

**BARRIERS TO CHILD VACCINATION UPTAKE AMONG WOMEN
IN NGORONGORO DISTRICT - ARUSHA TANZANIA, 2013**

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**Master of Public Health Dissertation
Muhimbili University of Health and Allied Sciences
September 2013**

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By

Bakari Salum, MD

**A Dissertation submitted in the Partial Fulfillment of the Requirements
for the Degree of Masters of Public of Muhimbili
University of Health and Allied Science**

Muhimbili University of health and Allied Sciences

September 2013

CERTIFICATION

I, the undersigned, certify that this research dissertation report is the work of the candidate carried out under my supervision. I certify that I have read and hereby recommend for consideration by the Muhimbili University of Health and Allied Sciences the dissertation report titled:

“Barriers to child vaccination uptake among women in Ngorongoro District-Arusha”, in the partial fulfillment of requirements for the Degree of Masters of Public Health of Muhimbili University of Health and Allied Sciences.

Prof. M.T Leshabari

Supervisor

Date

DECLARATION AND COPYRIGHT

I, **Dr. Bakari Salum**, declare that this dissertation is my own original work, and that it has not been submitted before for any degree or examination in any other University or college, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

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Date _____

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ACKNOWLEDGEMENT

First of all I would like to thank The Almighty God for keeping me alive and giving me strength to undertake this endeavor. I would also like to thank the MUHAS for offering me the opportunity to undertake my studies and providing me with a serene learning environment. Also the Ngorogoro District Executive Director for giving me permission to undertake the MPH course as well as conducting my study in the district.

Special thanks to my supervisor Professor M.T Leshabari for his tolerance and guidance through this hard work of research proposal and dissertation report development. My research assistants Loturiak Korio, Sabina Kiromo, Apolonia Meele and Losinyari Parmayo also deserve special recognition and gratitude for helping me to get the useful data used in this dissertation.

Last but not least, my thanks goes to my wife for her support and tolerance throughout my studies. Thank you all.

DEDICATION

This work is dedicated to my family, my wife Hadija, my children Husna, Hussein and Maryam.

ABSTRACT

Introduction: Low immunization coverage against preventable childhood illness constitutes a major public health concern world wide. Despite the fact that immunization is a cost- effective and life-saving childhood intervention, there are still children mostly in developing countries who are not immunized. In Arusha region of Tanzania, Ngorongoro district is among the areas with low child vaccination coverage. Studies have shown various factors for low vaccination uptake among the parents. Little was known as to why women in Ngorongoro district do not send their children for vaccination.

Objective: The main objective of the study was to determine barriers to child vaccination among the women in Ngorongoro district.

Methodology: A descriptive cross-sectional study which employed multistage cluster sampling procedure was conducted. A total of 449 mothers of under-five children participated in the study. Structured interviews were used in data generation. Data were analyzed electronically using a software SPSS version 15.

Results: All the respondents were aware of the concept of childhood vaccinations. Knowledge of vaccine preventable diseases were limited as only 2.9% of the mothers were able to mention at least three diseases with majority (65.3%) being able to recognize only one disease. A perception that their children were susceptible to such diseases was high; in with 82% of mothers said the risk is high.

Acceptability of the childhood vaccinations was not a problem; however vaccination uptake was still low (51.9%). Maternal barriers for child vaccination uptake included also gender dynamics (69.3%), time spent for the service (47%) and language (39.3%).

Conclusion: Maternal barriers to childhood vaccinations exist, efforts need to be made to increase vaccination uptake among the mothers.

Recommendations: Sufficient information about child vaccination and vaccine preventable diseases should be provided to mothers of under-fives for them to make an informed choice.

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ACRONYMS

DHS	-	Demographic Health Survey
DPT	-	Vaccine against Diphtheria –Tetanus-Pertussis
DRC	-	Democratic Republic of Congo
EPI	-	Extended Program on Immunization
MoH	-	Ministry of Health
R.A	-	Research assistant
UNICEF	-	United nations Children’s Fund.
WHO	-	World Health Organization

DEFINITION OF TERMS

Basic vaccinations

BCG, Measles, Pentavalent and Polio vaccines make basic vaccinations.

Pentavalent

A vaccine against 5 diseases- Diphtheria, Tetanus, Pertussis, Influenza and Hepatitis B.

Acceptability

Acceptability describes to something that is considered to be socially OK or within the realm of what is appropriate. It can also refer to something that is tolerable but not necessarily desired (1).

CHAPTER ONE

1. INTRODUCTION

This section of the dissertation contains background to the problem, the problem statement, research questions, study objectives and rationale study.

Background information

Immunization is a cost- effective and life-saving childhood intervention which prevents needless suffering sickness, disability and death. It benefits all people, not only through improvements in health and life expectancy but also through its social and economic impact at the global, national and community level. On emphasizing its importance, Plotkin (2) noted that with exception of safe water, no other modality even antibiotic has had such a major effect on childhood mortality reduction as vaccination.

Based on the WHO global estimates for 2010 (3), trends related to global vaccination coverage continue to be positive. Immunization currently averts an estimated 2 to 3 million child deaths every year from diphtheria, tetanus, pertussis (whooping cough), and measles. More children are being reached with immunization; an estimated 109 million children under the age of one year were vaccinated with doses of (DTP3) vaccine in 2010.

Despite this progress, the number of children under one year of age who did not receive DTP3 vaccine worldwide was 19.3million in 2010 compared to 19.7million in 2009. Nearly 70% of these children live in developing countries, mostly in sub-Saharan Africa (3).

In 2003 an estimated 27 million infants worldwide remained in need of immunization. In that same year, it is estimated that 28 million children (27% of all births) were born in 32 countries where immunization coverage is less than 70% including 10 million in counties with coverage under 50% (4).

Although global immunization coverage has increased during the past decade to levels of around 78% for diphtheria–tetanus–pertussis-3 (DTP-3), WHO's African Region has consistently fallen behind, reaching only 69% DTP-3 coverage in 2004 (5).

In Tanzania routine data from implementation of EPI indicated decline in coverage of DTP3 from a peak of 94% in 2004 to 83% in 2007 (6). However, survey based estimates of coverage are typically 4 to 5 percent lower than the routine data making it possible that the DTP3 coverage may be poorer than observed.

Recent data estimates show Tanzania to have immunization coverage of 75% of all basic vaccinations (BCG, Measles, Pentavalent and Polio). The region with highest coverage was reported to be Kilimanjaro (94.2%) and lowest of (42.1%) was Tabora region while Arusha region had coverage of 88.4% (7). Although immunization services have been strengthened in many regions and succeed in averting many deaths, there is continuing concern at the failure to achieve high immunization coverage in some districts.

In Arusha region, Arusha City had a coverage of (132 % measles), with Ngorongoro (87%), Monduli (82%) and Longido (76%) performing poorly. Despite having an average of 87% measles, within Ngorongoro district some health facilities had as low as 17% measles vaccination coverage (8)

In 2011, Tanzania was hit by measles outbreak in which 6 regions (Dar es Salaam, Iringa, Morogoro, Arusha, Coastal and Tanga) were affected. Talking to the journalists, the then permanent secretary of the Ministry of health, said;

'I would like to put Wananchi on alert over a measles outbreak.....The disease mostly affects those who have not been immunized against it' (9).

In Ngorongoro district, 1433 measles cases were reported in which over two-thirds of them were not vaccinated against the disease (10). The outbreak also involved neighboring districts, Karatu and Longido. This outbreak which claimed lives of 20 children was localized in one division inhabited by pastoralists.

There are several factors which influence the level of vaccination in a given community (11). These include health system factors, socioeconomic status of the clients, culture, beliefs perception regarding child vaccination. Among the strategies to improve child vaccination coverage includes, skilled health providers, public education about the need for vaccination and identifying underserved areas and visit them with outreach session (12).

A study from Gabon revealed that, among reasons for low vaccination coverage include lack of information (25.9%) and distance travelled for the services (13). Other previous studies have identified poverty, literacy and education as factors influencing vaccination uptake (14).

Using data from 2004-2005 DHS in Tanzania, Ashley (15) showed that distance from the health facility, illiteracy and poverty were barriers to achieve high vaccination coverage.

Identifying and implementation strategies to overcome the barriers to access must be a top priority, given the right of every child to protection from preventable diseases. This study will therefore try to find barriers which prevent pastoralists' women in Ngorongoro district from sending their children for vaccination.

1.1 Statement of the problem

Low immunization coverage against preventable childhood illness constitutes a major public health concern world wide. Among the problems encountered today in the expanded program on immunization is the failure to reach an acceptable level of immunization coverage to the population.

