically associated with retention of child health card (Bhandari et al., 2013). This was seen as a major factor to focus on in sustaining higher retention of child health card for improved monitoring of the health of the child by both the health workers and the family members.

In Bangladesh a study on assessment of retention, perceived usefulness and use of the home health cards found out that the age of clients are not associate with retention of the home based record (Gazi e al., 2003), this is in contrast to studies conducted in other Countries like Nepal and Kenya which points out that there is association between caretakers age and card retention.

A study in Kenya revealed that mothers who are older than 30 years in age are less likely to own a child health card compared to the younger age mothers who have fewer children that they pay much attention to and they are more motivated to seek health services compared to their counterparts (Kawakatsu et al., 2015).

Knowledge of caretakers

A study by Turner & Fuller (2011) in developing countries around the world revealed that increased education of caretakers or patients can improve the utilization and knowledge on

how to use the child health cards, this will in turn prevent losses of the cards and increase their retention among families.

The increased knowledge and awareness of caretakers on health related risk pertaining to vaccine preventable diseases is vital for self-directed change to ensure that they act on preventive measures. Health education should provide accurate instruction on health utility of a behavior and should suggest ways in which to increase the enjoyment of low risk activities to facilitate people's commitment to change (Cole E et al., 1992).

In Nawalparasi district of Nepal a cross sectional descriptive study found out that knowledge of the caretakers in regards to recording immunization and child growth was seen to be significantly associated with retention of child health cards (Pahari et al., 2011).

In a similar study in rural Western Kenya concerning effectiveness of factors related to mothers possession of mother and child hand book it was cited that higher maternal knowledge is associated with ownership of home based records (Kawakatsu et al., 2015).

A study carried out by Mukanga and Kiguli (2013) in Kampala found out that most mothers believed that child health card is only used for child vaccination with only 38% understanding that the card can also be used for growth monitoring with only 50% of mothers were able to interpret the growth monitoring curve plotted on the child health cards correctly.

Level of Education of caretakers:

A study conducted in Pakistan on the predictors of vaccination card retention revealed that mothers with high level of education are more likely to retain child health card more than mothers with less or no education at all, the literature reviewed showed that there will be 6% increase in card retention when the mother is educated (Sheikh & Ali, 2014).

In a similar study conducted in Tripura, India by Datta et al. (2016), it was found out that level of education of parents was highly associated with retention of child health cards. The

results of the study showed high card retention among children with parents of higher educational status more likely to utilize and retain the child health cards.

In Bangladesh a study was carried out to assess the extent and factors relating to retention of home based card and it was found out that almost half (50%) of the households retained their cards after being provided by the health facilities, the study pointed out that the caretakers who retained their cards were the educated, those who are married and sought health services for their children from the health facilities (Gazi et al., 2004)

Simba (2009) in his study in Tanzania to assess the magnitude of possession and retention of child health cards among the communities in Korogwe district revealed that educated caretakers had high ownership of child health cards compared to their illiterate counterparts.

Though no study has been conducted to assess the relationship between level of education and retention of child health card in South Sudan, judging by the level of education in the country which stands as low as 27% (53% urban areas and 22% rural areas) with educated females half that of their male counterparts (South Sudan National Bureau of Statistics, 2012). That means majority are not educated and from the reviewed literature most of the studies cited education level of the caretakers as being a factor in utilization and retention of child health cards. Hence there is a probability that in South Sudan due to the low literacy level majority of the caretakers might not be utilizing or retaining their child health cards.

Age of a child:

Most studies showed that the age of the child is significantly associated with card retention and utilization. A study in Nepal showed that there was a positive association between the retention of cards and children who are young in age, the study found out that 90.3% of children 0-12 months had their cards retained by their mothers, but the rate of retention of the child health card decreases as the child reaches between the age of 12-23 months (Pahari et al., 2011). This was thought to be due to the fact that once a child completes his/her

vaccination at the age of one year the mothers cease to take care of the child health card or lack of knowledge regarding the use of the child health card after the age of one year or lack of counseling by health workers for regular growth monitoring after the age of one year old (Kaphle P et al., 2016)

The age of the child is seen to be a major factor in utilization and retention of child health cards among caretakers. Paudel et al (2016), in their study reiterated that high card retention (90.3%) was seen among caretakers with children 0-12 months old as opposed to children of age group 12-24 months which was 74%. This is consistent with the study conducted by Kaphle et al (2016), this also was in agreement with the findings in Pakistan on predictors of vaccination card retention which pointed out that card retention was higher among younger age children.

