THE EFFECTS OF SOCIAL CULTURAL PRACTICES ON PARENTAL DECISION TO UNDERGO POLIO VACCINATION IN MWALA SUB-COUNTY, MACHAKOS COUNTY, KENYA

This Thesis is submitted in Fulfillment for the Requirements of the Award of the Degree of Masters in Development Studies from St Paul's University

BY PATRICK NDIVO

September 2020

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PATRICK NDIVO

September 2020

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university



30/08/2020Patrick Nzivo

Date

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DECLARATION

We confirm that the work reported in this thesis was carried out by the student under our supervision as the university supervisors.



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DEDICATION

This project work is first of all dedicated to God Almighty and to all my loved ones for their support and encouragement throughout the time of my study at the University and through the duration of this project work.

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ABBREVIATIONS

CEC	County Executive Committee
FIC	Fully immunized child
GOK	Government of Kenya
GVS	Global Vaccine Stock
KII	Key Informant Interviews
MOH	Ministry of Health
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization

ABSTRACT

Vaccination is a key indicator to a country's commitment to health and especially to children's health. This is because it plays an important role in preventing child mortality and future disability. A lot of progress has been made in Kenya towards attaining full vaccination uptake but there are still many challenges hampering this. Some of these challenges range from religious beliefs, education levels and economic status of families. This research therefore sought to investigate these factors. The objectives of the research included: to examine the effects of education level of parents on the choice to vaccinate their children against Polio in Mwala Sub-County; to assess the influence of religion on parental choice of their children being vaccinated against Polio; to examine the effects of parental social status on their choice to have their children vaccinated against polio and to assess the effects of information access on parental choice to have their children vaccinated against polio in Mwala sub-county. Using the Theory of Reasoned Action, the study argued that the best predictor of behavior is behavioral intention and thus, the decision of a parent to either have the child vaccinated against polio is fully dependent on the intention, attitude and subjective norms. The study adopted a Descriptive Survey Design in which a total of 381respondents were selected using Krejcie and Morgan's formulae was issued with questionnaires and another 6 post natal care givers from each of the six wards were interviewed. Stratified random sampling technique was employed in selecting these respondents whereby from each of the six wards, 63 respondents were selected. Analysis was done in two ways; the quantitative data was aided by the computer software Excel and presented in tables, charts, figures and percentages. On the other hand, qualitative data from the responses; especially those from interviews, were used to back up the quantitative data. The study established that indeed parental social status, education levels and religious beliefs have an immense influence on the parental choice to vaccinate their children. This study would benefit a number of people especially community workers, health practitioners and policy makers.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

Basel and Shrestha (2012) define vaccination as the process in which an individual's immune system is safeguarded from being infected with an infectious disease. It is one of the most successful life-saving interventions in public health (Zimmermann & Curtis, 2019). It is one of effective strategies in the control of childhood related sicknesses which cause deaths worldwide. According to WHO (2015), the role of vaccination is to stimulate a person's immune system so that it produces antibodies that end up protecting the person from future infections by that disease.

Several Polio outbreaks have been witnessed in history which necessitated the acceleration of polio campaigns. The 2003 polio epidemic in Nigeria was the first case. The outbreak was partly attributed to vaccines refusal and suspicions that was worsened by lack of good interpersonal communication. It is documented that the spread of the epidemic covered about 20 countries then, hence paralyzing many children in areas that were affected (Munyalo, 2019).On the brighter side, the outbreak encouraged communication improvement at the GPEI, though its success was affected by inadequate funding. The other outbreak can be traced back in 2006 which affected India. Unlike, the Nigerian case, it majorly affected children from the Muslim community especially from the parents who were reluctant to participate in the vaccination routines. Just like the case in Nigeria, the event was a wakeup call that something needed to be

done to change the status quo. Consequently, GPEI committed more attention and resources mobilization. In 2010, the Gates Foundation came in and sponsored UNICEF in order to improve communications which was vital in the fight against the spread of polio outbreak. Together with its epidemiologist partners, UNICEF was able to give the programs more acceptance or legitimacy. It mainly focused on encouraging caregivers to trust health workers, government agents, and other organizations running the programs, including WHO.

Awino (2016) rightly states that vaccination is a key determinant of children's health. This has positive medical outcomes worldwide. Owing to the centrality of children's health, programs that encourage and enhance the uptake of vaccinations by children are paramount and as such, a categorical imperative pursued by many countries, especially those that are still developing their health infrastructure. Awino (2016) further denotes that these programs must be stepped up because the health of a non-vaccinated child is always at stake.

According to Legesse (2015), history of disease is punctuated with statistics of many deaths that existed before the introduction of vaccines. These diseases ranged from Polio, Tetanus, and Small Pox to whooping cough. The Center for Disease Control (2013) prioritized vaccination strategies as the top ten achievements of the 20th Century. In America, child immunization arrangements have gone a long way in reducing to very negligible levels the cases of children succumbing to the diseases that could have been prevented (Njeru, et al., 2017).

Because of the importance of vaccination programs and the realization that these programs not only benefit the children but also the society at large, the WHO (2019) conceived a blueprint that

was aimed at controlling millions of deaths through the encouragement of universal access to vaccines. Through this blueprint, countries were required to attain a high coverage of vaccination which ranged from 80-90%. It is hoped that if this percentage is attained, then all vaccine-preventable diseases will be eradicated.

In Africa, the rate of attainment of vaccination coverage was pegged at 74% (Wiysonge, 2012). However, despite such a percentage, there still a high number of infants who do not receive full Vaccination. This has made vaccination against Polio, Measles and Tetanus record low uptake in many African countries (Wiysonge, 2012). This poses the need to deeply examine the underlying factors which lead to this scenario given the importance of children's health in protecting the community and its future. In Kenya, as much as many strides have been made with regard to vaccination uptake, there are still several obstacles which hinder full uptake of vaccines. Lisa (2014) avers that low maternal education of parents has been a factor which hinders the decision of parents not to vaccinate their children. Furthermore, Legesse (2015) alludes to the fact that education of parents has been a factor which has either encouraged or hindered parents' decision to have their children to be vaccinated. Therefore, this research sought to unveil the effects of the socio economic factors of parents and how these factors affect their decision to have their children be vaccinated against Polio in Machakos County.

1.2 Statement of the Problem

According to Grépin and Bharadwaj (2015) the guiding principle for the adoption of the SGD vision 2030, the leaders representing their countries unanimously pledged to put in place measures aimed at eliminating poverty, promote health by instituting measures that enhance a

healthy planet that will benefit those who will live in it in the future, encouraging peaceful and well-knit societies and above all, enhance the promotion and enhancement of human dignity. Countdown (2018) outlines the third goal of the Sustainable Development Goals as priority to all health issues which constitutes not only reproductive health, but also maternal well-being as well as the child's health. This includes eliminating non-communicable illnesses, eliminating communicable diseases and dealing with other health hazards. Because as a signatory, Kenya is bound by these goals and as such it has directed its energies towards the attainment of the goals.

The Kenya Vision 2030 aspirations are in cohesion with the Bill of Rights provided for in Kenya's constitution. The Bill states that every person is entitled to rights, such as the right to high quality health care, among others. Kenya's Vision 2030 acknowledges the supremacy of the Constitution as one of its guiding principles, which makes it imperative for the country to adopt into law any treaties and international law it signs up to (Brunson, 2013). The Kenyan constitution, especially in Article 2(5) domiciles international laws and conventions as part of the guiding principles and as such, the Sustainable Development Goals are binding to the country. Due to this, the Kenyan government has aligned its development plans to ensure it's in coherence with its international development obligations such as the SDGs.

Among the 4 agendas introduced by the Kenyan president as roadmap to the country's development in 2017, quality and affordable health for all Kenyans is among them. Strides have been by consecutive governments to eradicate diseases such as polio, smallpox, and measles among others. According to the MOH (2017), there were less than 1% polio infections across the country among children aged between 1- 15 years, with the new infections occurring in far-flung

regions of the country whereby access to health care is limited. It's a practice in the country since 1960s, for infants to undergo anti-polio vaccinations in the country. This is repeated even into their teenage years, especially when there are cases of new break-outs(MOH,2014).Most new break-outs are experienced in North Eastern Kenya especially in refugee camps majorly because the parents didn't take their children through the immunization process in their mother countries (Olumuyiwa, et al.,2012)

Mwala sub-county is located in a remote region of Machakos County. Due to the remoteness of some villages in the sub-county as emphasized by the Sub-county health office, there are a few cases of polio and other communicable and incommunicable disease infections reported every year. However, investigations by the County health workers were not conclusive on the causes of these infections, despite the interventions by both the county and national government to ensure zero infections.

As much as a lot of progress has been made in as far as enhancing polio vaccination uptake is concerned, Kenya has not yet attained the 80-90% recommended levels by WHO (Sunguti&Neave, 2016).This has been occasioned by several socio cultural factors ; at the heart of these factors lies the parents' decision whether to vaccinate their children or not. These factors range from levels of education, religious beliefs of parents to the income levels and parental cultural practices. This brings to fore parents' disposition and the motivating factors which form the basis of their decision making to vaccinate their children. This study therefore, sought to investigate those socio cultural factors which affect parental decision to participate in polio vaccination programs in Mwala sub-County.

1.3 Objectives of the Study

This study was guided by the following objectives:

1. To examine the effects of education level of parents on the choice to vaccinate their children against Polio in Mwala Sub-county.

2. To assess the influence of religion on parental choice of their children being vaccinated against Polio in Mwala Sub-county.

3. To examine the effects of parental social status on their choice to have their children vaccinated against polio in Mwala sub-county.

4. To assess the effects of information access on their choice to have their children vaccinated against polio in Mwala sub-county.

1.4 Research Questions

1. In which ways does education levels of parents affect their choice to have their children vaccinated against polio?

2. What is the influence of religion on parents 'choice to have their children vaccinated against polio?

3. How does the parents' social status affect their choice to have their children vaccinated against polio?

4. In which ways does access to information by parents affect their choice to have their children vaccinated against polio?

1.5 Significance of the Study

The following groups of people will be beneficiaries to this research; Health workers, Community mobilizes, Health NGO's, the County and National government planners and policy drafters; The Health workers will take note of the motivating factors which enhance vaccination uptake; this will enable them to address these factors and mitigate those that negatively affect vaccination uptake. The community mobilizes, Social Workers, health NGO's will be able to mobilize people at community level by addressing those underlying reasons and ensuring that they are sufficiently empowered to avoid having to get their children miss vaccinations. The National and County government planners and policy drafters will come up with better strategies aimed at addressing those factors that negatively affect vaccination uptake.

1.6 Scope and Limitations

The study focused on polio vaccination. This is because of the severity of the effects of not taking it to children's nervous system. This vaccine was singled out because it has elicited a lot of controversy, especially from religious circles in the country. Furthermore, this research will be limited to Mwala sub County because of the financial and logistical obstacles. However, since the issue of vaccination cuts across all counties in Kenya, the results will be replicated to the rest of the Counties. An expected limitation of the study will be reluctance of parents to give full disclosure of the underlying reasons which influence their decisions, especially religious reasons. This is because of the sensitivity of religious views. However, the limitation was mitigated by ensuring that the parents do not feel under pressure to express their religious view in a manner that was prejudicial, at the same time, the information collected was treated with utmost confidentiality (Kothari & Garg, 2014).

1.7 Definition of Terms

Vaccination : In this context, it was used to refer to the physical administration of a drug by a qualified health worker which in turn leads to immunity from disease

Immunization: A process whereby one is made immune or resistant to an infectious disease by the administration of a vaccine

Uptake: Process that ensures that children are vaccinated against major diseases

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of related studies on socio economic factors and their effects on the parental decision to take part in vaccinations programs. It goes ahead to reveal the gaps which it intends to fill. The chapter also discusses theoretical foundation and conceptual framework that guided the study.