Although childhood vaccination is a major tool in the primary prevention of some infectious diseases, there is some reluctance in a proportion of the population.

Factor for low vaccination coverage can be broadly divided into health system on one side and clients perspectives. On the other, Semali (16) has noted poverty, education, cultural beliefs variables were important determinants of vaccination coverage to the population.

According to WHO estimates in 2000, measles accounted for approximately 777, 000 deaths worldwide, of which around 60% occurred in sub- Saharan Africa (5)

Many developing countries have the ability to make vaccines widely available and where they have not, the reasons are well understood (17). Reasons as to why parents do not take their children for vaccination are not well known. Sometimes parents may perceive a visit to a clinic and receiving injections as actions taken only when someone is ill, not when a child is perceived to be healthy (18).

In Arusha region, Arusha City had high immunization coverage 132% for measles in 2011 while the coverage in other districts were Ngorongoro 87%, Monduli 82% and Longido (76%) performed poorly.

In the year 2011 a total of 1433 measles case were reported in Ngorongoro district (10), out of these two-thirds of the children were not vaccinated. This outbreak which claimed 20 lives was localized in areas inhabited by pastoralists. District indicators shows high infant and under five mortality rates (150/100 and 206/1000 respectively) compared to national data (81/1000 and 51/1000).The district has a wide disparity in vaccination coverage across the localities.

The fact that in pastoralists community women are less integrated with non- traditional lifestyle than men is documented by Coast (19). Knowledge of the people on vaccination, cultural believes and poor accessibility to vaccination services contributed to low vaccination coverage (20). Knowledge of a disease and how to prevent it can be predominantly based on tradition and culture of a particular society (21). In Ngorongoro district, little is known about what is the knowledge of the population on vaccination, knowledge on prevention and even cultural believes on child vaccination.

Little is known about what prevents pastoralist women from sending their children for vaccination. The extent to which they think that their children are susceptible to vaccine preventable illnesses if they are no vaccinated is not known. Also the extent to which knowledge of childhood vaccinations in this population hindered vaccination uptake was not known. Furthermore, the extent to which child vaccination is acceptable in this subgroup is also not known. It is for these reasons this study was proposed.

1.2 Rationale of the study

Child health improvement is a key in many countries today. To achieve this goal child vaccination is recommended to be among the strategies of choice. Despite its importance mothers are not sending their children for vaccination for reasons which are not well known.

This study was designed to look for reasons behind low child vaccination uptake among women in Ngorongoro District. The information generated will be useful in determining strategies to be employed in order to improve vaccination uptake with an ultimate goal of improving child health in the study area. Findings may also contribute to policies on how to improve vaccination coverage among under-fives in pastoralists' communities.

1.3 Research questions

This study intended to look into barriers to under-five vaccination among pastoralists' in Ngorongoro district.

Specifically it intended to generate answers to the following issues,

- What is the proportion of mothers of under- fives who perceive their children to be susceptible to diseases if they are not immunized?
- What is the level of knowledge on childhood vaccinations among mother of under-five children?
- To what extent is child vaccination acceptable among mother of under- five children?
- What are barriers which hinder mother of under-five children from taking their children for vaccination?

1.4 Objectives

The broad objective of this study was to determine barriers to child vaccination among pastoralists' women in Ngorongoro district.

Specifically the study intended to;

1. Determine the proportion of mothers of under- fives who perceived their children to be susceptible to diseases if the children were not immunized in the study area.
2. Determine the level of awareness on childhood vaccination among the mothers of under- five children in the study area.
3. Determine the acceptability of childhood vaccination among mothers of under-five children in the study area.
4. Determine barriers to child vaccination uptake among mothers of under-five children in the study area.

1.5 Conceptual framework

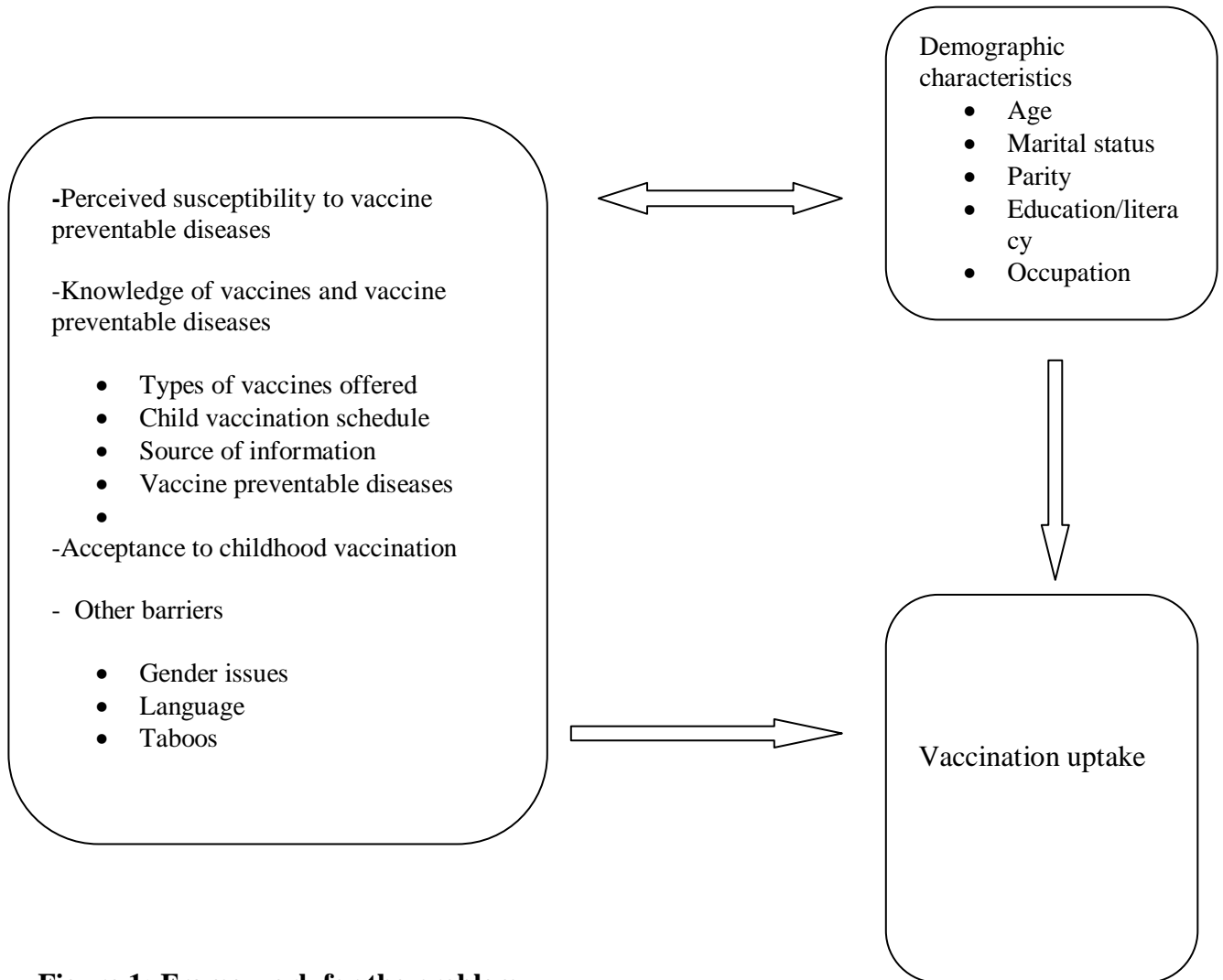


Figure 1: Frame work for the problem.

It is assumed that for mothers of under-fives to take their children for vaccination, they must not only be aware of the concept but also perceive their children to be susceptible to vaccine preventable diseases. They must also overcome some barriers to taking actions of sending their children for vaccination. However these variables and the vaccination uptake are more likely to be influenced by their demographic characteristics like age, marital status, parity, education and occupations.

CHAPTER TWO

2. LITERATURE REVIEW

The practice of vaccination can be traced to as early as 7th Century when Indian Buddhists drank snake venom to induce immunity (22). Using local knowledge regarding protective effects of cow pox and further experiments; in 1798 Edward Jenner introduced the notion of systematic immunization against small pox (23).

Importance of vaccination

Immunization is a cost-effective and life- saving intervention which prevents needless child suffering through sickness, disability and death (24). The importance of immunization is accentuated by the fact that the current readily available antibiotics cannot destroy viruses (25). Therefore immunization offers the only means of control of childhood viral diseases. When a sufficient coverage of vaccination is achieved, spread of disease in the community is prevented resulting into herd immunity.