In the African society the last born in the family is almost loved and cared for by any member of the family especially the mother. This is also reflected in the study conducted in Tanzania where it was found out that ownership of child health card is highest among the last born children 78.3% (Simba, 2009).

2.3.2 Enabling factors:

Place of delivery of a child:

A study in Indonesia revealed that ownership of child health card or home based records is high among children who are born through a professional health worker or through assisted delivery by health professional in a health facility (Osaki et al., 2013). This is because they have the opportunity to receive child health cards once the child is born immediately to

continue with other health services like immunization. This study is consistent with the findings of the studies conducted in Tripura, India where higher child health card retention was found to be among children who were delivered in health facilities (Datta et al, 2016).

Bhandari et al. (2013) in his research conducted in western rural Nepal also found out that place of delivery of a child is strongly associated with high card retention. This might be because the children born in the health facilities have greater opportunity to access the cards immediately after they are born compared to the ones who are born outside the health institutions.

A study conducted in Uganda found out that majority of children born at a health facility their mothers were 4 times more likely to utilize and retain a child health card (Mukanga & Kiguli, 2005). This is a great concern when it comes to South Sudan with less than 1.7% of children born at the health facility (Wilunda et al., 2016), that means majority will miss the opportunity provided at the health facilities where children were provided immediately the child health card and their caretakers are counseled on the importance of utilizing and retaining their child health cards for their subsequent visits to the health facility.

Distance from health facility:

That being near a health facility increases the likelihood of caretakers to access health services with much ease and also increases the opportunity for caretakers to interact with health workers and get the needed education about the importance of child health card and its retention and utilization (Pahari et al., 2011).

A study in Niger revealed that immunization coverage is strongly related to the distance to health facility, it documented that children who live within one hour from the health facilities have 1.88 times odds of finishing their vaccination within their first birthday compared to

children who live far from the facilities (Blanford et al., 2012), showing that distance is a main factor to access services which include owning of child health cards which are provided during childbirth at the health facility or during attending child health care services like immunization.

In South Sudan distances from the health facility has been cited by many studies as one of the barriers to access to services by caretakers (Wilunda et al., 2016), this generally will have a negative impact on the ownership of child health cards since caretakers might not have access to this important information tool.

Size of the family:

The number of people living in a family has been reported to influence utilization and retention of child health card among caretakers. Sheikh & Ali (2014), a study in Pakistan cited that card retention among caretakers reduces with increase in the number of people living in the same household, according to the study low card retention has been seen in households with more than five people living in the same room.

2.3.3 Reinforcing factors:

Information by health workers:

Information is important in raising awareness of caretakers whenever they visit a health facility or during health education sessions provided by health workers whenever caretakers bring their children for health care services. Research has revealed that missed opportunities for immunization could be realized because of the caretakers lack of knowledge or not being informed by health workers on the benefits of vaccines, the recommended vaccination schedules, date of next vaccination visit, a well-designed home based card coupled with

adequate counseling and health education messages from health workers could result into improved knowledge of caretakers (WHO, 2015a).

A study in Salyvan village development committee of Kaski, Nepal strongly related the retention of child health card with counseling by health workers. The finding indicated that higher retention of the child health card was found among caretakers who were counseled by health workers (Kaphle P et al., 2016), this might be because caretakers who visited the health facilities are always educated on the importance of the child health card to their children and reminded to bring with them in their next visit.

Mukanga & Kiguli, (2005) in their study in rural Kampala on child health card retention cited that health workers are the main source of information on child health card. This will increase the opportunity to reinforce the retention of the cards to the caretakers while visiting health facilities or during outreach seasons.