2.2 Theoretical Review

Theory of Reasoned Action guided this study; according to the theory, which was propounded by Tornikoski&Maalaoui, (2019); the best predictor of behavior (what a person actually does) is behavioral intention (person's intention to perform or not perform the behavior). Behavioral intention, in turn, is a joint function of a person's attitude toward performing the behavior (the individual's favorable or unfavorable predispositions toward the behavior) and subjective norms (the individual's perception of the behavior expected by relevant significant others).According to the theory of reasoned action holds that the best predictor of behavior (i.e., what a person actually does) is behavioral intention (i.e., a person's intention to perform or not perform the behavior). Behavioral intention, in turn, is a joint function of a person's attitude toward performing the behavior (i.e., the individual's favorable or unfavorable predispositions toward the behavior) and subjective norms (i.e., the individual's perception of the behavior expected by relevant significant others).Tornikoski and Maalaoui (2019) conceptualized the theory of reasoned action (TRA) to improve understanding of the relationships between attitudes, intentions, and behaviors (Hale, &Napier, 2013). Specifically, Highland (2016) clearly

delineated underlying behavioral and normative beliefs, intentions, and behavior, as well as how these constructs could be measured.

The TRA asserts that behavioral intention is the most immediate antecedent of behavior (Basel, & Shrestha, 2012). Behavioral intention is a person's readiness to perform a given behavior (Freimuth et al., 2001). TRA holds that behavioral intention is often influenced by an individual's attitude toward the behavior and subjective norms. Attitude toward the behavior refers to an individual's overall feeling that the behavior is favorable or unfavorable. Subjective norm is an individual's estimate of the social pressure to perform or not perform a behavior (Creswell, 2012). The TRA has been applied to various behaviors including exercise, condom use, cyber bullying perpetration, HPV vaccination, and cervical cancer screening and even vaccination behavior (Andriano1& Monden1, 2019).

The TRA is based on the assumption that behavior is voluntary; therefore, success of the TRA in predicting behavior is dependent on the degree to which the behavior is under volitional control (Gust et al., 2008). Therefore, the decision of a parent to either have the child vaccinated against polio is fully dependent on the intention, attitude and subjective norms. This research focuses on individual parent as a person who, based on his convictions and socio-cultural underpinnings, is capable of making a decision to either take the child for anti-polio vaccination or not. From this perspective, the cultural and economic environment plays a very significant role in dictating whether the parent will choose to have the child undergo vaccination or not. Using this theory therefore, the study argues that the cultural and social factors are the root cause which determines the uptake of polio vaccine.

The second theory that this research utilized was the Vaccine hesitancy theory; this theory is used to describe the spread of vaccine reluctance. According to WHO, VH refers to delay in acceptance or refusal of vaccines despite the availability of vaccination services. According Munyalo ((2019), this notion was coined by experts because of the realization that many people were not utilizing the services of vaccination despite widespread availability and sensitization. According to Reich (2014), vaccine hesitancy is used to refer to a set of attitudes and behaviors and beliefs which underpin people's choice to have their family members undergo vaccination. These beliefs and attitudes create in people a certain level of indecision to support vaccination. These ideas put together create in people a certain form of reluctance to conform to the expectations of vaccinations. In some cases, they may accept one vaccine while in other cases they may reject all of them altogether. According to Munyalo ((2019), socio economic determinants are key in vaccine hesitancy since the people justify their lack of compliance with social and economic reasons such as inadequate income, cultural opposition and ignorance.

The third theory that the research will utilize is the Theory of Planned Behavior (TPB). The theory of planned behavior (TPB), an extension of the TRA, added the perceived behavioral control construct to more accurately predict behavioral intention. Perceived behavioral control is the extent to which an individual believes they are able to perform the behavior (Fairbrother, et al., 2013). Specifically, the TPB posits that behavioral, normative, and control beliefs about a given behavior shape attitude toward the behavior, subjective norm, and perceived behavioral control, respectively, which influence behavioral intention, and subsequently, behavior. The TPB is a robust yet parsimonious intrapersonal theory that is highly predictive of human action, and

has been tested in predicting behavioral intention and behavioral change in over 1,000 empirical studies (Ames, Glenton&Lewin, 2017).

The TPB has been widely used to successfully predict a number of health behaviors among college males, including leisure, sleep, exercise, condom use, heavy episodic drinking, testicular self-examination, and HPV vaccination, among others (Ames, Glenton&Lewin, 2017).The TPB utilizes rigorous, systematic approach to identify those issues that are most important to a person's decisions about performing specific behaviors(Newman et.al, 2006). Specifically, it "describes and identifies why a problem exists and searches for modifiable constructs" (Olumuyiwa, et al., 2008) which makes the TPB a valuable framework for many health behavior interventions .The TPB's utility within health behavior interventions may in part be attributed to the extensive pilot work the theory requires, including a qualitative salient elicitation study with members of the priority population, followed by standardized methods for instrument development and measurement. Despite its substantial empirical support tin health behavior research (Al-lela, et al., 2014).

However, the TPB has several limitations. The TPB assumes an individual has acquired the opportunities and resources to perform a given behavior, regardless of their intention. Specifically, the TPB does not directly consider interpersonal, economic, political, and environmental factors that may influence an individual's intention to perform a behavior. Rather, the TPB assumes that all other factors, including demographics and environment, operate through the primary constructs, and do not [independently] explain behavioral intention. As a value-expectancy theory, the TPB assumes that behavior is rooted in a rationale thought process.

Consequently, the theory overlooks emotional factors (e.g., fear, mood, threat) that influence health behavior. Moreover, the TPB assumes that the relationship between behavioral intention and behavior is linear,and does not consider that behavior may change across time (Al-lela, et al., 2014).Therefore, this research hinged on the argument that people in Mwala Sub County demonstrate some lack of vaccine hesitancy based on their social economic backgrounds

2.3 Empirical Literature Review

2.3.1 Historical background and Coverage of Vaccination

According to Vikram &Vanneman (2020), one of the single most developments in the reduction of the prevalence of disease in the world today is that of the advancement of vaccines. According to WHO (2015) 50% of the global population has been vaccinated. Human beings have benefited from vaccines for more than two centuries. Efforts have been made to increase coverage by governments, humanitarian and religious organizations, yet the pathway to effective vaccines has been neither neat nor direct (Haran, Ritov& Mellers, 2013).

According to Jolley & Douglas (2014),the history of vaccination stretches back in time and space; in Asia, a technique called variolation involved a smallpox infection being induced in a person and it was later discovered that it helped to make the person's immunity stronger; especially as far as resisting the disease is concerned. However, much variolation was helpful; it was accompanied with huge risks because in some cases, those who underwent it ended up developing a more severe shred of the disease which would be transmitted to others.

The developments in vaccination took a new twist when Edward Jenner, a British national, demonstrated that it was possible to develop immunity by transferring pus from a part of the infection to a person. He did this by inoculating an 8 year child. When the child failed to show any signs of the disease, Jenner announced that the child had been vaccinated.

Ever since that time, a lot of efforts by different states worldwide have seen a lot of investments in vaccines; at times these investments have been faced with a myriad of challenge. In fact, many states derived pride in being able to vaccinate its citizens because it was perceived as a score and to that end, a lot of resources have been channeled towards this endeavor (Haran et.al, 2013).Immunization is essentially one of the health strategies that has effectively helped in controlling childhood mortality and illness. Internationally, approximately 5 million deaths of children under 5 are prevented every year through immunization programs (WHO, 2019).

However, despite the global commitment to improving children's health, approximately 23.2 million children were not vaccinated by 2018. Out of this, African countries accounted for 15.3 million (65%) children who remained unvaccinated (WHO, 2019). The overall immunization coverage is an important measurement for international organization to evaluate success levels of vaccination programs in any country; Kenya included (Bright, et al., 2017). The coverage can be simply seen as a yard stick that defines either failure or success against specified goals/targets. Kenya has seen a unique trajectory in immunization coverage over the years. It was estimated at 57% in 2003 but steadily increased to 77% in 2007. In 2006, around 35% did not receive full immunization translating to about one million children who remained unvaccinated in the country (KNBS et al., 2014).

Determinants of full or complete vaccination is said to revolve around size of household in relation to the number of children, availability of information related to immunization programs, distance to the nearest health center or hospital, education status, child's place of birth, income levels and culture. The knowledge of these factors or determinants is important especially when coming up with interventions aimed at improving vaccination coverage.

Fully immunized child (FIC) coverage for children with ages between 12 and 23 months in Kenya stood at 86% in 2009. However, there was regional differences. In particular, the coverage was48.3% and 85.8% in North-eastern region and central part of the country respectively (KNBS et al., 2014). The regional variation is a reflection of dissimilarities among factors affecting full immunization in different parts of the nation. Previous studies have hinted to the fact that parental age, low educational attainment, ignorance or inadequate information/knowledge about immunization, including its importance and schedules, associate significantly with non-compliance to children's immunization(Baron, et al., 2015). Other factors mentioned include inadequate support from the family, lack of ante natal care, financial burden and single motherhood among other socio-economic factors (Becerra-Culqui, et al., 2018).

2.3.2 Factors affecting Polio vaccination uptake in Kenya

According to Kothari&Garg (2014), factors that may influence the decision to vaccinate one's child against polio include problems such as lack of trust in the people and institutions associated with vaccination programs; inadequate responses to concerns about the safety of vaccines and

side-effects following vaccination; the spread of rumors and myths around vaccines; and challenges in communication between health care providers and patients.

2.3.3 Social Status of Parents and decision to Vaccinate Children against Polio

Most vaccination programs in Lower or middle-income countries tend to get minimal support from external partners. This is despite the fact that these countries are responsible for about57% of annual global births and a relatively larger share of disease burden. Most studies indicate that low –income countries exhibit low rates of vaccination (Libwea, 2014) probably because of poverty implying that vaccination is affected by income levels. For instance, while establishing the barriers to uptake of childhood polio immunization in Nyeri County, (Libwea, 2014) observed that occupation of the mother/caretakers influenced the amount of money spent on transport to the immunization center and thus the decision on whether to vaccinate or not. However, some scholars have illustrated that incomes may be an obstacle to polio vaccination. One of these scholars is Countdown (2018) who while investigating factors influencing polio vaccination, observed that caregivers/parents from poor families did not entirely refuse to vaccinate but only delayed. The author also established that parents from the rich families not only delayed but refused to take their children for vaccination.

Observation by Countdown is contradicted by Agrawal and Kumari (2014)who in a study about the rising and falling of vaccination rates, sees the rates of vaccination among children initially rising but then begin to decline with increasing per-capita. However, the author clarifies that incomes affect rate of vaccination significantly and positively in the context of low-income range

but elicit negative effect in the context of countries with high economic status. The author explains that high-income states have relatively strict policies that control exemptions of children's vaccination. This leads to a spurious positive correlation between income and the rate of vaccination (Agrawal and Kumari, 2014).

2.3.4 Religion and parental polio vaccination decisions

Naturally, people usually subscribe to some form of supernatural or superior being. Some even holding very strong belief systems. Studies seem to indicate that religion and vaccination of children show some interrelations of varying degree. Currently, there seems to be no particular religion that totally reject vaccinations especially those of children. In fact, some even view vaccination as an obligation and a response to saving lives (Moutsiakis& Chin, 2007). An example of the views on vaccination is the belief that the body is the temple of God and therefore should not entertain certain drugs/chemicals or blood. Some beliefs may have extreme effects on health promotion with serious ethical deliberations especially because followers are entitled to freedom of worship (Munyalo, 2019). However, most of the religions give their followers the right to choose or to decide whether or not to use vaccination so long as it is within their moral conscience. Unfortunately, people have tended to either fake religious adherence or invent fake religions to justify their exemption vaccination programs.