In 1974, in the aftermath of the successful Smallpox Eradication Campaign, the WHO's Expanded programmers on Immunization was launched (26). Initially, the programmers vaccinated against six diseases (polio, measles, neonatal tetanus, diphtheria, pertussis and tuberculosis), but depending on a country –specific disease prevalence, the availability of new vaccines and financial resources, ministries of health begun to include other diseases such as hepatitis B and yellow fever.

2.1 The Global Alliance for Vaccines and Immunization (GAVI)

The Global Alliance for Vaccines and Immunization is an alliance between the private and public sector committed to one goal: Saving children's lives and people's health through the widespread use of vaccines (27). GAVI emerged in 1999 in response to stagnating immunization rates and widening global disparities in access to vaccines. International organization, government, the vaccine industry, research institutions, and major philanthropists collectively serve the shared GAVI objectives.

2.2 Expanded program on immunization

Globally, routine immunization has continued to rise and protect millions of children against often fatal diseases (28). In 2008, coverage reached 81 percent in the developing regions as a whole, up from 70 per cent in 2000. Such averages, however, mask significant inequalities in access to the childhood vaccines. Data from 178 Country Demographic and Health Surveys suggest that access to measles vaccination varies across different social and economic groups, with lower coverage for children in households that are poor or located in rural areas, lack of knowledge on vaccination or whose parents have lower levels of education (28).

The Expanded Program on Immunization (EPI) in the Tanzania started in 1975 (27). The program involved delivering safe vaccines for vaccine preventable diseases to children under one year and women of child bearing age and/ or populations at risk. Among the program objectives include; to achieve 90 percent coverage of all antigens for children under one year at district level by year 2005 including new vaccines such as Hepatitis B, to achieve 90 percent protection of children at birth from risk of neonatal tetanus through TT immunization of their mother by 2005, to eradicate polio by year 2003 and to investigate and control 90 percent of measles outbreaks by 2004. These ambitious objectives were however never achieved due to various reasons including lack of knowledge among the care takers.

Recent data estimates show Tanzania to have immunization coverage of 75% of all basic vaccinations. The region with highest coverage was reported to be Kilimanjaro (94.2%) and lowest of (42.1%) was Tabora region (7). Although immunization services have been strengthened in many regions and succeed in averting many deaths, there is continuing concern at the failure to achieve high immunization coverage in some districts.

2.3 Perceived susceptibility to childhood vaccine preventable diseases

With reference to Health Believe Model, it is assumed that for mothers of under-fives to take their children for vaccination, they must perceive their children to be susceptible to diseases prevented through immunizations. The perception that getting such diseases may leads to serious consequences raises their motivation to take action.

In 2008 Jheeta from a study done in Bangladesh found that, the primary motivations for child vaccination was the mothers' perceptions that vaccines were inherently good or the risk of a disease was so great that the vaccine was the best option to prevent contraction of a given illness (29).

Unexpected finding was observed in Nepal (30) where mothers' fears of the major infectious diseases of childhood (such as polio, tuberculosis, diptheria, pertussis, tetanus, and measles), and beliefs that these illnesses provide a serious threat to their children were not related to their immunization behavior.

In a study to examine acceptability of the five-in-one vaccine, Tickner elicited women's opinions on the vaccine (31). Some of the women expressed the concern that the vaccine present too much of a burden to the vulnerable immune systems of their infants. They felt that their children were not that much susceptible to diseases for them to accept five-in-one vaccine. Another study found that mothers' education level was related to their perceived susceptibility to childhood vaccine preventable diseases (32).

2.4 Knowledge of child vaccines and vaccine preventable diseases

Low childhood vaccination uptake is contributed to a large extent by lack of awareness about vaccine preventable diseases and vaccines among the parents. With the introduction of vaccines and the subsequent drastic reduction in the number of incidences of vaccine-preventable diseases, parents have little or no knowledge of many of the diseases that childhood immunization prevents (33). In his study, Thad (34) identified among the other things knowledge of communicable diseases and vaccines as factors that influenced childhood immunization uptake in rural settings.

A study done in Bangladesh (35) reported that, even in the presence of maternal illiteracy, educating mothers about the vaccines and vaccine preventable diseases may be highly effective in increasing the child vaccination uptake. In another study conducted in Nigeria, aged mothers were more likely to understand about vaccines and therefore more likely to get their children vaccinated than young mothers (36).

In a study about beliefs in vaccinations and children's health among childbearing mothers in Nepal (29), results from most (67.3%) of the respondents indicated that they learned about vaccinations from their families, friends, and schoolteachers rather than from formal education or health workers.

The age of an individual is commonly considered to be a proxy for knowledge. Contrary to what one would expect, a study in Nigeria showed that there were no significant difference in the ages of respondents and knowledge of childhood vaccinations (37). However results from the same study revealed that the majority of the respondents who were aware of childhood vaccinations were literate.

2.5 Acceptance to childhood vaccinations

Several studies have shown that, parental acceptance of childhood vaccinations is an important factor to the success of vaccination uptake in many parts of the world (35, 38, and 39). For example Martin (32) noted that, women believed that the immune system of a child was enough to prevent childhood illnesses provided that the child is healthy.

Using the results of studies carried out by the Social Science and Immunization Project in Bangladesh, Ethiopia, India, Malawi, the Netherlands and the Philippines, Streefland (40) discusses patterns of vaccination acceptance. It was noted that knowledge, beliefs and past experience about immunization influenced immunization acceptance among the participants. Acceptance dynamics included also the trust in biomedical technology and in the health service personnel.

A study done in Africa and Asia to determine the effects of parents' knowledge and attitudes on child vaccination postulated that cultural acceptance of modern practices was a significant contributor to the likelihood of obtaining childhood vaccinations (29). On assessing parental knowledge of paediatric vaccinations, Borrás (41) found that some parents had doubts about vaccines efficiency. However a high percentage (70%) of parents accepted to have their children vaccinated. A higher level of acceptance was associated with older maternal age and greater knowledge of vaccinations.

2.6 Barriers to child vaccination

Several perceived barriers deter women from sending their children for vaccination. Such was the case in 2003, when religious claims originating from north Nigeria that oral polio vaccine were unsafe (42). This caused suspension of polio vaccination as a result of which a large outbreak of polio across Nigeria.

One study explored the interaction of the providers and the communities for EPI services (43). It was found that the communities did not support EPI services. One occasion villagers

decided to have traditional ceremony to cleanse the village of bad spirits, which they might have considered more important than immunization activity as planned before.

In Cambodia, it was noted traditional practices of playing and offering food to the spirits of the great grandparents, taking 'magic' baths, having monks recite 'magic' words to raise the child's fortune and having a string amulet tied around a baby's wrist were important practices for protecting children from diseases (21). People showed more hesitation and some underlying uncertainties about benefits of immunizations.

Studies in Gabon and Mozambique (13, 14) have shown that parental cultural beliefs on childhood vaccination were an important determinant of child vaccination uptake. It was also observed by Da Vanzo (44) that culture and taboos as important determinants of health at household level can prevent mothers from taking their children for immunization.

It was also established that lack of knowledge about vaccines does not necessarily equate to a negative view of vaccines, but rather other factors such as cultural opinion may be more influential (29).

Therefore it can be concluded that, although routine vaccination is a major tool in the primary prevention of some childhood illnesses, there is some reluctance in a proportion of the population. Knowledge about childhood vaccinations, parental cultural beliefs and their perception on whether their children were susceptible to vaccine preventable diseases are some of the determinant of vaccination uptake among the parents. Understanding barriers to child vaccination uptake in a given subpopulation is an important precondition for effective immunization interventions.

CHAPTER THREE

3. METHODOLOGY

3.1 Study area

This study was conducted in Ngorongoro district in Arusha region between July and August 2012. The district covers a total area of 14,036 sqkms with an estimated population of 192,244 (45). There are 51.54% females and 48.46% males while under-five children make 19.5% of the district population. The district headquarters is Loliondo town, which is located 420 kms from Arusha City. It borders the Republic of Kenya in the North and Karatu district in south, Meatu and Serengeti in the West and Monduli in the East. A large part of the district is Serengeti Plain and Ngorongoro conservation area which are also inhabited by wild animals. It has two seasons, dry and wet with rainfall per annum of 884.6 mm and temperatures ranging from 20 to 27 degrees Celsius. The district is predominantly inhabited by pastoralists with semi nomadic lifestyle, usually moving in clans from one place to another in search for grazing for their cattle.