2.4 Empirical studies:

2.4.1 Global empirical studies

Globally a study was conducted in the countries with the highest birth cohort like Nigeria, Indonesia, Pakistan, Bangladesh and Ethiopia, this study found out that the home based card ownership levels are much lower (10%) which means they lacked appropriate vaccination history documentation to 14.1 million children in 2013, the same research stated that countries like Burkino Faso, Bolivia, Ghana, Mozambique, Haiti and Cambodia are making steady progress in the home based card ownership and retention (D. Brown & Gacic-Dobo, 2015). This study is similar to a study conducted in Karachi, Nepal which cited low retention of child health cards retention among caretakers (Sheikh & Ali, 2014).

2.4.2 African empirical studies

In Africa a study conducted between 2010-2013 to assess the future of routine immunization in developing world pointed out that the average availability of child health card was 68% with Nigeria and Ethiopia recording the lowest rate of children having cards of 28% and 29% respectively (Shen, et al., 2014). Another study by Mukanga and Kiguli (2005) in Kampala-Uganda also pointed out the low utilization of the child health card by caretakers putting it at 43% of caretakers visiting health facilities were able to use the child health card. Though most of these studies used different methodologies their results were similar, pointing out to the low utilization and retention of the child health cards by caretakers. A similar report by WHO Africa Regional Office report that between 2000-2014 of the 47 countries in the WHO African Region only 14 had recorded retention rate of 80% while 16 countries reported child health card retention rate of less than 50% (WHO, 2015b).

2.4.3 South Sudan empirical studies

Though South Sudan poses scanty data on utilization and retention of child health card among caretakers of children 12-23 months; a study by William et al. (2011) on children 12-23 months in South Sudan on EPI coverage survey showed that the ownership and retention of child health cards among caretakers was as low as 51% and other similar studies in the African countries demonstrated similar results of low utilization and retention of child health cards among caretakers Mukanga & Kiguli (2005).

2.5 Synthesis of the study literature review

From the literature reviewed, it was unclear whether the caretaker obtained their child health cards from public or private health facilities or whether the caretakers were provided with any child health card when they presented themselves at the health facilities. This is very

important step into discussions with caretakers about the factors that impact on the utilization and retention of the cards. Several of the studies did not mention whether stock out of child health card is also associated with utilization and retention of cards, this is confusing because it is important to understand the root causes of the low utilization and retention of the child health cards from the perspective of the health care system failure also.

Some of the studies failed to specify how they made their sample selection for example a study conducted by Tarwa C and de Villiers FPR failed to specify how they selected their 100 caregivers in each of their sites, another study by Simba in Tanzania also failed to mention how the households were selected in his study. Due to the gaps identified from the empirical studies it will be naïve to ignore the confusions and their contributions on the outcome of this study. Therefore, it is important for this study to place greater importance on the identified gaps in this literature review to address all the inconsistencies and the confusions identified.

CHAPTER THREE

3.1 Introduction

This chapter will capture information on research study design, study population, sample size and selection strategies, data collection methods, data collection instruments, validity and reliability of data collection instruments, data collection procedures and data analysis.

3.2 Research design

The study will use a descriptive study design because it is an effective method for studying specific topic and as a precursor to more quantitative study (Gatamela, 2015). This study will employ quantitative data collection methods. Quantitative research design originated from the natural science and it is used for investigating items that we could observe and measure (Antwi & Hamza, 2015). The main advantage of this method is based on its objectivity and other researchers can be able to repeat it. The quantitative research method will be used because it is not time consuming, reduces cost of data collection and data analysis is much simpler compared to the use of other methods like qualitative method.

3.3 Study population

A population is a whole set of people or objects who poses common specialized characteristics defined by sample criteria established by the researcher (Banerjee & Chaudhury, 2010). Therefore, the study populations for this study are children age between 12-23 months and their caretakers who live in rural Rejaf payam. This study will also include health facility staff who are in-charge of maternal and child health clinics responsible for immunization.

3.4 Determination of sample size and selection strategies

The study will use 30 by 7 cluster sample technique developed by Expanded Program of Immunization of World Health Organization in 1978 to estimate vaccination coverage of children. It is the most durable solution for most surveys when it is impossible on using the idea of taking random samples of individuals across a larger area (Bennet S et al. 1991).

The study will select 30 villages within each village 7 eligible children living in households will be selected and included in the study.