Some denominations such as Protestants accentuate people's freedom and give parents the right to decide whether or not to avail their children for vaccination. Munyalo (2019) explain that member of Orthodox Protestants who avoids vaccination of children on religious orientation, often base their stand on the claim that the acts (vaccination) may be interfering with divine

wisdom or providence. Again, the authors state that for those who availed their children for vaccination often regard the potential side-effects as mainly God's sign that they actually made wrong decisions to accept the vaccination. However, for the pro-vaccine members of these denominations, the argument is always based on the fact that vaccination is God's gift (Moutsiakis& Chin, 2007).

According to Agrawal and Kumari (2014) reservations by religious groups on vaccination are often brought about by safety and social issues as opposed to theological concerns. This assertion is supported by Branco (2014). Who explains that except in few groups such as radical cults, there is no typical religion that completely forbids vaccines. Instead, most of the religious groups are active supporters and encourage parents/ caregivers to vaccinate their children to prevent childhood mortalities due to preventable illness. Subpart further clarifies that in few circumstances, where they prohibit on the basis of religious beliefs, it is often based merely on allowing the followers to avoid. In 2015, controversies emerged in Kenya by the catholic faithful who were opposed to polio vaccine and tetanus toxoid because of their safety concerns. This is substantiated by a cross-sectional based research carried out by Agrawal, and Kumari (2014). The study disclosed a potential negative effect of the anti-polio vaccine messages conveyed by the catholic Bishops on uptake of polio vaccine in Kenya. The anti-polio campaigns by the catholic were based on the speculations about the vaccines having some family planning chemicals (Ibnouf et.al, 2012). These findings support the fact that religion may alter or affect parents/caregivers' decisions to take part in polio vaccination programs. Therefore, the need to involve religious groups in public health interventions cannot be overstated. Lau, Hiemisch, and Baumeister (2015) clarify that integration of religious leaders in public health interventions

improves theinvolvement of their followers, and by so doing, encourages good results/outcomes.

Still on religion and vaccination, Makate, and Makate (2016) observed that Judaism do not strongly recommends the use of vaccines or, to the extreme, allow them. Reiss adds that there are other Islamic groups that oppose vaccines, based on the allegation that they disrupt the order of Allah's creation, and that they are profit-making schemes for drug firms of doubtful benefit. Reiss notes that for Catholics, the focus has been on whether it is acceptable for parents to vaccinate children using vaccines lased with cell lines derived from abortions. Responding to these concerns, the Catholic Church made a strong statement in support of vaccination as protecting the public health, children, and others (Fairbrother et al., 2013).Therefore, it is evident that most of the religions support vaccination programs and parents who are members of these religions should follow suit.

Ibnouf (2015) observed that there was a strong association between religion and vaccination against measles in Zimbabwe, and parents affiliated to apostolic denomination were less likely to have their children vaccinated against measles and polio in comparison to other Christians. Thus, it is clear that some religious beliefs do affect parents' decisions to have their children vaccinated. While conducting a study in Nigeria on the role of politics and religion; Awino (2016) established that religion can undermine routine immunization interventions, when rumors concerning vaccines' safety and ill effects including sterilization are accommodated by the public. This further adds to the fact that religious leaders are a potential force that must be considered when coming up with immunization programs.

2.3.5 Information access and Parental Decision on polio Vaccination

Information dispensation and accessibility play a critical role in regards to decision making about vaccination of children. Successful vaccination programmers depend on the level at which individuals have correct information, adequate knowledge and awareness as well as acceptance of vaccination. This help them decide whether to take part or opt out of the programs (Dubé et al.,2016; Ames, Glenton and Lewin , 2017; Kaufman et al., 2018). Empowering people and making sure they are well informed about their health is not only integrated in the UN's codified human right but also a key principle of patient-oriented care (Brightet al., 2018). A lot of studies have been conducted to validate the importance of information access on vaccination uptake.

Njeru et al (2017), established that lack of knowledge regarding immunization was among the reasons for avoiding vaccination routines. In their study conducted in America, Awino (2016) observed that the decisions to consent tovaccine among parents were majorly informed by perceived safety of the vaccines as convinced by health officials. In particular, one fifth of the 53 African American mothers were seriously concerned about the vaccines' safety. However, they still accepted immunization of their children. Ruijs, et al. (2013) assert that addressing mothers' concerns about immunization is important to ensure that they are fully informed of the risks and benefits of immunizations. Creswell (2012) believes that parents encounter varied information that support different views. The information may come from close relatives, friends, colleagues, professionals or even strangers.

In a study in South Africa, Moreira et al. (2016) noted that there was low knowledge, even among caregivers of infants who were fully immunized, but, generally positive attitudes regarding immunization were found among caregivers. Thus, poor knowledge as a result of information access had no effect on immunization rates and that that caregiver knowledge is not the sole factor that improves the likelihood of an infant being fully vaccinated.

On the contrary, Libwea et al. (2014) reported some level of association between access to information and vaccination trends. They conducted a study in Cameroon with the ultimate aim of describing the knowledge and attitudes of parents on vaccination programs. The study relied on vaccination coverage cluster survey design of WHO, and a sample of 205parents/guardians of children with ages between 0 and 59 months together with 13 health staff directly involved in vaccination activities. Libwea et al. established from their study that merely 19% of the parents were aware of the availability of vaccines. The study unveiled significant association between parental knowledge on preventable ailments and their prevention. The authors recommend that clear message on the potential dangers of polio and pneumonia as well as their prevention was essential for the improvement of vaccination coverage.

In a study that was aimed at establishing how parental knowledge and attitudes affect childhood immunization, Kaufmanet et al. (2018) reported that parents required not only accurate but reliable information especially about existing contra-indication son vaccination. The study revealed that 61.7% of the parents either considered or did not know the type of ailments controlled by vaccines. The other finding was that unfounded myths or misconceptions about contra- indications risked the lives of children in the study area. The study further unearthed that mothers in virtually all cases accompanied their kids to immunization centers. Besides, their

communications with health practitioners were responsible for the observed difference in mothers' knowledge compared to fathers. The other issue underlined by the study was variations in attitudes and knowledge of parents residing in urban areas compared to those in the rural. The differences was attributed to their literacy levels. Observations by Yousef et al. (2013) partly agree with findings from other researches carried out on role of information access and vaccination rates.

A study carried out in Nigeria by Olumuyiwa et al. (2008), find out predictors of immunization trends of children revealed that knowledgeable mothers completed vaccination routines of their children. The study further unveiled that more than half of the mothers correctly identified signs of vaccine-preventable diseases, and that most of the mothers (99%) confirmed that immunization was important for their children's health.

In a study conducted by Legesse, (2015), it was revealed that most parents in America avoid vaccination because of questions related to safety concerns, effectiveness of the vaccines, misconceptions and the need to reaffirm their human rights. Highland (2016) attributes refusal to vaccinate to factors such as fear of possible side-effects versus disease risk, own life-style, bad experiences exhibited previously as a result of vaccination, and parental social setup.

Another aspect related to information is authority or perceived correctness. According to Tseng et al. (2017), virtually all parents depend on health practitioners as their most reliable source of information especially that which is related to vaccination. This is corroborated by Becerra-Culqui et al. (2018) though they insist that health care officials also require information especially those touching on safety issue and this give them confidence in responding to

patients' questions about issues of vaccine safety. According to Moreira et al. (2016), healthcare givers need specific, accurate and objective information about vaccines so that they can be able to give guideline on whether or not vaccines are associated with adverse effects.

Vikram&Vanneman (2020) explain that in most cases, decisions are informed by the level at which parents perceive others. The authors argue that people have the tendency of relying on consensus cues which mean some level of accuracy particularly when combined withthe judgment of several professionals or experts. However, they caution on possible gap between the low level of scientific consensus perceived by the uneducated and the typical level of confidence on vaccination. The Gateway Belief Model holds that separating the difference between individuals' subjective perception and the actual level of normative consensus among influential referents may lead to minimal though significant changes in individuals' beliefs. Besides, confidence on perceived scientific information is one of the influential variables in people's opinion on questionable subjects (Vikram and Vanneman 2020). It is therefore apparent that parents/ caregivers with stronger scientific consensus on vaccination are more likely to avail their children for vaccination.

Studies reveal that confidence in vaccination based decisions may also be determined by people's perception of norms and shared values within the society, as well as their meta-cognitive perceptions on other groups such as health practitioners' beliefs (Libwea et al., 2014).However, in circumstances with ambiguous social norms, there may be need to appeal to consensus and unity of norms in order to persuade parents to take children for vaccination (Keinan et.al, 2012).

Studies reveal that mass media influences vaccination of children. For instance, Reluga et al. (2006) explain that mass media is able to change people‘s perception about vaccination. This can be attributed to the sensitization messages that parents receive through media to get their children immunized (Bbaale 2013). Advice given to mothers at health or caregivers especially during immunization exercises was assessed in one study by Legesse (2015). The study revealed that children from parents who remembered having been advised on the next date of growth monitoring were three times more likely to receive complete vaccination. The study also revealed that inadequate information on the types of vaccines available and vaccination calendar were some of the reasons frequently mentioned by respondents as leading constraints to vaccination of children.

Health based decisions are also affected by existing power relations within the household and between relatives, colleagues and friends. According to Grépin and Bharadwaj (2015) decisions related to vaccinations and other aspects of children’s health tend to be reached within the immediate family by either one or both parents. Mothers are the ones who usually make the decision about vaccination of their children owing to the fact that they are responsible for primary care giving role in the family. Besides, it is the mother who spends a lot of time with the children.

In one study carried out by Reich (2014), in Kenya revealed that mother’s educational level was significantly associated with immunization of children and coverage. Another study in Chine also reported similar observations. In the study, children from educated mothers were more likely to get complete vaccination hence improved coverage (Sheikh and Ehtamam, 2013). A

study carried in the US revealed that parents from low socio-economic background and educational level were less likely to take their children for vaccination due to the fact that they were less up-to-date (UTD) with available vaccines including their associated benefits In yet another research that was carried out to investigate the linkage between parental educational attainment and the age at which they had their first birth, it was revealed that the knowledge about the benefits of vaccination and mandatory vaccines was relatively high in mothers who had higher educational level and who were of older age (not teenage) and that the compulsory vaccination routines were complete in the children of these educated mothers (Zaheer and Shafique, 2017).

Similar fashion follows in developing countries too. For instance, in one study done in Bangladesh, it was observed that mothers with at least 11 years of formal education were more likely to take their children for vaccination compared to those with less than 11 years of education or no education at all .Similarly, a study carried out in India revealed that likelihood of children receiving complete or full vaccination was higher for children with literate mother. Furthermore, the presence of literate father figure made some minimal difference in children receiving full immunization. Another study conducted in India showed a direct relationship between childhood immunization and maternal education (Bright et al., 2017).

2.3.6 Freedom of choice and values

Choices can be viewed in terms of continuum that starts from completely un-influenced end, to the ones shaped by both formal and informal societal norms. In most cases, decision to take children for vaccinations seems to be dictated by social norms. However, the decisions tend to revolve around how an individual perceives the norms and freedom (Brunson, 2013). The

individual's perceived freedom is associated with choice over-load when making decision (Hiemisch and Baumeister, 2015). Decision making is not always an easy task; it can be exhausting and overwhelming and therefore it may not be possible to retain all the information required for making decision. Therefore, parents that exhibit lower levels of perceived freedom are more likely to adhere to perceived social norms and conform to authorities or other stakeholders (such as health officials, government officials among others).

Based on the perspective of cultural cognition of risks the assessment of riskiness is always in accordance with norms or values shared within a society (Kahan, and 2011). The operationalization of values in the context of vaccination is always a daunting task. According to Haran, Ritov and Mellers (2013), people who are more progressive or open-minded more likely to seek information from both sides of vaccine uncertainty spectrum, that is, they are less affected by social norms, and tend to receive vaccines more readily.