The district has 22 health facilities including 2 hospitals, 3 health centers and 17 dispensaries. The average traveling distance to health facilities is 22 km while the range is 0- 162 km. There are monthly outreach visits for immunization services done by health workers and village community health workers which are organized by the district health department. Some areas which are difficult to reach by normal transport means use air planes for outreach services.

3.2 Study design

This study employed descriptive across sectional study design.

3.3 Study population

The study population was mothers of under- five children.

3.4 Variables

In this study an outcome was child vaccination uptake among the mothers of under-fives. Socio-demographic factors, knowledge, and acceptability of childhood vaccination were independent variables used.

3.5 Sample size estimation

Sample size for the study was determined by the formula by Kothar (46)

$$n = \frac{z^2 p (100-p)}{\varepsilon^2}$$

Where

n= required minimum sample size, Z= Level of confidence (1.96 for % confidence level)

ε = margin of error (assumed to be 6%)

P=estimated proportion of vaccination coverage in pastoralists subgroup (taken as 44%)

$$n = \frac{(1.96)^2 \times 44(100-44)}{(6)^2}$$

$$n = 262 \text{ participants}$$

Adjusting for 1.5 design effect, n=393

After adjusting for 10% non-respondents, the sample size was 432 participants.

3.6 Sampling process

Multistage cluster sampling technique was used to access the study participants. First, from the list of 15 wards a sample of 4 wards was randomly selected. Then 3 villages were drawn randomly from each selected ward. From each selected village, 6 *bomas* with mothers of under-five was randomly selected from which all mothers of under-fives were interviewed.

3.7 Inclusion criteria

- A mother of under-five child/children.
- A woman must be a resident of Ngorongoro district or stayed in the area for one or more years.

3.8 Exclusion criteria

- A mother who did not stay in the study area for at least one year.

Selection and training of research assistants

Four research assistants were recruited among the village health workers from outside the study areas within the district. The selection criteria were;

- Experience in participating in research activities or health interventions in rural areas.
- Ability to read and write Kiswahili
- Ability to communicate with natives in their local language (Masai) where necessary.

Research assistants were trained on objectives of the study, data collection and ethical issues. Familiarization of the questions in the interview schedules was emphasized during the training.

3.9 Data collection tool

Information was collected using structured interviews with both open and close ended questions. The data collection tool covered socio-demographic status, vaccination status, knowledge on child vaccination, vaccination acceptability and barriers to child vaccination. The questions were set in English then translated into Kiswahili before administering to interviewee. For participants who could not communicate in Swahili, researchers translated into local language (Maasai). To ensure all researchers translated in the same way responses from respondents were compared to see if they were not different. Immunization status of a child was verified by presence of vaccination cards and not oral reports only.

3.10 Pre-testing

The clarity of questions and study logistics were checked by pre- testing sessions done together with research assistants in a village located about 15 km from Loliondo, the district headquarters. This village was not involved in the main study. Study participants who did not fluently understand Kiswahili, researchers translated the questions into a native language (Maasai).

3.11 Ethical consideration

Ethical approval was obtained from Research and publication committee of Muhimbili University of Health and Allied Sciences. Permission to conduct the study was sought from Ngorongoro district Authority, village leader and local tribal leader. Principle researcher and research assistants explained the participants the aim of the study. Participation was voluntary and every participant was free to withdraw at their will without any penalty.

3.12 Data Quality checks

Every evening a brief meeting between principal investigator and research assistants was conducted, the records of that day were reviewed for completeness and consistency.

3.14 Data processing and analysis

Data collected from the field were coded and computerized before entry in Epi-data statistical package. Since the Epi-data program offer function for entering data twice and running the validation function, this technique was used to minimize errors of data entry. Data were exported to SPSS program version 15.0 for analysis.

Bivariate analysis was done to look for any statistical significant relationship between selected independent variables and the outcome variable (vaccination uptake) where the chi-square test was used to test for significance.

P Value of 0.05 was used as significance test.

3.15 Limitation of the study

The results from this study should be considered with the following limitation;

The questions in the interview guide were set in English before being translated into Kiswahili for field use. However in the field, researchers translated the questions into local language (Maasai) for some respondents who could not communicate in Kiswahili. This might have affected the validity of the results as these translations may have distorted what was by intended by the primary questions in English.

CHAPTER FOUR

4. RESULTS

4.1 Characteristics of the study sample

A total of 449 mothers participated in this study. Their age ranged from 15 to 44 years with a mean age of 27 years. Nearly half of the respondents (49.9%) were between the ages of 25 and 34 years and about a third were youth aged less than 25 years. The majorities (92.7%) of the respondents were married, 58.6% were in polygamous marriages, and 5.3% were single. Negligible proportions (1.4%) were widowed or separated and very few (0.7%) were cohabiting.

The majority (73.3%) of old mothers (more than 35 years) were in polygamy compared to 55% who were between 25 and 34 years of age and 54% who aged less than 25 years old.

About 19% of study population had only one child, 64.6% had 2 to 5 children and the rest had six or more children.

Literacy was fairly low, nearly 64% didn't know how to read or write. Only 2% had some secondary school education and all were school dropouts.

The majority (83.3%) of mothers aged 35 years and older were illiterates while for those aged between 25 and 34 years were 63%. About a half (50.4%) of those aged less than 25 years were illiterate.

A large majority (78.6%) were pastoralists and about 17% were peasant farmers who also practiced pastoralism. The rest were mainly involved in peasant farming as summarized in table 1 below.

Table 1: Summary of Socio-demographic characteristics of respondents (n=449)

Characteristics	Number (%)
Age group (years)	
15 – 24	135(30.1)
25 – 34	224(49.9)
35 – 44	90(20.0)
Marital status	
Married (Polygamous)	263 (58.6)
Married (Monogamous)	153 (34.1)
Widow/Separated	6 (1.4)
Single	24(5.3)
Cohabiting	3 (0.7)
Parity(Number of children)	
1	87(19.4)
2	93(20.7)
3	77(17.1)
4	69(15.4)
5	51(11.4)
6	36(8.0)
7	18(4.0)
8	12(2.7)
9	3(0.7)
10	3(0.7)
Level of Education	
No formal education	285(63.5)
Didn't complete primary school	27(6.0)
Completed primary school	128(28.5)
Didn't complete secondary school	9(2.0)
Occupation	
Pastoralists	353(78.6)
Mixed farmers	77 (17.1)
Peasants	19 (4.1)

4.2 Perceived susceptibility to vaccine preventable childhood diseases

The majority of the study participants (88.8%) knew the benefits of childhood vaccination. A fairly small proportion (3.3%) said they did not know what would happen to their children if they were not vaccinated.

Most respondents (82%) perceived their under-five children to be highly susceptible to vaccine preventable diseases. A few (14%) perceived susceptibility to be low. A minority (4%) of the mothers held the perception that their children were not susceptible at all.

Half of the respondents who said their children were not susceptible to vaccine preventable diseases were less than 25 years of age and the same applies to a third (33.3%) of those who were above 35 years old. Similar perceptions were held by 16.7% of mothers who were between 25 and 34 years of age. These variations were statistically significant ($\chi^2=23.22$, $p=0.001$).

Illiteracy appeared to be associated with low perception of vulnerability of under-five children to vaccine preventable diseases. A fairly large proportion (85.5%) of under-fives' mothers who perceived susceptibility to vaccine preventable diseases to be low did not know how to read and write. Similar views were held by a few (14.3%) of those who had formal education. These variations were statistically significant ($\chi^2=16.01$, $p=0.001$).

Most mothers (83.3%) who did not perceive their children to be susceptible to vaccine preventable diseases were in polygamous marriages. The same applies to 16.7% in monogamous relationship. The association between marital status and perceived susceptibility was statistically significant ($\chi^2= 15.64$, $p=0.004$).

Vaccination of children was positively associated with perceived susceptibility of the children to the effects of the vaccines. A large proportion (83.7%) of mothers who perceived their children be highly susceptible to vaccine preventable diseases had vaccinated their children. Similar actions were taken by only 10.7% of mothers who perceived susceptibility to be low and a small proportion (5.6%) of those who did not perceive to susceptible at all. These variations were statistically significant ($\chi^2=6.92$, $p=0.03$).

4.3 Knowledge of childhood vaccinations

All the study participants were aware of childhood vaccinations. The majority of them (94.7%) said health workers were the main source of such information, 4% heard about it from friends and very few (1.3%) heard of it from mass media especially the radio.