The villages will be selected using probability proportionate to size (PPS) method to come up with 210 households that will be included in the study with additional 10% to cater for refusals or low responses.

In a household where more than one eligible child between the ages of 12-23 months, only one will be selected randomly assigning a number to each child and the caretaker will be requested to pick one number that will be included in the study.

The first of the 7 children will be selected randomly while the subsequent 6 children will be drawn from the next households.

3.5 Sampling techniques and procedures

The researcher will use multi-stage cluster sampling technique to select households from the five bomas of Gumbo, Kansuk, Lologo East, Lologo West and Tokiman.

3.5.1 Selection of villages:

After securing the list of villages from the boma authorities, thirty villages will be sampled using the probability proportionate to size (PPS). This is because it allows a greater chance of bigger clusters (village) to be selected. To identify the 30 villages from the list, the following process will be followed;

- A list of villages with their corresponding population will be secured from the payam authorities at Rejaf payam.
- The researcher will use the population to calculate the cumulative population
- Then the cumulative population number will be divided by 30 to get the sampling interval (SI) which shall be used for randomly identifying the location of each of the 30 children in the villages.
- From a probability random table, a random start number will be selected between the sampling frame and then used for calculating the series i.e. RS, RS+SI, RS+2SI, RS+3SI.....S+29SI, each of these number will correspond to one of the villages selected.

3.5.2 Selection of Households

Systematic random sampling will be used to select seven households with eligible children (12-23 months) from each village for the interview.

The starting point for the study will be determined by the local chief/leader around as the center of the village. The direction to be followed will be determined by spinning a pen and where the tip pointed, the next closest household with an eligible child will be chosen. Any other household whose front door faces the one visited automatically becomes the next and the study will proceed until all the seven eligible households will be interviewed within the village.

However, in households where there will be more than one eligible child in the age bracket of 12-23 months, the researcher will only pick one through assigning numbers to each child and requesting the caretaker to pick one among them randomly.

3.5.3 Selection of Health Facilities:

The researcher will select all functional health facilities in the payam conveniently that will be included in the survey because of the inadequacy of resources and insecurity in distant locations. Each research assistant will interview health workers working at the maternal child health unit during the time of the survey.

3.6 Data collection methods

The researcher will collect both primary and secondary data during this study. The methods that will be used will include; administering questionnaires and reviewing of documents on the relevant topic of the study. Primary data are collected for the specific problems at hand and using procedures that best suit the problem, it adds new data to the existing body of knowledge. While secondary data are second hand data that was collected by someone for different purpose as opposed to the intention of the current user (Rizwan & Parab, 2013).

3.6.1: Surveys:

This will involve sample of questions developed by the researcher and administered to the respondents. They will be used because of their adaptability to different research needs and it will contain a mix of open- and closed-ended questions that will help respondents reflect on specific statements or provide their insights to specific questions, it can collect data from very big samples easily and good for answering the question 'how many' (Saura, 2015).

1.6.2 Documentary review

The researcher will review the child health cards provided by the health workers to the caretakers to ensure that they are completed correctly with no errors and updated during every visit made, this will be done during health facility exit interviews.

3.7 Data collection instruments

The researcher will use different data collection instruments during the study as a way to capture information that would have not been captured using other data collection instruments as described below;

3.7.1: Questionnaires:

This is most common source of data collection instrument widely used in research. It involves a set of questions that are administered by a researcher to the respondents. The study will use this method because it is the simplest used instrument that can be administered to many respondents within a short period of time. The questionnaire will use open ended questions to explore the respondents' attitudes and feelings that are expressed through their own words.

3.7.2: Documentary review checklist:

The researcher will review child health cards given to the caretakers by the health facility from the time of data collection to see if they are filled correctly and updated whenever the caretaker visits the health facility, this will include whether the dates are filled correctly, whether the growth charts are updated, vaccines that child received are updated.

3.8 Validity and reliability of the data collection instruments:

3.8.1: Reliability

Reliability means the extent to which a data collection instrument is able to consistently and continuously being accurate in measuring a variable. Mugenda and Mugenda (1999) defined reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trials. In order to avoid errors, the data collection instruments will be

pre-tested within a small group who are not part of the actual study first and any issues identified shall be corrected immediately.