2.3.7 Perception of danger by Parents

It has been established that on many occasions, health related actions such as vaccinations have been used as threat perception; however, it is also clear that these messages are usually less impactful and effective in comparison to those massages that increase perceived effectiveness of vaccines (Reich, 2014). Parents nevertheless are more inclined to have their children vaccinated if they have the knowledge of the effects of the danger associated with not vaccinating like in the case where they are made to believe that the child can contact a certain disease as a result of not vaccinating (Healy & Pickering, 2011; Jolley & Douglas, 2014; Highland, 2016). Health-related decisions often comprise of high levels of uncertainty and varying degrees of potential risk.

Similarly, Healey and Pickering (2011) aver that in the medical field, there are differences even among the health professionals on the coping mechanisms and the attendant risks which put them in a complex situation when advising the parents on how to go about it. This even ends up making the parents to perceive the vaccination of their children as more precarious as opposed to not immunizing them from the diseases. This even makes some of them hesitant and unwilling to have their children vaccinated (Reich, 2014).

Perceived threat is often predetermined by the kind of information available. For instance; Brunson (2013), states that if there is access of messages that discourage vaccinations because of the perceived attendant risks, this can negatively affect the campaign. The presence of a multiplicity of messages also tends to make the parents to trust many some often contradicting messages. However, as can be seen from Hale and Napier (2013) observation, there are those mothers who are aware of the risks and they incline towards those messages that are not only statistical, but also factual as opposed to subjective polemic arguments.

In addition, it has also been established that another very critical variable in determining the decisions that parents can make in relation to vaccination is knowledge. Vikram&Vanneman (2020) identified that higher knowledge levels often dictate the decision making of women with regards to vaccination. Those women with higher levels of knowledge, such as graduates and post graduates are more likely to consider vaccination of their children as opposed to those with a lower level of education. In the era of information technology where there is a proliferation of information on the internet, some mothers also utilize it as a basis of seeking information on vaccination. This has even led to mothers substituting the role of doctors with that of internet. In some cases, parents delayed making the decision to vaccinate their children under the pretext that

they were waiting for availability of information to them. (Highland, 2016). Based on these examples, suffice is to say that information; whether acquired from official or informal sources, plays an important role towards ensuring that the proponents or protagonists reinforce their beliefs concerning the issue of vaccination; that is hesitancy and uptake. Furthermore, scholars such as Creswell (2012) aver that the prediction of the intention of the vaccine solely depends on the type of sources consulted. These could be either sought from professionals in formal settings or from unofficial settings. Regarding those who prefer not to vaccinate their children, one of the determinants of this is usually personal sources; often at times these personal sources are usually subjective and lack evidentiary backup.

In fact, this standpoint finds resonance in several models fronted by scholars; they include the Cultural Attraction Theory propounded by Lasco, & Larson (2020) the theory by Brainerd & Reyna, (2019) called Fuzzy Trace Theory. These theories articulate the role of the type of information that is at the disposal of people and how it can make them to make a decision concerning vaccination. In fact, it is not uncommon to find a few people determining the uptake of vaccine in the society; they can even discourage its uptake. The logic behind vaccine that it is the injection of pathogens in people's body reinforces the anti-vaccine theorists. To complicate the situation, parents who have ever experienced negative effects of vaccines serves to reinforce hesitancy. Creswell (2012) states that if well explained and understood, the effects of vaccine versus the risks can be moderated and in turn the tide of vaccine hesitancy.

2.3.8 Education level and Parental polio Vaccination Decisions

According to Brunson (2013), parents determine when and what vaccinations their children receive and that parents rarely make these decisions on their own. There are many factors which

contribute to a parent's decision on whether or not to vaccinate their child, among them the education level of parent. In particular, education or awareness about vaccines, the types available, and the types of vaccine-preventable ailments exist and which could probably affect children as well as the benefits associated with vaccination of children. Unfortunately, there is always a general lack or information gap among parents. Consequently, most of them always feel that vaccination is not important and therefore are always reluctant to avail their children for vaccination, leading to low vaccination coverage (Sheikh et al., 2013).

Parents are strongly influenced by social networks and particularly people networks in the decision-making process (Brunson, 2013).A parent's social network mainly includes people they have interacted with at work, school and other social events. Bright and Polack (2017) give an example of health practitioner as one typical source of vaccination related information. Other sources of vaccination information include the knowledge about diseases gained in schools.

Khan and Shafique (2017) explored the link between parental educational status and empowerment in the context of polio vaccination in Pakistan. Using cross-sectional design, the authors found that children of uneducated Pakistani women had significantly higher odds of not being taken for polio vaccination or in-complete vaccination. The study also disclosed that children of un-empowered Pakistani mothers had significantly higher odds of exhibiting either incomplete vaccination or not getting polio vaccination at all. The study concluded that lack of education, low socio-economic status and empowerment of women remained significant factors linked to poorer uptake of routine polio vaccination.

Forshaw et al. (2016) evaluated the influence of mother's education on their tendencies to avail their children for timely and complete vaccinations at various levels. The study disclosed that rate of childhood vaccination increased with increasing mother's education. In general, the study revealed that the odds of complete vaccination of children were 2.3 times greater in those children with mothers who had secondary or higher education, in relation to children with illiterate mothers. The study provides useful insight and background information to the current study. However, it suffers methodological flaw for overlying on secondary data hence lacks empirical evidence.

Vonasek et al. (2016) carried out across-sectional research with a focus on 1,000 mothers from the rural part of western Uganda. The authors observed that revealed that children from mothers with basic knowledge on the importance of vaccination exhibited higher odds of receiving timely and complete vaccination. Most of the mothers interviewed indicated that low rates of vaccination in their area were occasioned by caregivers' fear of potential side-effects and sheer ignorance.

Makate and Makate (2016) assessed the role of parental education on children's health using the Malawian's 1994 reform. In particular, the two authors used age-based exposure to the reform. The study used women in the age bracket of 6to 13 in 1994 as the treatment group, while those aged between17and 24 as the control group. The study unveiled that an additional year of parental education reduced infant mortality by 34 percent. Although the study did not focus

directly on vaccination of children, it contributed to the current study by bolstering the assertion that educational status influence children vaccination.

Using age-specific exposure to the 1980 expansion program of expanding secondary education for mothers in Zimbabwe, Grépin and Bharadwaj (2015) revealed that an additional year of material's secondary education significantly reduced children's probability of dying by the time the study was carried out. The study is relevant because it hints on the potential impact of maternal educational status on children's health. The shortcoming of this study lies in its over-emphasis on infant mortality, yet it is a common knowledge that the deaths may result from other causes. Besides, the misses out on huge population due to its concentration on secondary school. This is because most differences in education lie between people having primary education and those without any form of education.

While studying childhood immunization in Saif, Saudi Arabia, Highland (2016) established that there is a significant association between parents' educational level and knowledge and attitudes on childhood immunization, including immunization against polio. The study further established that a higher educational level, of no doubt, helps the parents to understand the educational messages such as the need to avail a child for vaccination. Educated parents also have greater chances to come across helpful knowledge about immunization in the existing media and they are also able to comprehend by reading or listening due to their mastery of the communicating language. According to the MOH (2014), a majority of the children who have not been vaccinated against polio are from the pastoral, arid and semi-arid regions of the country. Statistics from the MOE (2018) in Kenya point at lower access to school in the ASAL regions.

Therefore, education levels may affect vaccination decisions by parents, including vaccination against polio.

2.4 Parental Reservations and fears against vaccination

One of the fears parents express towards vaccination is that of Autism which is basically a condition characterized by arrested development of the child during their infancy years of eighteen and nineteen months. There have been genuine concerns which link vaccination to autism in infants, especially in the vaccines that are believed to be containing mercury that is preserved using thimerosal preservative. According to Creswell (2012) this preservative was laced with a reagent that prevented the proliferation of bacteria that was considered dangerous and was in the vaccines. However, this preservative was removed in 1999 after the recommendation of CDC and AAP from being used to administer the vaccine to children; this did a great deal in fuelling the misconception that it was unfit for children (Fadnes, et al., 2011).

What was ignored was that this preservative was in very small, not harmful quantities. In addition, it also came to be that since these vaccines were administered as single doses, then the need for preservation was utterly unnecessary. The only exception of a vaccine that currently has the preservative is that of influenza because of the reason that since they must be mass produces, their mass production is vital and hence preservation is also important (FDA, 2014). However, it is also true that the vaccines for influenza are not all laced with preservatives. It was an article by Libwea, et al. (2014) which incited the argument that there was a positive link between MMR and autism in children (Butt et al., 2020).

However, almost thirteen years after the publication of the article indicting the MMR vaccine, ten out of the thirteen recanted their thesis. Owing to this, this article was removed from the records of the British General Medical Council because of the accusations that the scholars failed to follow ethical requirements of researchers besides giving information that was false and whimsical without appropriately adhering to the procedures; in fact, the medical practitioners had their operational license being cancelled . It must be noted that the administration of the first vaccine happens when a child is twelve months and fifteen months; this is usually the period in which it is believed that the symptoms of Autism usually show up. In fact, according to Awino (2016), it is the coincidence of the onset of Autism and the administration of the drug which usually make parents to attribute that it is the vaccine responsible; To complicate the matter, if parents ever had children that were affected by the condition and it happened this time are more likely to procrastinate in the administration of the same vaccine in subsequent children because of this reservation.

Sunguti and Neave (2016) posit that the Institute of Medicine committee failed to establish any merit in the link that was perceived to exist between autism and the MMR vaccine. Subsequent studies have absolved MMR vaccine for being the cause of Autism in children even if older children were affected by the condition or not. The availability of evidence backed objective, scientifically proved and verified information on the vaccines and their danger is a saving grace to pediatrics that have a duty to ensure that they give parents accurate information and explain the misconceptions. Reich (2014). Connotes that in the U.S, 25% of parents tolerate the belief that children often receive far too many vaccines which end up being a threat to their immunity and health all together, these views are also expressed by Kothari and Garg (2014) who states

that close to twenty percent of parents perceive the vaccination schedules as risky to their children's health.

The CDC (2013) recommends up to twenty-five vaccines for children from the time they are born to the time they turn two years. This is because, as Berezin and Eads (2016) puts it infants are usually vulnerable to exposure of so many antigens and when vaccinated, cellular pertussis vaccine ended up replacing the entire cell pertussis vaccine; in so doing, it reduced the tally of antigens in the child's body to ten. Therefore, it is the work of providers and health professionals, including pediatricians to constantly give assurances to parents that the vaccines are safe and those children need to be given this vaccine for their safe and healthy development.

Furthermore, there are other vaccines which entail DTaP-IPV (Kinrix) and Hib-Hep B (Comvax) which the children are exposed to. Usually this exposure is intended to cut down on the injections as provided for in the immunization schedule. Again, this has raised concerns among parents about whether this combination is adequately responsive to the child's immature immunity. They think that exposure to too many of these antigens is capable of overwhelming a child's immunity. However, according to Countdown (2018) these reservations are unfounded given that there is no scientific evidence that seems to link the administration of these myriad of vaccines within the first year and the children's developmental process. As such, this evidence is enough to assure the concerned parents their children are not negatively affected by the administration of too many vaccines too soon. In addition, there is also another belief that when it comes to immunity, some children are more immune than others; this is seen in the more frequently ill children or those who suffer from ailments such as common cold and flu. Based on

this belief, the parents recommend that giving them combined vaccines is jeopardizing their immunity further or worse still; these children may not be able to benefit from the immunity. On the other hand, some parents disagree with this notion by stating that there are some children who are naturally healthy and as such the vaccines are inconsequential to them; they hinge their argument on the belief that if under normal circumstances their children do not contract a disease, then that is an affirmation that they have a strong immunity and this should be developed without external inducements such as vaccines (Butt et al., 2020).