When they were asked to mention at least three childhood diseases which can be prevented through vaccinations, a fairly small proportion (1.1%) of the respondents could not mention any disease. All of them were mothers aged less than 25 years. Almost two thirds (65.3%) were able to mention one disease, in which majority (75%) of them were between 25 and 34 years of age. About thirty percent of the respondents were able to mention two diseases correctly and more than half (53.3%) were 35 years old or more. A fairly small proportion (2.9%) could mention three vaccine preventable diseases and mothers under 25 years were better than older age groups as shown in table 6 below ($\text{Chi}^2=53.01$, $p=0.001$).

Table 2: Awareness of vaccine preventable diseases by age

Age (years)	Number of vaccine preventable diseases mentioned				Total
	No disease named.	One disease	Two diseases	Three diseases	
Less than 25	5(3.7%)	83(61.5%)	37(27.4%)	10(7.4%)	135(100%)
25 – 34	0(0.0%)	168(75%)	53(23.7)	3(1.3%)	224(100%)
35 and above	0(0.0%)	42(46.7%)	48(53.3%)	0(0.0%)	90(100%)
Total	5(1.1%)	293(65.3%)	138(30.7%)	13(2.9%)	449(100%)

($\text{Chi}^2=53.01$, $p=0.001$).

Among the vaccine preventable diseases, measles was the most recognized. The majority (80.2%) of the mothers mentioned measles while 39.2% recognized tuberculosis as vaccine preventable diseases. A very small proportion (1.6%) mentioned polio disease.

Awareness to measles disease was positively associated by level of literacy. About 78% of literates recognized measles disease as a vaccine preventable disease compared to forty percent of those who did not know how to read and write ($\text{Chi}^2=14.5$, $p=0.007$).

On the other hand, the majority of the pastoralists (85.0%) recognized measles followed by 11.3% of those practicing mixed farming. A fairly small proportion (3.7%) of mothers who recognized measles disease were peasants. However awareness of measles disease was not significantly associated with the occupation of the respondents ($\text{Chi}^2=35.3$, $p=0.07$).

4.4 Acceptance of the childhood vaccinations

The study results reveal that majority of the respondents (92.7%) accept childhood vaccinations. Most mothers (63.9%) who accepted the concept had 2 to 5 children followed by 20.2% of those with one child. Less than 16% of mothers with six or more children accepted childhood vaccination in this study. However, association between acceptance of childhood vaccinations and parity was not statistically significant ($\text{Chi}^2=2.41$, $p=0.29$). Similarly, there was no statistically significant association between acceptability of childhood vaccinations and age ($\text{Chi}^2=2.4$, $p=0.3$) as well as level of literacy of the respondents ($\text{Chi}^2=2.31$, $p=0.12$).

Almost 54% of mothers who accepted childhood vaccinations had vaccinated children compared to 27.3% of those who did not accept the concept ($\text{Chi}^2=8.6$, $p=0.003$).

In this study, vaccination status of youngest child was taken as an indicator of mothers' behavior to vaccinate children. Vaccination cards were used to verify vaccination status of a child. More than half (51.9%) of the mothers who had vaccinated their children had vaccination cards. About 7 % of the respondent were vaccinated but did not have vaccination cards and 40.5% were not vaccinated at all.

The majority of mothers (60.7%) who vaccinated their children were less than 25 years old as shown in figure 4 below. The variations of vaccination status of a child and age of the mothers were statistically significant ($\text{Chi}^2=11.94$, $p=0.003$)

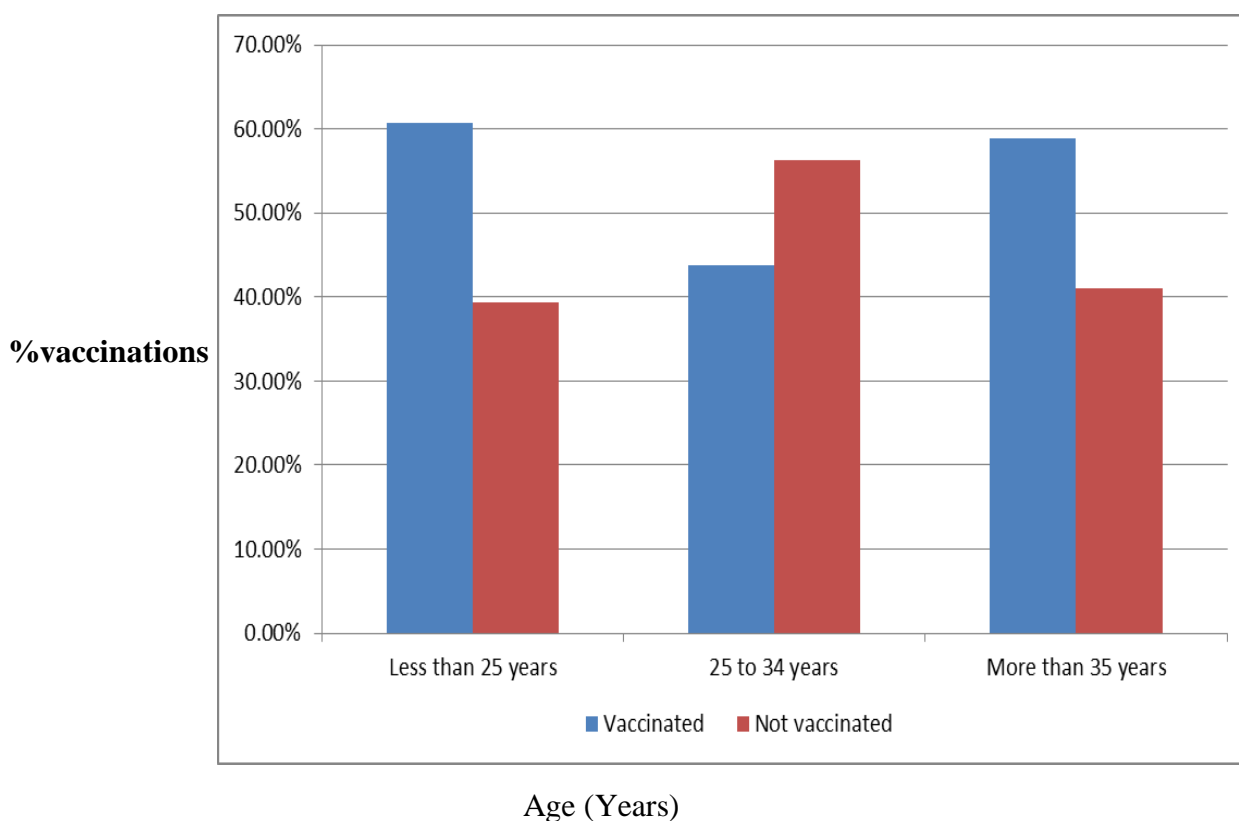


Figure 2: Variation of vaccination status of a child by age of the mother.

Literacy was observed to be positively related with vaccinating children. About 60% of mothers who knew how to read and write vaccinated their children compared to 48.1% of illiterate mothers ($\text{Ch}^2=4.59$, $p=0.03$).

When vaccination status of the children were examined across occupation of their mothers, about two thirds (67.5%) of mothers who vaccinated their children were peasants compared to almost 50% of mixed farmers and 47.4% of pastoralists who were mothers ($\text{Chi}^2=9.12$, $p=0.01$).

There were two major ways of accessing vaccination services in the study area, mobile outreach clinics and use of existing health facilities. About two thirds (65.9%) of the study participants accessed vaccination services through mobile outreach clinics while the remaining 34.1% accessed such services in health facilities.

More than three quarters (76.6%) of the mothers who were pastoralists accessed vaccination services from mobile clinics compared to 65.4% of peasant farmers and about a third (31.6%) of mixed farmers. These variations were statistically significant ($\chi^2=13.94$, $p=0.001$).

There was no significant association between source of vaccination services and literacy of the respondents ($\chi^2= 4.6$, $p=0.07$).

The time spent by mothers to access vaccination services to their children varied. Almost half (47%) of the respondents spent two hours or more, nearly thirty percent (29.1%) spent between one and two hours while about a quarter (23.8%) spent less than an hour.

4.5 Barriers to childhood vaccinations

Findings from this study show that under-fives mothers faced several barriers which inhibit access to vaccination services to their children. The majority of the respondents (71.9%) needed permission from somebody else before they could send their children for vaccination. Among those who needed permission, more than two thirds (69.3%) request for it from their husbands, about a third (29.4%) from their mother in-laws and very few (1.3%) from their mothers.