3.8.2: Validity

Validity is the extent to which a data collection instrument is able to do what it is meant to do. Though reliability is important it is not enough, for a test to be reliable at the same time it needs to be valid (Phelan & Wren, 2005). The researcher will ensure that the goal of the study is clearly defined and operationalized and get supervisor and colleagues review the instrument for troublesome wording and other difficulties in interpretation of the words used.

3.9 Data collection procedures

The principal researcher will inform the Payam Office of Rejaf about the objective of the study and its importance between 2-3 weeks in advance.

Selected facilities will be contacted by phone or visited personally to be informed of the study and share with them all clearance letter obtained from the Ministry of Health and payam administration of Rejaf.

Training of 5 data research assistants will be conducted one week prior to the actual data collection for one day. This training will also include one day of pre-testing of the data collection tools and refining them to improve their validity and ensure that they answer the objective of the study.

After the training each research assistant shall be provided with a checklist containing data collection materials and they will ensure that all materials listed are carried to the field.

During the time of the data collection the principal researcher will introduce the data research assistants two days prior to the data collection day to the Rejaf Payam Administration and to the in-charges of the selected health facilities.

In the preparatory phase duties shall be assigned to each team member and where each one of them will go for the data collection. The principal researcher shall assume the overall responsibility of coordination and communication while the research assistants will interview caretakers through administering of structured questionnaires and review child health cards records.

Purposive sampling will be used to select Rejaf Payam because it is one of the rural payams in Juba with much population and secure to access. The health facilities will be selected conveniently; simple random sampling shall be used to select caretakers who will be interviewed during the study.

At the end of each day all the team members shall convene in one location for debriefing and to ensure that all questionnaires are filled properly. This meeting will also try to address any issue that comes up during the data collection and plans for the next day discussed.

3.10 Data analysis

The study will use quantitative data analysis techniques. Quantitative data can be entered into Epidata (version 3.1) for the initial management of the data and transported to Statistical Package for Social Sciences (SPSS version 16.0) for further statistical analysis to compute descriptive analysis like percentages, graphs, pie charts.

3.11 Ethical consideration

The study will be initiated after getting a clearance from the University of Technology and Management University (UTAMU), the Ministry of Health EPI department and a permission letter from Rejaf Payam Administration to conduct this research.

All participants will sign consent form before being interviewed to seek their approval to participate in the study.

The purpose and benefit of this research shall be communicated to each participant beforehand and their right to withdraw from the interview.

The researchers will ensure that the information collected are kept confidential and used only for the purpose of this study and will immediately be burnt when the research is completed.

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APPENDICES

Appendix I: Questionnaire for caretakers for children 12-23 months old

Dear Sir/Madam,

I am Anthony Kisanga, a student of Uganda Technology and Management University (UTAMU) working on this desertion for an award of Masters of Project Monitoring and Evaluation.

This study is on factors influencing utilization and retention of child health card among caretakers of children 12-23 months old in Rejaf payam.

This information you will provide will be used purely for academic purposes and will be treated confidentially.

The findings of this study will be used to address the knowledge gap and improve the understanding of factors that influence utilization and retention of child health card.

Your participation will be of a great help to my study.

Do you agree to be interviewed: Yes No

teSta	County	Payam	Boma
.....
Date: DD/MM/YY 	Number of people household in the 	Household number 	Name of interviewer

01	Age of mother?	Below 20 years __ 20-30 years __ Above 30 years __
02	Marital status?	Married __ Single/divorced/widowed __
03	What is your relationship with the child?	Mother __ Father __ Guardian __ Others (Specify).....
04	How old is she/he?	Less than 12 months __ 12-23 months __
05	Sex of child?	Male __ Female __
06	Educational level of the caretaker	Primary __ Secondary __ Tertiary __ Did not attend school __
07	How far is the health facility from your home?	Less than 5 km __ 5-10 km __ Above 10 km __
08	Where was your child delivered?	Health facility __ Home __ Others (Specify).....
09	Is your child having child health card?	Yes __ No __
10	If yes, can I see it?	Seen __ Not seen __
	If not there, please give reason?	Card got lost __ Child destroyed the card __ Card not given at the health facility __ Don't know __
11	How many people live in this room?	Less than 5 __ 5 and above __
	Do you think the child health card is important for your child	Yes __ No __
	If yes, why do you think so?	