Suffice is to say that the contraction of a disease or infection has an impact of reducing a child's immune system and as such can have catastrophic effects such as severe disease and eventually death. However, what vaccines do is to avail immunity against these dangerous diseases devoid of the risks of the same. The perception that is created in parents of the use of these vaccines is important; if reinforced, it can even lead to the parents ensuring that their children get all the vaccines as recommended. Therefore, healthcare givers ought to be vigil as far as the reinforcement of positive perception of these vaccines and at the same time provide the requisite information to them to ensure that they make the right decisions. If this is not done, then the ultimate consequence will be the reduction in the uptake of vaccines which will escalate the cases of diseases in children. According to Lasco and Larson (2020) ,the challenge that care givers face is adequate time to be able to explain to the parents the finer details of vaccination; this is complicated when uncooperative parents treat this casual approach to very pertinent issues as an affront against their children's health .Therefore, to solve this problem, it is incumbent upon the responsible care givers for children to see to it that those under them, especially the pediatric nurses, avail the correct information and respond appropriately to the concerns of the

parents; this will even prevent the urge of parents looking for alternative information even from the internet or subjective sources.

According to studies by Creswell (2012), it was established that those parents who sought vaccination information through the internet which tended to make them decline uptake of the same as compared to those who got it from medical professionals. This is because of the fact that information sought from the internet is likely to lean towards certain persuasion and at the same time it is for specific cases and not general cases. At the same time, it depends on how the people search it; if one wants to hear what he already holds, chances are high that the internet will yield such information. In fact, Creswell (2012) offer a rider that internet-based sources can seek to reinforce false beliefs and a theatre of the reinforcement of unfounded myths and superstitions which can be negative in decision making of parents regarding vaccination. The authors state that people ought to be cautious with the type of information that they search on the net and be cautious to find credible information. This can be done through the provision of websites which are credible and accurate; nevertheless, still as much as the websites can be provided, they should not replace the role of a qualified health worker. In addition, they should encourage parents to visit them for longer periods of time in order to get as much information as possible (Brown& Gacic-Dobo, 2011).

2.4.7 Religious Objections

Religion and culture are to factors which have been shown to influence vaccination uptake separately or combined. This has happened especially in low income countries. In one study in

Nigeria, it was established that variations in religious affiliation influenced vaccination. In particular, Christians exhibited vaccination rate of 66% while Muslims had merely 32%. In addition, the study revealed that Muslims exhibited increase in premature death of children and poorer health as compared with Christians. The low rates of vaccination was partly attributed to a number of reasons but more particularly on marginalization /alienation from the society and lack of access to social programs as well as respect for their religious leaders opinions (Olumuyiwa et al., 2012).

Religion and spirituality are two basic constituents of socio-demographics especially in rural culture, and they dictate perceived susceptibility to infection and perceived severity to the infection. Religious leaders are highly respected, and their authority can persuade members of their congregations to adopt or reject vaccination (Ruijs et al., 2013).A WHO report from polio invested region in Nigeria states thatonlya total of 16% children received full or complete vaccination in the country. One of the main factors was the fact that the society was predominantly composed of Muslims and believed that polio drops were used as a method of sterilizing children in the region and hence was rejected by community leaders. This resulted to considerable rise in Polio cases in that area. Similar beliefs exist in the Pakistan where several religious leaders questioned polio campaign being Western conspiracy to control Muslim population (Vanden&Maarse, 2015).Studies carried out in India revealed that although religious orientation at individual level had not significant role. Communities of predominantly Hindu were more likely to avail their children for vaccination programs in comparison to Muslim communities. Similarly, study that was carried out in Bangladesh revealed that mothers/parents of Non-Muslim areas were more likely to take their children for timely and complete immunization (Brown & Gacic-Dobo, 2011).

In as much as many of the reservations for vaccines are perpetuated through religious podiums, it is apparent that they are not supported by any doctrine. Most of them are polemical personal. Having said, it is apparent to picture the immense effect that religion and religious beliefs have on parents. Highland (2016) avers that caregivers ought to be at the forefront in ensuring that the religious beliefs are not prejudicial. For example, he cites a vaccine such as HPV, which was ostensibly developed to prevent against the infection of cancer that arises as a result of being infected by HPV. In fact, CDC reported that it was a very rampant STD in the US. However, not all religious societies were in full acceptance with the vaccine. The reluctance is often driven by the belief that sexual relations before marriage are prohibited and therefore, instead of immunizing people against a disease that is preventable, they should be told to avoid premarital sex; at the same time, they argue that such a vaccine will give them liberty and free will of engaging in what they perceive as immorality. This is in spite of overwhelming evidence linking the occurrence of the disease to those that practice Christianity (Nizamani, Ishak, & Nizamani, 2019).

A majority of those who oppose the administration of this vaccine prefer it being given when they are in their late teenage years like seventeen or eighteen rather than twelve which is likely to encourage risky sexual behavior in children. However, some studies such as those by Ishak andNizamani (2019) which established that sexual activity in children begins at age thirteen and this was found in seven percent of cases of school going children which is enough justification for immunization against this disease. The studies imply that when developing a vaccine, the worst case scenario is usually adopted and not the best case scenario. Therefore, the information

that is availed to parents should be presented in a sensitive way for it to find acceptance among them. For example, the parents ought to be made to understand that these are preventive measures and they in no way condone promiscuity. It should not look like the medical professionals are encouraging vices; if such a notion is perceived, then resistance of the vaccine sets in and as such, it will not succeed.

The safety of a vaccine often dictates the parents' acceptance to have his or her child vaccinated against the HPV virus. Therefore, the child's health care provider can help the parent to get as much information as possible by even recommending them to a competent website. In a study By Harris (2020) it was established that when the provider recommends to the parent about its safety, more of the parents agreed to have their children administered with the drug. However, if the parents have reservations about the influence on the child's sexual activity, they will be hesitant to take it. In addition, there are parents who have also voiced their reluctance for this drug under the pretext that it was developed from cell lines of aborted fetuses and this right from the onset puts it in a pedestal with religious beliefs which condemn abortion in all its forms. In actual sense, the CPP (2014) avers that indeed this cell line came about after a mother decided to abort voluntarily after being infected with a disease called rubella. That is when, ever since then, in 1961, the cells were harnessed so that they give immunity in people against other viruses. However, it is important to note that ever since then, the cells have grown independently of the cells collected decades prior and are not the cells of the aborted fetus. If parents raise this concern, pediatric providers can inform them that no abortions were ever performed for the purpose of vaccine development, and no new cells are needed to continue rubella vaccine production today. This will help in dispelling the thinking that the product is as a result of

abortion and as such, may convince them to take the vaccine for their children. Therefore, from the foregoing, religious views are pivotal and health workers and care givers must put them in consideration; this can be done through cultivating a collaborative effort and not an antagonistic relationship. Materials that are educative and those which address the concerns that the parents raise ought to be distributed and addresses. Therefore, providing appropriate education to resolve any objections to vaccines may increase vaccine acceptance among religious communities (Nizamani & Nizamani, 2019).

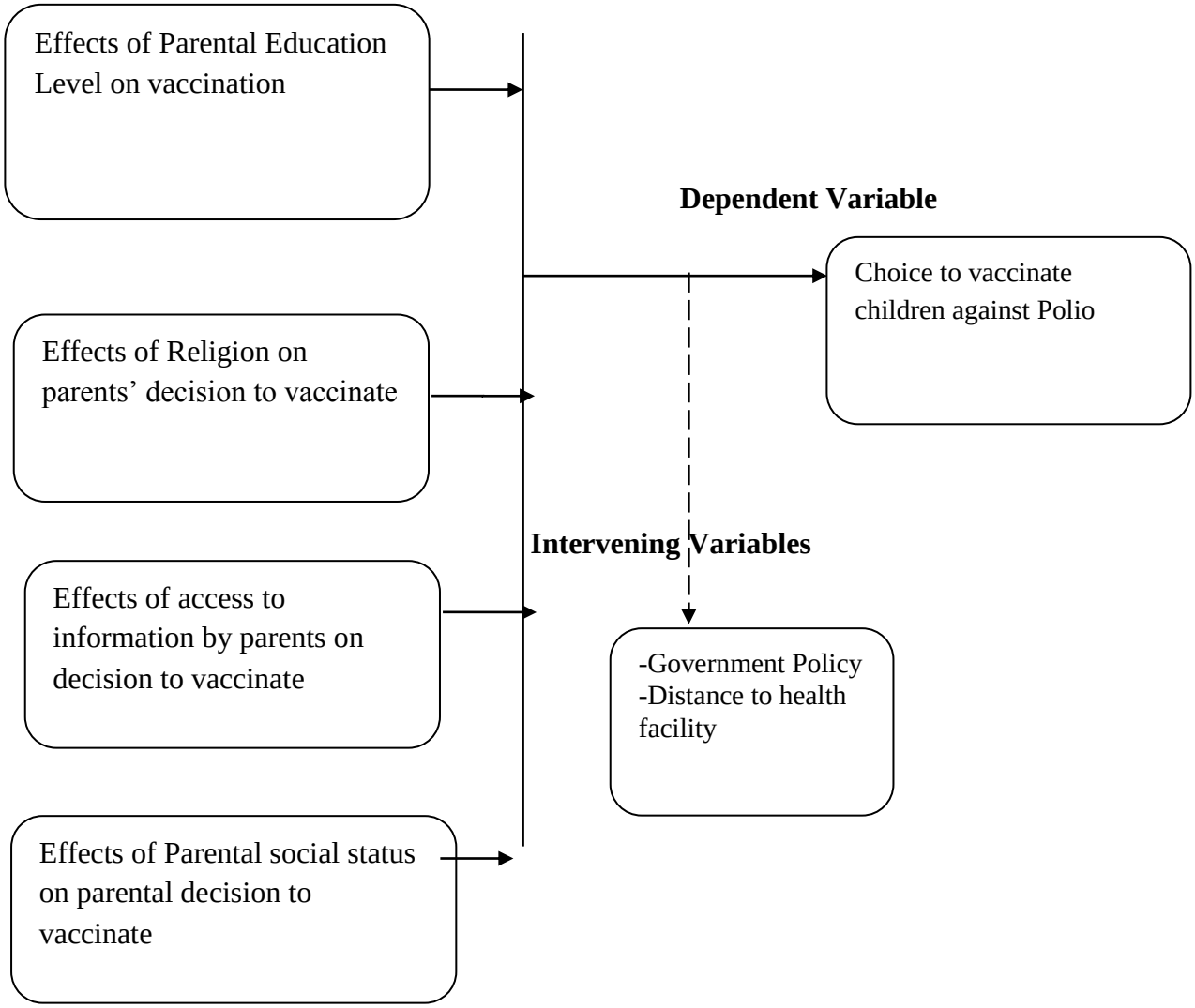
2.4.8 Summary of Empirical Studies

The review of literature and previous studies show that there exist research gaps especially about socio-economic factors influencing vaccination of children. The study area adds to its uniqueness because studies do so far have been carried out in other countries hence bring about regional differences.

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2.4 Conceptual framework

Figure 2.1: Conceptual Framework



Source: Author, 2020

From the above illustration, the determinants of parental decision to vaccinate are the independent variables that are going to directly influence the outcome of the dependent variable. These are parental education levels, social status, religion of the parent and access to information

by the parent. The dependent variable is the choice to either vaccinate one's children against polio or not. Intervening variables influence the outcome of a study, though they are not part of the independent variable. Government policies on health, the distances parents have to cover to access a health facility are some of these factors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section deals with the research method and design, sources of data, samples and sampling techniques, data collection instruments, procedures for collection of data, analysis and ethical consideration.

3.2 Research Design

Research Design refers to a procedure or framework that is chosen by a researcher. It specifies procedures and methods for collecting data or information needed for solving the specified problem. Descriptive research design was employed and it involved the use of both quantitative and qualitative data. Creswell (2012) clarifies that descriptive survey designs are used in both preliminary and exploratory based research and permit researchers to collect, summarize, present, and interpret data for clarification.

The rationale for using descriptive survey design was its flexibility and ability to give opportunity for probing the different aspects of study problem (Reich, 2014). The use of descriptive study assisted the researcher to find out facts without manipulating the data. The design was also useful based on the fact that it elicited statistical information about the aspects of the research issue that may interest policy makers (Harris, 2020). It also ensures that research questions are well captured during in the data gathering process. That being the case, this research relied mainly on questionnaires, and key informant interviews.