The age of the mother was strongly associated with the need for permission to go for vaccination service. More than a half (57.9%) of respondents who sought permission from their husbands were young mothers (less than 25 years), followed by those aged 25 to 34 years (31.6%). A fairly small proportion (10.5%) were old mothers aged 35 years and above. These variations were statistically significant ($\chi^2=12.0$, $p=0.007$).

Slightly higher than a half (53.6%) of mothers who had to seek permission did not vaccinate their children compared to 34.1% of mothers who did not have to seek permission ($\text{Chi}^2=13.71$, $p=0.001$).

Language was also found to be a barrier to mothers in seeking vaccination services. During interviews for example, about 40% of respondents needed translation of questions into local language (Maasai).

Mothers were also asked if there were any problem of understanding health workers in health education sessions during ANC visits. More than a third (34.5%) of the mothers who attended ANC reported to have problems with understanding Kiswahili from health workers. Many mothers (44.4%) who had this problem were youths (less than 25 years). Similar problems were experienced by 40.0% of those who were over 35 years old and 26.3% of aged 25 to 34 years ($\text{Chi}^2=13.71$, $p=0.001$).

Above half (51%) of mothers who spent two hours or more were those who accessed vaccination services through health facilities and 44.9% of mothers who spent such time accessed through mobile outreach as shown in the figure 5 below. These variations were statistically significant ($\text{Chi}^2=95.57$, $p=0.001$).

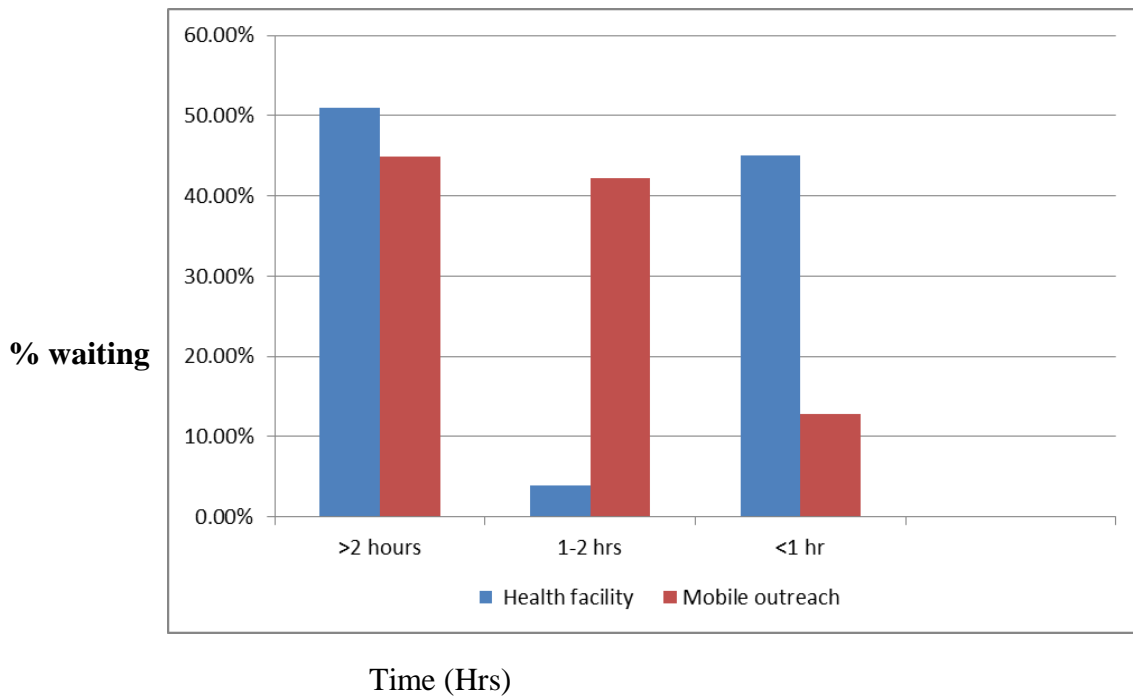


Figure 3: Variations of time spent to access vaccination services by source of the services.

In this study mothers were asked if the sex of their children could influence their behavior of seeking vaccination services. The majority of the respondents (95.1%) were not influenced by a sex of a child while the remaining 4.2% favored their male children. Only 0.7% favored their female children. Those with perceptions that the sex of a child can influence their decision to seek vaccination service, majority (72.7%) didn't vaccinate their children ($\text{Chi}^2=5.61$, $p=0.018$).

When responding to an open ended question in which they were asked to mention any obstacle to child vaccination, more than half (53.2%) of the respondents noted "grazing cattle" as one of the obstacles. Nearly two fifths (38.8%) said "distance to the immunization service" and about a quarter (22.1%) said they were "unaware of immunization days". Distance to vaccination sites was an obstacle to the majority (78.5%) of the pastoralists followed by peasants (16.8%). A small proportion (4.7%) were mixed farmers ($\text{Chi}^2=453.68$, $p=0.001$).

Respondents were also asked to state if there were any household activities which could prevent them from sending their children for vaccination. Only 37% of the mothers reported household activities to be a barrier to such services.

When asked if they had any assistance when faced with problems of taking their children for vaccination, almost 62% of the mothers reported to have assistants. More than half (54.3%) were helped by their daughters followed by 36.2% who were helped by their co-wives. Fairly small proportions of 6.2% and 3.3% were helped by either their grandmothers or mothers respectively.

From this chapter, findings show that there was a high level of illiteracy (64%) among the interviewed subjects. This was found to be associated not only with low perceived susceptibility to vaccine preventable illnesses but also low knowledge to childhood vaccines. Despite the observed universal awareness to childhood vaccines, there was low knowledge to individual childhood vaccines. There was a high acceptance (92.7%) of childhood vaccinations among the interviewed mothers, only that 71.9% of these mothers needed permission from their husbands for them to send their children for vaccinations.

CHAPTER FIVE

5. DISCUSSION

For mothers to take their children for vaccination, they must perceive vaccines to be beneficial. Results from this study showed that most under-fives mothers (88.8%) agreed that childhood vaccinations are important to their children. Similar results were obtained by Rasheed (39), in which 88.4% of the study participants said vaccinations were beneficial for wellbeing of their children.

The extents to which mothers feel that their children are vulnerable to vaccine preventable diseases may influence their behavior to vaccinate their children. In this study the majority of the mothers (82%) were of the opinion that their children were at risk of getting such diseases. These perceptions were also found to be positively associated with participants' behavior to vaccinate their children. However this finding is in contrast to what was found in Nepal. Perceived vulnerability to vaccine preventable disease did not significantly relate to the use of childhood vaccination services among Nepalese mothers (29).

It appeared marital relationships could influence mother's opinion as to what extent her child is at risk of vaccine preventable diseases. Most mothers (83%) in polygamous marriage did not feel their children were at risk. However, polygamy was also associated with school dropouts. Mothers who knew how to read and write were more likely to feel their children to be susceptible than illiterates, similar to what was found in Nigeria (32). This study confirms the importance of maternal education as a proxy variable to other variables enabling mothers to seek health services for their children.

Virtually all the respondents in this study were aware of childhood vaccination, a comparable finding to that of mothers in Kinshasa (47). Health workers were the main (95%) source of information to mothers regarding childhood vaccinations. In Nigeria (48) about 66% of respondents heard about childhood vaccinations from health provider as well. Therefore this finding suggests that the use of health personnel to provide information about childhood vaccinations to mothers is one of strategies to reach mothers with childhood vaccinations information.

Although mothers were generally aware of the concept of childhood vaccination, this study found that mothers have limited knowledge of vaccine preventable diseases. Only 2.9% of the interviewed mothers were able to mention three childhood diseases which can be prevented by vaccinations. This finding could be attributed partly to illiteracy of the mothers in the study area. A qualitative study which was conducted in Cambodia (21) revealed a similar finding in which mothers had limited knowledge of vaccine preventable diseases despite showing a universal awareness to child vaccinations.

Awareness to measles disease was high (80%) compared to other vaccine preventable diseases. This proportion was even higher compared to finding by Mapatano et al (47) who found 51% of the respondents aware to measles diseases. The observed awareness to measles disease in this study might be influenced by the measles outbreak which occurred in the study area in the year 2011 in which many children were infected.

It is not uncommon that mother's acceptance of childhood vaccinations is associated with increased likelihood of vaccination uptake (40). This study found a substantial proportion (93%) of mothers accepts childhood vaccinations. Acceptance was also found to be positively associated with the tendency to child vaccination. Their experience to the deaths caused by measles disease in recent years might have shaped their attitudes and behavior towards childhood vaccination.