12	What is the child health used for?	Immunization <input type="checkbox"/> Growth monitoring <input type="checkbox"/> Immunization & growth monitoring <input type="checkbox"/> Don't know <input type="checkbox"/>
13	Has the health worker explained the use of the child health card whenever you visit the health facility?	Yes <input type="checkbox"/> No <input type="checkbox"/>
14	Has the health worker informed you to bring the card whenever you visit the health facility?	Yes <input type="checkbox"/> No <input type="checkbox"/>
15	Is growth monitoring chart being plotted on the card?	Yes <input type="checkbox"/> No <input type="checkbox"/>
16	Can the caretaker interpret the growth chart well?	Yes <input type="checkbox"/> No <input type="checkbox"/>

Appendix II: Health Facility Exit Interview Guide

01	Name of Health Facility	
02	Type of Health Facility	Hospital __ PHCC __ PHCU __
03	Ownership of the facility	Government __ Private __ Others __ (Specify).....
04	Does the facility provide immunization services?	Yes __ No __
05	For how long has the facility being providing immunization services?	Less than 1 year __ 1-2 years __ More than 2 years __
06	Does the facility provide growth monitoring?	Less than 1 year __ 1-2 years __ More than 2 years __
07	For how long has the facility being providing growth monitoring services?	Primary __ Secondary __ Tertiary __ Did not attend school __
08	Does the facility have child health card?	Yes __ No __
09	If yes, what type of child health card	Immunization card only __ Immunization, growth monitoring __ Immunization & other health services __
10	If no child health card, please give reason?	Not provided by the government __ Not ordered by health facility __ Stock out __ Others, (specify) __
11	Has the health worker trained on how to fill & interpret the child health cards?	Yes __ No __
12	Can the health work interpret the child health card information well?	Yes __ No __

Appendix III: Work plan

Activity	Time-Frame										Responsible person	
	2016		2017									
	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug		
Proposal development	■											Principal researcher
Proposal defense and Editing				■	■							Principal researcher
Resource Mobilization		■	■	■								Principal researcher
Data collection and data entry					■	■						Principal researcher
Data analysis						■	■					Principal researcher
Report writing						■	■					Principal researcher
Submission of 1st draft to my supervisor							■	■				Principal researcher
Editing report								■	■			Principal researcher
Defense of dissertation and final editing									■	■		Principal researcher
Binding and submission of final report									■	■		Principal researcher

Appendix IV: Budget breakdown for data collection

Item	Unit	Qty	# of days	Unit Price (SSP)	Amt(SSP)	Amt (USD)
Stationery						
Note books	Pcs	5	1	80	400	4
Pens	Box	1	1	600	600	6
Pencils	Box	1	1	200	200	2
Files folder	Pcs	6	1	100	600	6
Subtotal					1,800	18
Training of research assistants						
Food	Person	6	3	350	6,300	63
Hall hire	Hall	1	3	1500	4,500	45
Soda	Pcs	6	3	100	1,800	18
Water	pcs	12	3	30	1,080	11
Sub total					13,680	137
Services						
Printing	Lumpsum	1	1	5,000	5,000	50
Printing (proposal and final report)	Lumpsum	1	1	10,000	10,000	100
Report binding	Copies	4	1	1,500	6,000	60
Sub total					21,000	210
Data collection exercise						
Per-diem for research assistants	Person	5	4	1,000	20,000	200
Airtime	Person	5	4	100	2,000	20
Plastic bags	Pcs	5	1	150	750	8
Sub total					22,750	228
Transport						
Hiring of boda-boda for research assistants	Person	5	4	1,000	20,000	200
Sub total					20,000	200
Total					79,230	792
Contingency (10%)	lumpsum				7,923	79
Grand TOTAL					87,153	872

Note: SSP means South Sudanese Pounds

Exchange Rate

1 USD = 100 South Sudanese Pounds