3.3 Study Location

This research was carried out within Mwala sub-county of the larger Machakos County. The headquarters of the sub county is situated at Makutano. The sub-county lies on an area that is about 1,018.00 Km^2 in size. Furthermore, it comprises of six wards namely: Mbiuni, Makutano, Masii, Muthetheni, Wamunyu and Kubauni.

3.4 Study Population

According to Creswell (2012), population can be described as all cases with identifiable common characteristics as identified by a given study. This study targeted parents of children below one year who are eligible for visiting public health centers for post-natal services. Furthermore, the study also targeted public healthcare providers who are in the various health facilities in the sub-county who give post-natal care to the mothers.

3.5 Sample Size

The sample size of this study was comprised of the households in the sub county. According to the KNBS (2019), Mwala Sub County has a total of 45,840 households. This constituted the Sample Size. The study will employ Munyalo (2019) formulae of selecting an appropriate sample size (See Appendix v). According to the formulae, the appropriate sampling frame for 45, 840 is 381. The sample was selected purposively. However, stratified sampling was used in the first stage where six locations with an equal number of households were selected; a total of 63 households were selected per ward based on extreme case as the selection criteria in purposive sampling which is guided by experience of having vaccinated children in the household. In total, 381 households were targeted and in each, the head of the household will be targeted.

3.6 Data Collection Methods and Sampling Procedure

Sampling is simply defined as the technique used by researchers to select individuals, things or places to study (Mupandawana, & Cross, 2016). This study employed the use of Semi-structured questionnaires which were shared with 63 parents per ward within the study area. The study included only parents who resided in Mwala sub-county and who had children who were aged between 3 and 12 months at the time of the study. Thus, purposive sampling was employed to select these parents. To be considered for this study, respondents were required to be a resident in the study area and must have lived in the location for more than six months.

3.6.1 Questionnaires

The study used semi- structured questionnaires to collect primary data. A questionnaire has a wide range of benefits including collection of data over a wide or large sample. Questionnaires also economical in terms of time. Some of the information collected included respondents' social and demographic profiles, including information related to the families' assets, household size, and child's polio immunization history. Considering the importance of semi-structured questionnaire, Harris (2020) state that it can help in collecting information from the main actors; who in the context of this study takes care of the children eligible for routine immunization.

3.6.2 Key Informant Interviews

The study relied on the use of Key Informant Interviews (KIIs) with health personnel stationed at the health centers. At least 6 interviews from each of the sub counties were conducted in this study. This included those who give post-natal care to the children. Each interview lasted for approximately 45-60 minutes. The purpose of KIIs is generally to gather firsthand data about the topic under investigation from a wide range of individuals including leaders of the community, health practitioners, or residents. These groups of individuals or experts can give useful insights

on the nature of the phenomenon under investigation while providing useful suggestions for appropriate solutions.

The use of KIIs was informed by the fact that it provides a deeper understanding of social issues that are relevant especially in health matters. This method of data collection is also flexible and its suitability to talk about sensitive topic while providing rich and relevant data (Sheikh, Iqbal & Ehtamam, 2013). This approach of data collection therefore allows the researcher to explore participant's perception, experiences and knowledge.

3.7 Instruments Reliability and Validity

3.7.1 Reliability

Reliability is the degree or the dependability with which a research instrument measures whatever attribute (Creswell, 2012). In this study test retest method was utilized to establish the reliability of the research instruments. Two parents were selected to which the questionnaires were administered. The questionnaires were administered to the chosen respondents at two different intervals in duration of two weeks. For this study, this was done using Cronbach's Alpha Technique, and a reliability coefficient of 0.7 was established, which was used to confirm the reliability of the instruments.

3.7.2 Validity

Validity refers to the degree to which the research instruments measures what they it is expected to measure (Creswell, 2012). In addition, Highland (2016) stated that validity can be termed as the degree to which the research instruments are in a state where they can establish knowledge or truth. In the current study the researcher relied on the opinions of experts who included the

university supervisors, who helped in designing the questionnaires. Furthermore, the researcher relied on the opinions of those mandated with health and social work in the Sub County such as the public health officer of the Sub County and the Chiefs of the different locations who know the households within their location.

3.8 Data Analysis

Both qualitative and quantitative data was collected. Quantitative data was first checked for accuracy and completeness. Errors and omissions identified were corrected. The data was then keyed into SPSS software version 20. It was followed by data cleaning to identify any errors or mistakes that may have occurred in the data entry process and then the software was run to generate frequencies, percentages and charts. However, qualitative data especially those collected from KIIs and those from open ended questions in the questionnaires were analyzed using thematic descriptive content analysis which is one of the techniques used in qualitative research. It involved identification and analysis of themes and subthemes. This technique helped in tracking, examining and recording data patterns or themes associated to the research question (Vonasek, et al., 2016).It complimented the data collected quantitatively.

3.9 Ethical Considerations

This study adhered to ethical issues due to sensitivity of health matters. First, the researcher asked for permission from the National Council for Research Innovation and Technology (NACOSTI) prior to conducting the research. Permission to carry the study was also sought from health officers at the sub-county level. All the participants were guaranteed of utmost confidentiality and anonymity. They were assured that all their responses would be used purely for research. At the same time, the respondents were allowed to opt out of the research at any

time they wish to. The questionnaires did not contain any names, but codes to identify respondents.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter presents and discusses the findings based on the collected data; the chapter is divided into four main sub topics, namely: respondents' demographic characteristics; the effects of educational attainment and community engagement in utilization of vaccination services; effects of religion on parental decision in vaccinating their children, and the effects of information access by parents on their choices related to their children vaccination. The sub-topics are ordered in accordance with the specific objectives.

4.2 Demographic Data of the Respondents

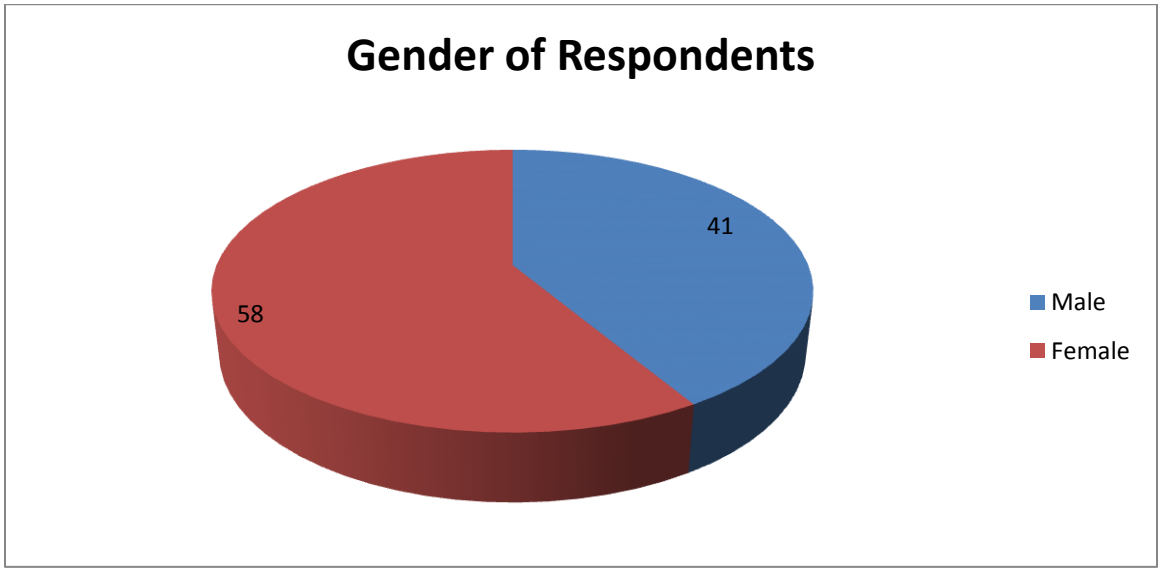
4.2.1 Response Rate

Semi-structured questionnaires were used as the primary instrument for collecting data. In total, sixty (60) questionnaires were administered to the respondents, with a return rate of 100% meaning all the 60 questionnaires were dully filled and returned. The respondents were debriefed about the manner in which they were expected to fill the questionnaires.

4.2.2 Distribution of participants according to their Gender

In a bid to solicit the relevant information from the parents, gender was considered as a very significant variable in the study. This is because being parents, the study targeted both male and female parents were; the findings are summarized by Figure 4.1. From the figure, the gender distribution was skewed towards the females at 58% while the males constituted 41% of the total population. This was a reflection of the situation since the females are more involved in maternal affairs of their children as compared with the males.

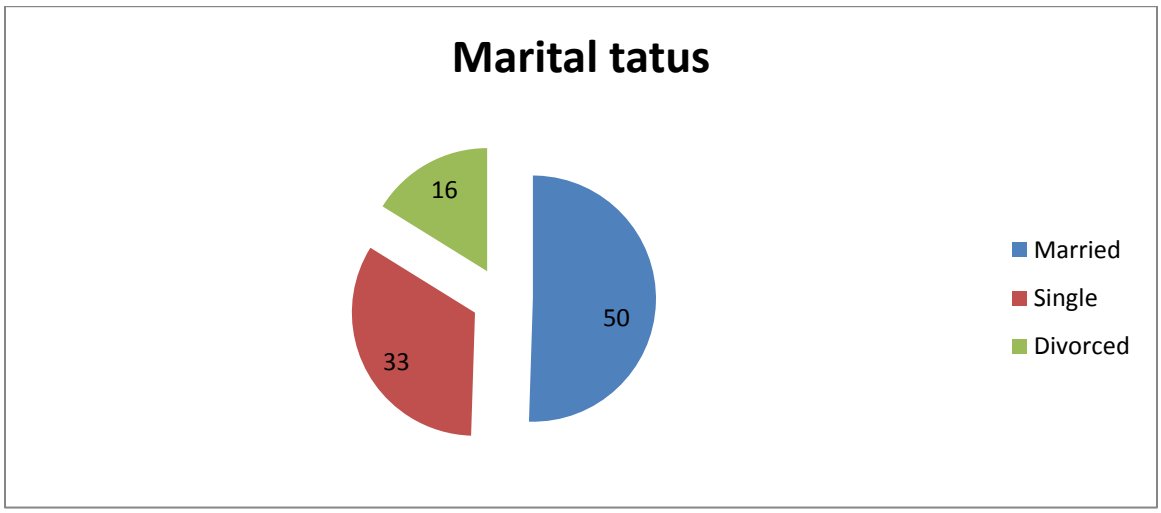
Figure 4.1: Gender Composition of Respondents.