Other studies have confirmed the importance of maternal education for the acceptance of childhood vaccinations (35, 44). Maternal education may act as a proxy variable for a number of background variables that reflect a woman's higher socio-economic status, thus enabling her to seek health services for her child when necessary.

The importance of child vaccination cards to mothers was reported in DRC (47), where about 40% of mothers used vaccination cards to decide on completion of vaccinations to their children. It appeared in this study some participants did not have vaccination cards. They might have either lost or they were not given by health providers due to lack of supply. It is important that mothers possess these cards as the cards not only do act as a tool for decision making for completion of vaccinations but also crucial for reminding mothers on subsequent vaccination dates.

It is well recognized that age plays an important role in women's utilization of health services as shown elsewhere (38) that maternal age was positively associated with the behavior to child vaccination. In this study it appeared majority (60%) of young mothers vaccinated their children than their elders did. Education may have a place to explain the observed finding as the majority of mothers who knew how to read and write in this study were less than 25 years of age.

Under-five mothers in the study area experience several barriers for taking their children to clinics. For mothers to take their children for vaccination they had to overcome these barriers.

Many women needed approval from somebody else before they could send their children for vaccination. The need for approval was found to be a predictor of mothers' behavior of child vaccination, similar to what was found elsewhere (38).

In this study men played a dominant role in decision making about child vaccinations. About 60% of the women needed permission from their husbands before they could send their children for vaccinations. This is similar to findings from other studies from several

developing countries (37, 45) in Asia and Africa. It is evident that when thinking of interventions to increase vaccination coverage in this area, the role of men as an ultimate decision maker as far as child vaccination is concerned should not be overlooked.

The study found no gender preference in terms of which child to take for vaccination. Most (95%) respondents insist that they do not discriminate against any child due to gender. Almost similar finding was reported by Adenyinka (48) in Nigeria where 98% of the respondents did not show bias to baby's gender when it comes to child vaccination. This suggests that mothers in this area would not be prevented from vaccinating their children due to child's gender.

For mothers to make informed choices about childhood vaccinations, they need to understand what they are being told by health workers about the concept. Almost 40% of mothers were comfortable to communicate in their native language (Maasai), which was not commonly used by health workers. Mothers may not comprehend health information given in a language which they hardly understand.

Many study participants (65%) were found to depend on the mobile outreach services to access vaccination services. Unfortunately, mothers were not aware of exactly when next the outreach team will come for vaccinations. In Bangladeshi (38) the same result was obtained in which mothers of under-fives who were involved in the study reported not to be aware of the time-table of the visiting outreach teams. Lack of good communication between health workers and recipients of the health services can impair uptake of the intended services.

Time spent by mothers to access vaccination services for their children was found to be another barrier to child vaccination. Distance travelled to service points may determine the time to be consumed by mothers seeking to vaccinate their children. In this study nearly a half (47%) of the respondents spent two hours or more to get vaccination services. Mothers who accessed vaccination services from health facilities spent much time as compared to those who accessed through mobile clinics. This finding is similar to what was found in Sudan (49) in 2008. This finding is probably partly due to general distribution of health facilities in the area, which are widely dispersed such that an average distance to a health facility is almost 20km.

5.1 Conclusion

Based on the findings from this study, it was concluded as follows:

1. Although mothers in this study perceived their children to be susceptible to vaccination preventable diseases, some socio-demographic characteristics influence their perceptions to such susceptibility. Many mothers who were young, illiterates and those in polygamous relationship did not perceive their children to be susceptible to vaccine preventable disease.
2. Awareness to childhood vaccines was almost universal; however knowledge of vaccine preventable disease was found to be limited. Knowledge of vaccine preventable disease was found to decrease with increasing age of the respondents.
3. Maternal education was an important predictor of childhood vaccination uptake among the mothers of under-fives. Mothers who knew how to read and write were more likely to send their children for vaccination than mothers who were illiterate.
4. Maternal barriers to child vaccinations existed in this study population. Mothers of under-fives did not comprehend health information (including childhood vaccinations) given by health worker because they did not understand Kiswahili, the language commonly used by health workers.

5.2 Recommendations

- Sufficient information about child vaccination and vaccine preventable diseases should be provided to mothers of under-fives for them to make an informed choice on whether to vaccinate their children or not.
- It is also recommended that health workers should ensure that mothers are comfortable with the language used during their communications. The use of translators who know the local language can be employed where applicable to ensure smooth communications.

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APPENDICES

Appendix I: Informed consent

MUHIMBILI UNIVERSITY COLLEGE OF HEALTH SCIENCES DIRECTORATE OF
RESEARCH AND PUBLICATIONS

ID-NO

Consent to participate in this study

My name is **BAKARI SALUM**, I am working on this research project titled “Barriers to child vaccination uptake among Pastoralists in Ngorongoro District – Arusha”

Purpose of the study

This study has the purpose of collecting information about barriers for child vaccination uptake causing low vaccination coverage in Ngorongoro district. You are being asked to participate in this study because you have experiences and information that may be important to the study.

What Participation Involves

If you agree to participate in this study the following will occur:

1. You will sit with a trained research assistant and he/she will ask you few questions about child vaccination. The interviewer will be recording your responses in the questionnaire.
2. No identifying information will be collected from you during this interview, except your age, level of education, marital status number of your children.
3. You will be interviewed only once for approximately 15 minutes in a private setting.

Confidentiality

I assure you that all the information collected from you will be kept confidential. Only people working in this research study will have access to the information. We will be compiling a report, which will contain responses from several clients without any reference to individuals. We will not put your name or other identifying information on the records of the information you provide.

Rights to Withdraw

Taking part in this study is completely your choice. You can stop participating in this study at any time, even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Who to contact

If you ever have questions about this study, you should contact the study Coordinator or the Principal Investigator, Dr. Bakari Salum, Muhimbili University of Health and Allied Sciences (MUHAS), P.O. Box 65001, Dar es Salaam (Tel. no. 0783211768). If you ever have questions about your rights as a participant, you may call Prof. M. Aboud Chairman of the University Research and Publications Committee, P. O. Box 65001, Dar es Salaam. Tel: 2150302-6 and Prof. M.T Leshabari who is the supervisor of this study.

Signature

Do you agree?

Participant Agrees

Participant disagree

I _____ have read/understood the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of Participan _____

Signature of witness (if participant cannot read) _____

Signature of research assistant _____

Date of signed consent _____

Appendix II: Questionnaire (English version)

**BARRIERS TO CHILD VACCINATION UPTAKE AMONG PASTORALISTS WOMEN
IN NGORONGORO DISTRICT-ARUSHA**

Questionnaire No.....
Research assistant No.....
Date of Interview.....

Introduction

I'm Bakari Salum, from Muhimbili University of Health and Allied Sciences- Dar es Salaam. We are conducting a research in Ngorongoro district on barriers to child vaccination uptake among pastoralists' women. We are asking you to give us some five minutes to talk about these issues. Your responses will be confidential and will be treated anonymously. We will appreciate if you will agree to participate in this research.

PART 1: Demographic information

S/N.	Questions		Response
1	1. What is your age(in years)		
2	2. What is your marital status?	1 = Married (Polygamous)	
		2 = Married (Monogamous)	
		3= Divorced	
		4 = Widowed	
		5 = Single	
		6 = Cohabiting	
		7= Separated	
3.	How many children do you have?		
4	Do you know how to read and write? If yes what level of education did you attain?	1= YES	
		2=NO (Go # 6)	
		1= No formal education	
		2= Did not complete primary school	
		3= Completed primary school	
		4= Didn't complete secondary school	
	5= Completed secondary school		

		6= College education and above	
5	If you didn't complete school, why?.....		
6	What is your occupation?	1= Pastoralist	
		2= Peasant	
		3= Mixed farmer	
		4= Housewife	
		5= Other (Specify)	

PART II: Awareness to childhood vaccinations and vaccine preventable diseases

7	Have you ever heard of child vaccination?	1 = YES	
		2 = NO	
8	From which source did you hear about child vaccination?	1 = Friends	
		2 = Radio	
		3= Health provider	
		4= Newspapers	
		5= Others (specify)	
9	Mention three childhood diseases which can be prevented by vaccination.	1	
		2.....	
		3.....	

10	At what age should vaccination against measles be offered?	1 = I don't know	
		2 = 9 months	
		3= Others (Mention).....	
11	At what age should vaccination against polio be offered?	1 = I don't know	
		2= At birth, 1, 2 and 3 months	
		3= Others (Mention).....	