4.2.3 Respondents' Marital Status

In a bid to understand the family dynamics of the respondents, they were asked to specify their marital status. The responses are shown in figure 4.2:

Figure 4.2: Marital Status



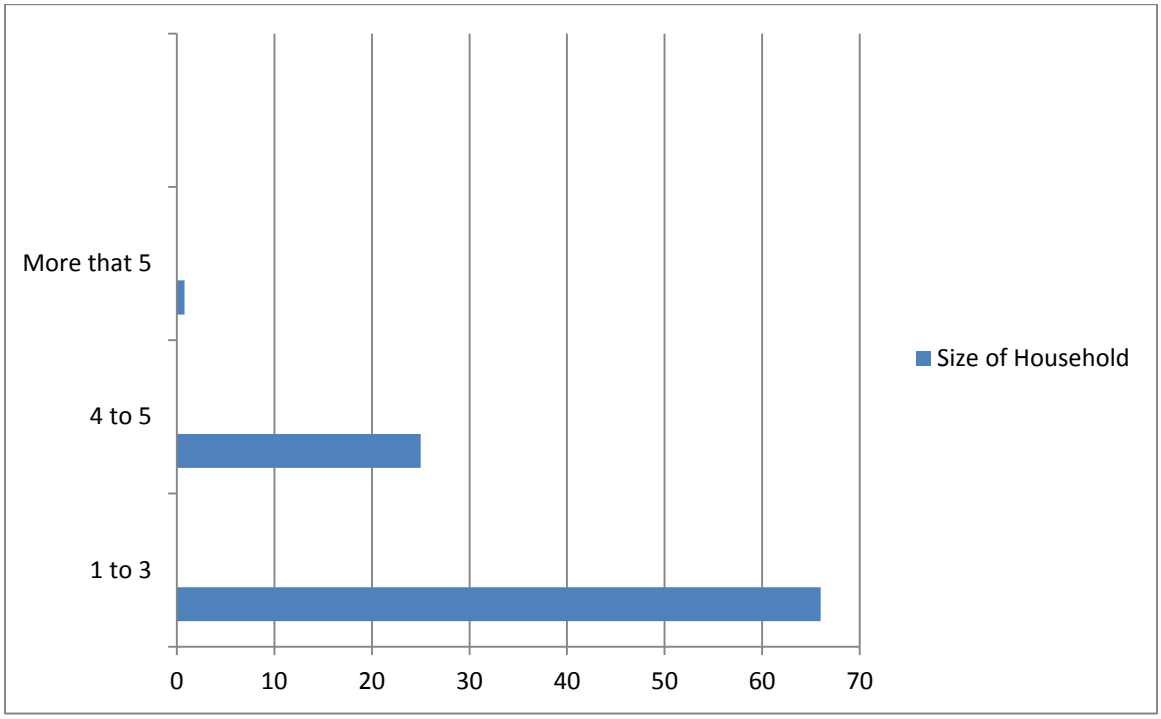
From the responses in Figure 4.2, it is evident that high proportion of the respondents were married (50%) while those who were single constituted 33%. A paltry 16% were divorced. This indicated that they were having the appropriate characteristics that were sought after, that is having children who have undergone vaccination. However, all of them had children who had been vaccinated. It was possible that marital status influenced vaccination of children. This may be explained by the fact that marriage tend to increase resources at the disposal of wives/ mothers which may be used to take their children for vaccination.

The current finding contradicts those of Munyalo (2019) who after assessing factors influencing vaccinate uptake among children below 23 months in MukuruKwaNjenga in Nairobi, established that marital status of the parents/ caregiver did not portray significant relationship with vaccine uptake among the children under 23 months. Similarly, another study done South East Ethiopia that aimed at assessing immunization coverage and its determinant where marital status of the parent did not have a significant influence on vaccine up take (Moutsiakis & Chin, 2007).

4.2.4 Size of Households

This question item was intended to find out how the respondents are constituted in terms of their family size. This was seen as important because the presence of a household means that at some point the members have experienced vaccination. The responses are illustrated on Figure 4.3. From the figure, it can be clearly deciphered that most of the sampled population had between 1 and 3 members in the household. Another 25% indicated that they had between 4 and 5 members while a paltry 0.8% had more than 5 members

Figure 4.3: Size of Household

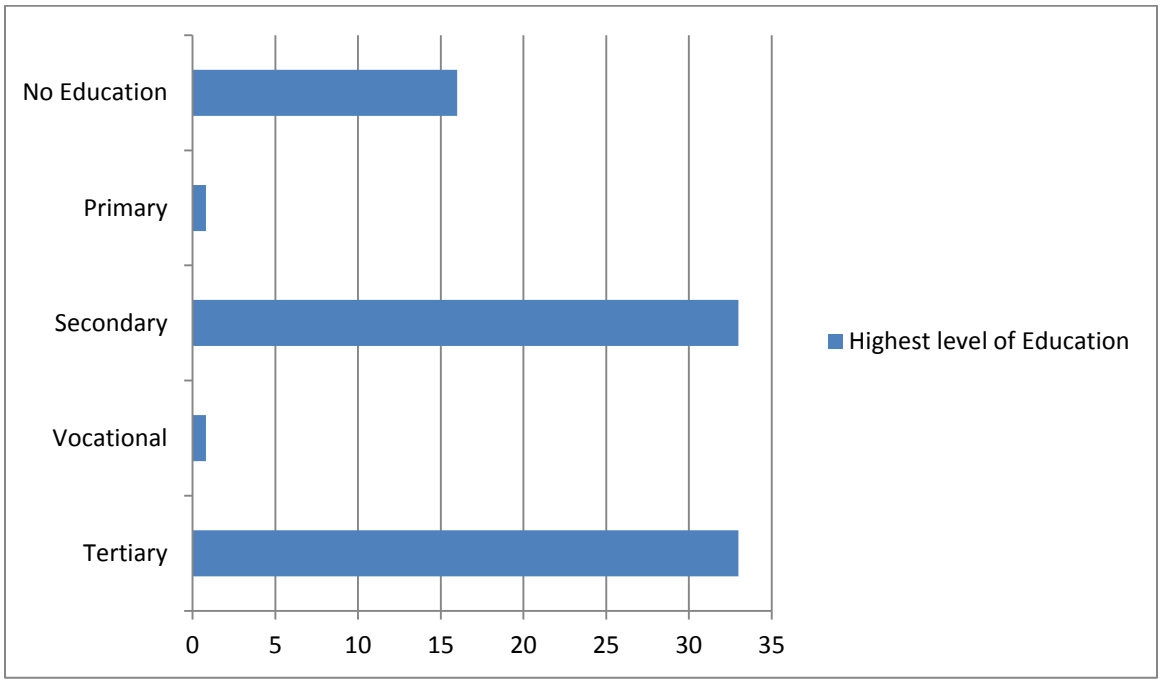


The finding implies that size of household influenced the likelihood of a child being vaccinated. From the study, most of the household had between 1 and 3. The probability of not availing a child for vaccination increased with additional household member. Consequently, larger households tend to have low uptake of vaccines. This may be interpreted as reflecting the practical challenges and related expenses of additional children in consuming immunization services. The finding corroborates those of Awino (2016) who also found that the size of household influenced the likelihood for a child being vaccinated.

4.2.5 Educational Levels

The highest level of education attained was also assessed. Higher literacy levels were assumed to be correlated with higher vaccination uptake because these people are able to discern the importance of vaccination as compared to those who were illiterate. The outcome on the level of education is presented in the figure 4.4

Figure 4.4: Highest Level of Education

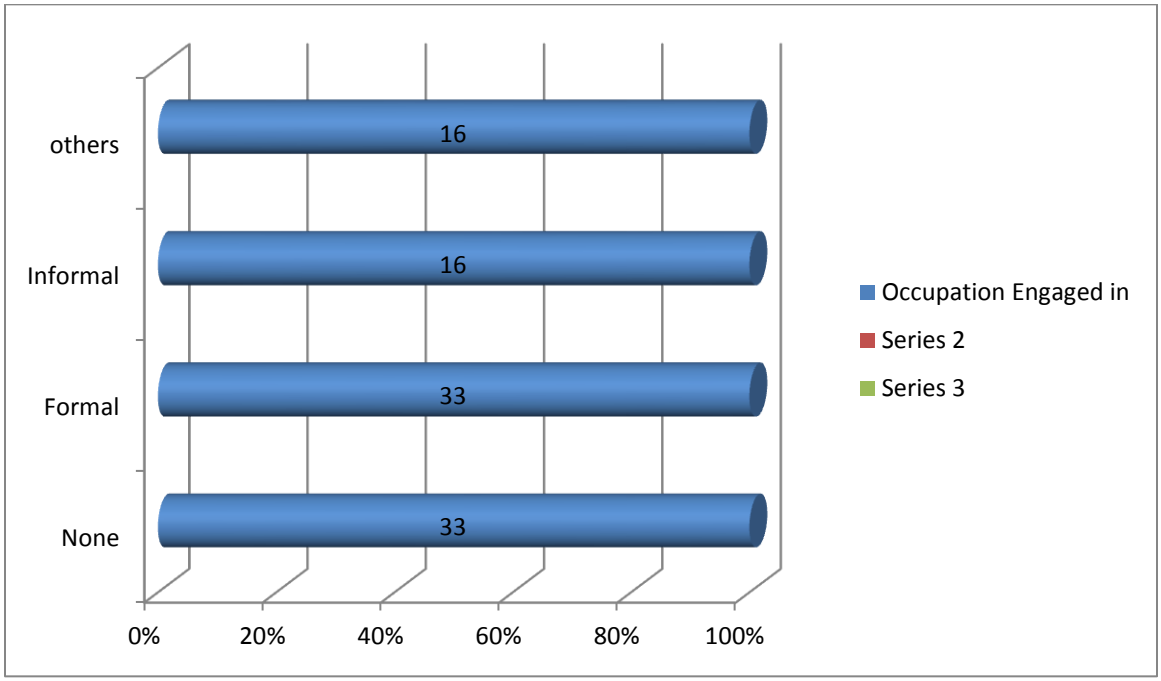


The findings reveal that a majority of the respondents, 33% had acquired tertiary education; those who had vocational training constituted 0.8% while those with secondary education had 33%. The respondents with primary education as their highest education level were 0.8% only. The respondents who indicated having no education were 16%. Therefore, it can be deduced that a good number of the participants were literate with the exception of the 16% and thus were able respond appropriately to the research questions.

4.2.6 Occupation

Occupations of the respondents was also assessed in order to find out how they related with the issue of vaccination; having an activity that generates income that helps the family to have their needs was considered as a factor that promotes vaccination uptake. The findings are summarized in figure 4.5 below:

Figure 4.5: Occupation of Respondents

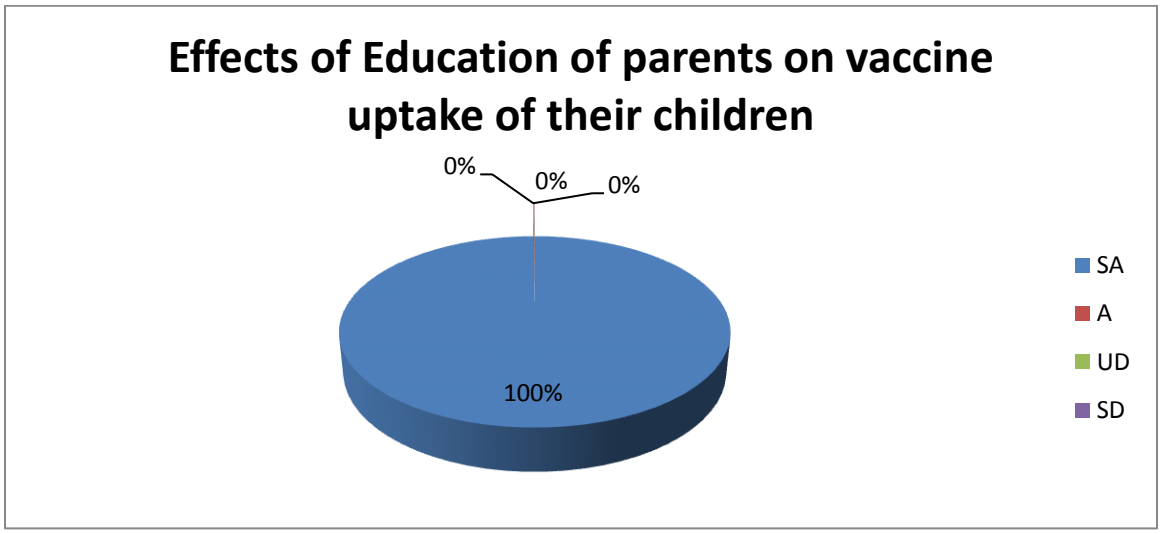


From figure 4.5, it comes out that there is a balance in the occupation of respondents; those who had none employment were 33% and at the same time those who indicated that they have employment were also 33%. A paltry 10% stated that they were in informal occupation. Those who indicated that they were in other sectors were 10%. This was appropriate sample because it was able to represent equally those employed and those that are unemployed.