PART III: Acceptance of childhood vaccinations

12	Do you accept your child to be vaccinated?	1=YES	
		2=NO	
13	If NO why?.....		
14	Have you sent all your under-fives children for vaccination?	1=YES	
		2=NO	
15	Interviewer: If YES; Verify	1= Vaccination Card	
		2= Oral report	
16	Is there any vaccine you would not like to be given to your child?	1=YES	
		2=NO (Go # 22)	
17	If YES which one.....		

18	How do you access vaccination services for your child?	1 = Health facility	
		2 = Mobile outreach	
		3= At home	
		4= Others (Specify).....	
19	How long does take you to get vaccination service?	1 = 30 min	
		2 =One hour	
		3= Two hours	
		4= Four hours	
		5= More than Six hours	

PART IV: Susceptibility to vaccine preventable diseases

20	Is there any benefit to vaccinate a child?	1 = YES	
		2 = NO	
21	If yes, what are the benefits?		
22	What do you think will happen to your child if not vaccinated?		

23	How susceptible to diseases is it if your child is not vaccinated?	1 = Zero	
		2 = Low	
		3= Medium	
		4= High.	

PART V: Barriers to child vaccinations

24	What are cultural reasons which prevent you from sending your child for vaccination?		
25	In your culture, is child vaccination acceptable?	1 = YES	
		2 = NO	
26	In your household, is there need for approval for you to take your children for vaccination?	1= YES	
		2=NO	
27	If YES, who?.....		
28	Who would you prefer to be vaccinated between female and male child?	1= Male child	
		2= Female child	
		3= Both	
		4= None	

29	What is it that makes taking your child for vaccination difficult for you?.....		
30	Are there any household activities which can prevent you from sending your child for vaccination?	1 = YES	
		2 = NO	
31	If Yes, What is that activity?.....		
32	Is there anyone who can take your child for vaccination if you can't do it yourself?	1=YES	
		2=NO	
33	If YES, who?.....		
34	During your pregnancy, did you attend ANC?	1=YES	
		2=NO	
35	During your ANC visit was there any problem on understanding what health providers when they were telling you different things.	1=YES	
		2=NO	
36	If YES, what was it.....		

Thank you for your cooperation.

Appendix III: Questionnaire (Swahili version)

**DODOSO KUHUSU VIKWAZO VINAVYOSABABISHA KINA MAMA WA JAMII
YA WAFUGAJI WASIWAPELEKE WATOTO WAO KUPATA CHANJO**

Namba ya dodoso.....
Namba ya mtafiti.....
Tarehe ya mahojiano.....

Naitwa **BakariSalum**, kutoka Chuo cha Afya naTibaMuhimbili- Dar es Salaam. Tunafanya utafiti juu ya matatizo wanayopata kinamama wanapohitaji kupata chanjo ya watoto wao wilayani Ngorongoro. Tunaomba kuongea na wewe kwa muda mchache kuhusu suala hili. Majibu yako ni SIRI na kwamba utambulisho wako pia ni siri. Tutashukuru kama utakubali kushiriki kwani majibu yako yana mchango mkubwa katika utafiti huu.

SEHEMU 1: Maelezo binafsi

Na.	Swali		Majibu
1	Una umri wa miaka mingapi (umri kamili)?		
2	Hali ya ndoa.	1 = Nimeolewa mitala	
		2 = Nimeolewa ndoa ya mke mmoja)	
		3=Nimeachika	
		4 = Mjane	
		5 = Sijaolewa	
		6 =Naishi na mwenz	
		7= Tumetengana	
3.	Je, Una watoto wa ngapi?		
4	Je, Unajua kusoma na kuandika? Kama NDIYO, ulifikia kiwango gani cha elimu?	1= NDIYO	
		2=HAPANA (nenda namba 6)	
		1= Sijaenda shule	
		2= Sikumaliza elimu ya msingi	
		3= Nilimaliza elimu ya msingi	
		4= Sikumaliza elimu ya sekondari	
		5= Nilimaliza elimu ya sekondari	

		6= Elimu ya juu	
5	Kama hukumaliza shule, kwa nini?.....		
6	Unafanyakazi gani?	1=Mfugaji	
		2= Mkulima	
		3= Mkulima na Mfugaji	
		4=Mama wa nyumbani?	
		5=Mengineyo (taja).....	

SEHEMU II:

7	Je, umeshawahi kusikia kuhusu chanjo ya mtoto?	1 = NDIYO	
		2 = HAPANA	
8	Ulisikia kupitia chanzo gani kuhusu chanjo ya mtoto?	1 = Marafiki	
		2 = Redio	
		3= Mtoa huduma za Afya	
		4= Magazeti	
		5= Nyingine (taja).....	
9	Nitajie magonjwa 3 ya watoto yanayoweza kuingwa kwa chanjo.	1	
		2.....	
		3.....	

10	Je, chanjo dhidi ya surua inatolewa katika umri gani?	1 = Sijui	
		2 = Miezi 9	
		3= Mengine (taja).....	
11	Je, chanjo dhidi ya polio kwa mtoto inatolewa katika umri gani?	1 = Sijui	
		2= Baada ya kuzaliwa, mwezi 1, 2 na 3.	
		3= Mengine (taja).....	

SEHEMU III:

12	Je, unaafiki mtoto wako kupatiwa chanjo?	1=NDIYO	
		2=HAPANA	
13	Kama HAPANA, Kwa sababu gani hauafiki?.....		
14	Je, ulishampeleka mtoto wako kupata chanjo?	1=NDIYO	
		2=HAPANA	
15	Mtafiti: Akijibu NDIYO, thibitisha kwa;	1= Kadi ya Kliniki	
		2= Maelezo ya mdomo	

16	Je, kuna chanjo yoyote ambayo usingependa mtoto wako apewe?	1=NDIYO	
		2=HAPANA	
17	Kama NDIYO, chanjo ipi.....na kwa sababu gani.....		
18	Je, unazipata wapi huduma za chanjo kwa ajili ya mtoto wako?	1 = Kituo cha afya	
		2 = Huduma ya mkoba.	
		3= Nyumbani kwako.	
		4= Nyingine (taja) ...	
19	Unatumia muda gani hadi kupata huduma ya chanjo kwa mtoto wako?	1 = Dakika 30	
		2 = Saa 1	
		3= Saa 2	
		4= Saa 4	
		5= Zaidi ya Saa 6.	

SEHEMU IV:

20	Kuna faida yoyote ya kumpatia chanjo mtoto?	1 = NDIYO	
		2 = HAPANA	
21	Kama NDIYO, ni faida zipi (taja).....		
22	Je, unadhani kutatokea tatizo gani endapo mtoto asipopatiwa chanjo?		
23	Ni kwa kiasi gani mtoto wako anakua katika hatari ya kupata magonjwa endapo hatapewa chanjo?	1 = Hakuna	
		2 = Kidogo	
		3=Cha Kati	
		4=Cha juu.	

SEHEMU V:

24	Je, kuna sababu yoyote inayotokana na mila inayokufanya usimpeleke mtoto kupata chanjo?		
25	Kwa mujibu wa mila zenu, chanjo kwa mtoto inakubalika?	1 = NDIYO	
		2 = HAPANA	
26	Ndani ya kaya yako, ni lazima uruhusiwe na mtu yeyote ndipo unaweza kumpeleka motto kwa ajili ya chanjo.	1= NDIYO	
		2=HAPANA	
27	Kama, NDIYO ni nani?.....		
28	Kati ya mtoto wako wa kike na wa kiume ni yupi ungependa zaidiapewe chanjo?	1=Wakiume	
		2= Wakike	
		3=Wote	
		4=Hakuna	

29	Ni vipingamizi gani vinakufanya ushindwe kumpeleka mtoto wako kupewa chanjo?	
30	Kuna shughuli zozote za nyumbani ambazo zinaweza kukuzuia kumpeleka mtoto kupata chanjo?	1 = NDIYO
		2 = HAPANA
31	Kama NDIYO, ni shughuli gani.....	
32	Je, kuna mtu yeyote ambaye angekusaidia kumpeleka mtoto kupata chanjo pale unaposhindwa kufanya hivyo wewe mwenyewe?	1=NDIYO
		2=HAPANA
33	Kama in NDIYO, unadhani ni nani?.....	
34	Ulipokua na ujauzito wa watoto wako ulihudhuria kliniki?	1=NDIYO
		2=HAPANA
35	Je, kulikua na tatizo lolote kuwaelewa watoa huduma walipokuwa wanazungumza vitu mbalimbali kwa wajawazito?	1=NDIYO
		2=HAPANA
36	Kama NDIYO tatizo lilikua ni nini?.....	

Asante kwa ushirikiano.