4.3 Findings on the Effects of Education Levels of parents on the utilization of immunization services

Education of levels of parents play a very important role in vaccination; the more educated a parent is, the more likely he or she will make the correct sound decisions based on know-how and the correct ware withal. Therefore, the respondents were asked to respond to the question as to whether education influenced vaccination. The responses are illustrated below:

Figure 4.6: Parental Education Level



The responses were in line with the view that education levels influenced parents' decision to have their children vaccinated; a majority of the population, 91%, averred that indeed education plays a critical role in determining vaccination. Those who were in disagreement constituted 0.03% of the population. Those who agreed indicated that education is a tool of emancipation from ignorance to enlightenment; educated people have been exposed to a lot of knowledge and as such, they understand the importance of vaccinations compared to those who are uneducated.

Furthermore, educated people are not gullible to repulsive traditional beliefs which can discourage vaccination uptake. In fact, the respondents were asked to respond to the assertion that immunization is higher where parents are more knowledgeable; to this, all the respondents, 100% indicated in the affirmative. The finding was not surprising because unlike illiterate mothers, those educated were well conversant with the benefits of immunization, and this increased their probability of taking their children for vaccination (Agrawal & Kumari, 2014).

As to the question that those from disadvantaged homes were not likely to take their children for vaccination, 50% answered in the affirmative while 16% in the negative indicating that there was indeed a strong correlation between income levels and vaccination. This may be interpreted to mean that parents from the disadvantaged homes lacked money to probably cover for transport needs among other expenses.

These finding finds support from other previous scholars. For instance, Agrawal, &Kumari (2014).explains that parents rarely make these decisions on their own and that there are a wide range of factors that contribute to their decision on whether or not to have their children vaccinated, and that they determine when and what vaccinations their children receive. The study findings further support those of Andriano1 and Monden1 (2019) who in their study about the causal effect of maternal education on child mortality, indicate that education had significant role in improving children's health. They present the main pathway through which parental education affects vaccination of their children. Firstly, that education changes one's attitudes towards current or modern health interventions through a paradigm shift from traditional viewpoint or

practices to acceptance of the modern health intervention and rationalization of illness. The second channel is through enhanced disease control via various measures including vaccination.

Research suggests that parents are strongly influenced by social networks and particularly people networks in the decision-making process (Agrawal, &Kumari, 2014).With the popularity of social media continuing to increase, it is important to determine how this increased usage impacts their decision-making process on vaccinating their children. Literature sees the health-care provider as a typical source of vaccination related information.

The finding that maternal education influence vaccination of children is also in line with other studies (such as Forshaw et al.,2016; Vonasek et al., 2016; Makate&Makate, 2016; Khan, Zaheer&Shafique, 2017). For instance, Khan, Zaheer & Shafique (2017) through the use of cross-sectional design, also observed education influenced vaccination because from their study, children of illiterate Pakistani women had significantly higher odds of not getting complete polio vaccination. Forshaw et al. (2016) in their work about the influence of mother's education on their tendencies to avail their children for timely and complete vaccinations at various levels, observed that the odds of complete vaccination of children were 2.3 times greater in those children with mothers who had secondary or higher education, in relation to children with illiterate mothers. Similarly, Vonasek et al. (2016) in their across-sectional research of 1,000 mothers from rural part of western Uganda revealed that children from mothers with basic knowledge on the importance of vaccination exhibited higher odds of availing their children for timely and complete vaccination. On the same vein, while assessing the role of parental

education on children's health using the Malawian's 1994 reform, Makate and Makate (2016) unveiled that an additional year of parental education reduced infant mortality by 34 percent.

Previous studies have established that mass media campaigns are leading "pro-vocative factor" for the improvement of vaccination tendencies (Al-lela et al., 2014). The consequences of these media campaigns are hoped to bring knowledge and information into households that would otherwise not have access to it, making vaccination a part of the everyday conversation. One study on parental attitudes and beliefs associated with internet use as a source of vaccination information finding that parents who received their information from the internet were less likely to agree with the vaccine science and children need or benefits of vaccines (Glenton &Lewin, 2017).

The influence of social media as a source of information is becoming prominent through its appearance in the literature. Studies have been conducted that analyze social media sites posts about vaccinations attempting to document the source, tone, and medical accuracy .In order to assess the potential influences on the decision-making process, researchers need to understand they do not have control over parental ability to access and verify medical information, and outside influences such as religion and culture.

4.4 Findings on the Effects of religion on parental decision to vaccinate their children

Several studies have demonstrated that religion, being the fulcrum of human behavior, dictates life in totality; this includes decisions to vaccinate children. Figure 4.7 gives a summary of the response on religion and its influence on vaccination.

Figure 4.7: Influence of Religious Beliefs on Vaccination

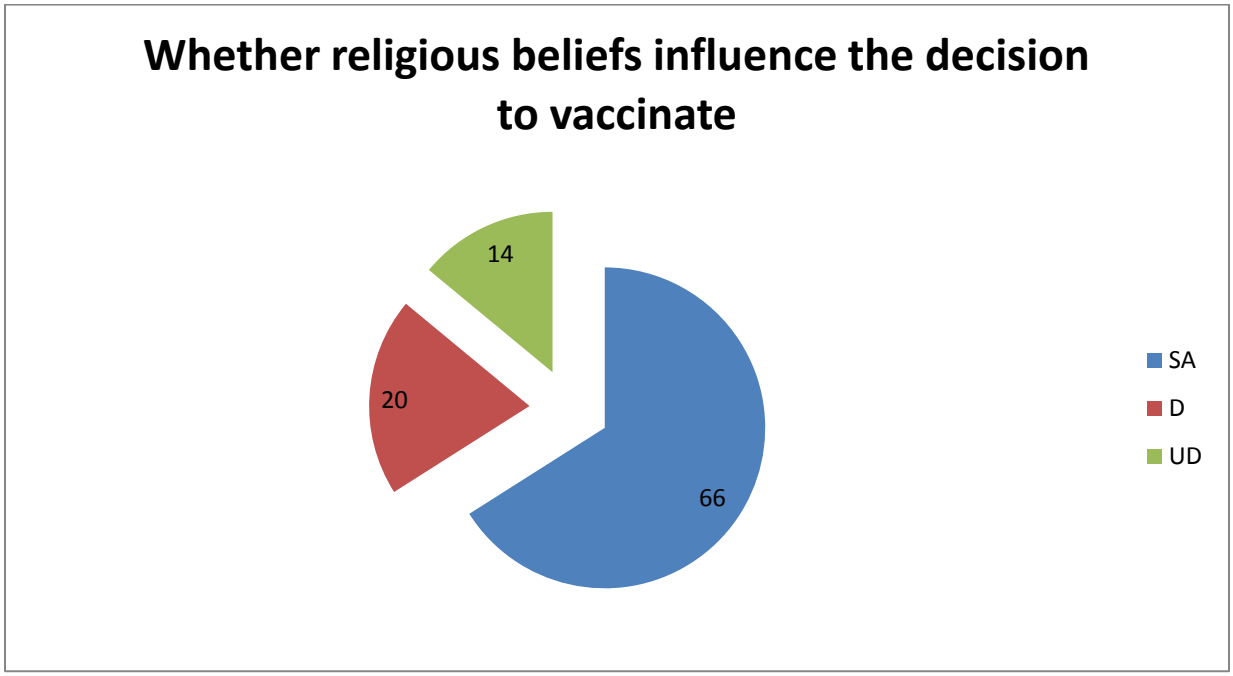


Figure 4.7 reveals that a majority of the respondents supported the assertion that religion influences parental decision making on whether to avail children for vaccination (66%). Those who disagreed with the assertion were 20% and the remaining 14% were undecided. When asked to explain how this happens, the respondents were divided along sectarian whims.

According to the respondents, the Protestants seem to have an unfettered tolerance to vaccination; their argument has always been that they support any activity that can lead to the betterment of the lives of humans and if vaccination does so, they fully support it. The contrary

is the case when it comes to the Roman Catholics who call for caution in ensuring that people who have ulterior motives do not use vaccination as a platform to achieve them In some cases, they have had to advise their members to shun vaccination of Polio because it was rumored that the vaccine was laced with population control inhibitors.

The respondents were categorical that the stance taken by their various churches directly affected their choices; they would not want to be seen contradicting these teachings advanced by their various religious views. Furthermore, those who believe in traditional African religion were of the view that the vaccines were an affront against their religious views. To them, vaccines are the causes of death of children and as such, they should be approached cautiously. In fact, some of the traditional practices that were cited included: visiting traditional medicine men, presumption that children are born immune and western medicine always leads to compromise of the immune system of the child.

However, from the interviews that were held with those who vaccinate children in the area, the following ideas were established. One of the participants had this to say:

> *".....previous, most of the Christians associated virtually everything to God and had strong conviction that God would heal them which made them avoid health centers. In if asked to come for vaccination, most of them said that their religion allow vaccination of children as God would be in control and take care of their children.*

Another participant with three years working experience indicated that indeed there some few cases of people refusing to have their children get vaccination. His comment is as follows:

> *".....concerning religion, I have occasionally heard that some Christians avoid vaccination of their children ...however, I have actually never come across these believers. ..."*

Another key participant had this to say:

> "*.....for me, I have witnessed a surge in the number of Muslims especially women have their children vaccinated at our health center. From my experience, I know that Islam does not object vaccination of children. Except for family planning……..''..*

Similar, another participant had the following comments:

> *".....I cannot say exactly that religion adversely affect vaccination of children. However, I know for a fact that Muslims are common advocators of health related interventions. Muslims tend to be more pro-active and more enthusiastic compared to other religions especially in so far as religion is concerned… well am talking mainly about Muslims in this area because on several occasions, they come for vaccination and even other vaccines. …*

The current findings are consistent with previous studies. For instance, Beluz (2019) while reviewing articles on the link between religion and vaccination observed that except for Christian Scientists, there were only but few canonical bases for avoiding immunization in most religions in the world over. The author explains that religious basis for declining immunization routines tended to revolve on safety concerns. The author used the case of US to illustrate how the role of religion played out. The author highlights that doubts in vaccine among religious communities have manifested in various countries and indicates that one country like Pakistan, Afghanistan, and Nigeria have not been able to control transmission of polio. The author attributes this to Muslim fundamentalist leaders who have in some occasions convinced their followers to avoid vaccination on allegation that it is plan by America to inject Muslims with family planning compounds. The other argument against vaccination has been based on the assertion that it is a way of diverting Allah's will.

The study findings are also consistent with assertion that religious view have some bearing on vaccination. A good case is the famous "vaccine fatwa" issued by Islamic leaders in Indonesia aimed at discouraging followers from accepting the then measles-rubella vaccine. The reason for objecting the vaccine was due to the fact that it was not "*halal*" and contained trace amounts of pig products which is commonly forbidden by Islamic religion. The question of the vaccine's safety helped its rate plummet, and the effect spilled over into neighboring country such as Thailand, by encouraging outbreak of measles. In essence, most Muslims across the world allow timely vaccination.

The findings are in tandem with those of Berezin and Eads (2016) the study found out that other social and cultural reasons may have affected immunization coverage negatively. Of notable importance was lifestyle which in the context of her study, related to Nomadic culture, that acted as an obstacle for mothers to take their children for vaccination. This was because most mothers were not within reach to nearest health centers. The author further revealed that another from a nomadic family was 11 times more likely not to take their children for full vaccination. Berezin and Eads (2016) also observed that the place of birth determined or influenced vaccination of children. In her study, more than 80% of children were delivered at home as opposed to health centers hence most of them did not receive complete or timely vaccination.

4.5 Findings on the Effects of Information access by parents on the Choice to vaccinate their Children

Information access was considered as a very important variable in making decisions pertaining vaccination. This is because information is an empowering tool that makes people make

informed choices pertaining vaccination. As such, the respondents were asked to respond to the assertion that information is an important determinant of the parental choice to vaccinate children. The responses are demonstrated in the figure 4.8.

Figure 4.8: Role of Information in Vaccination

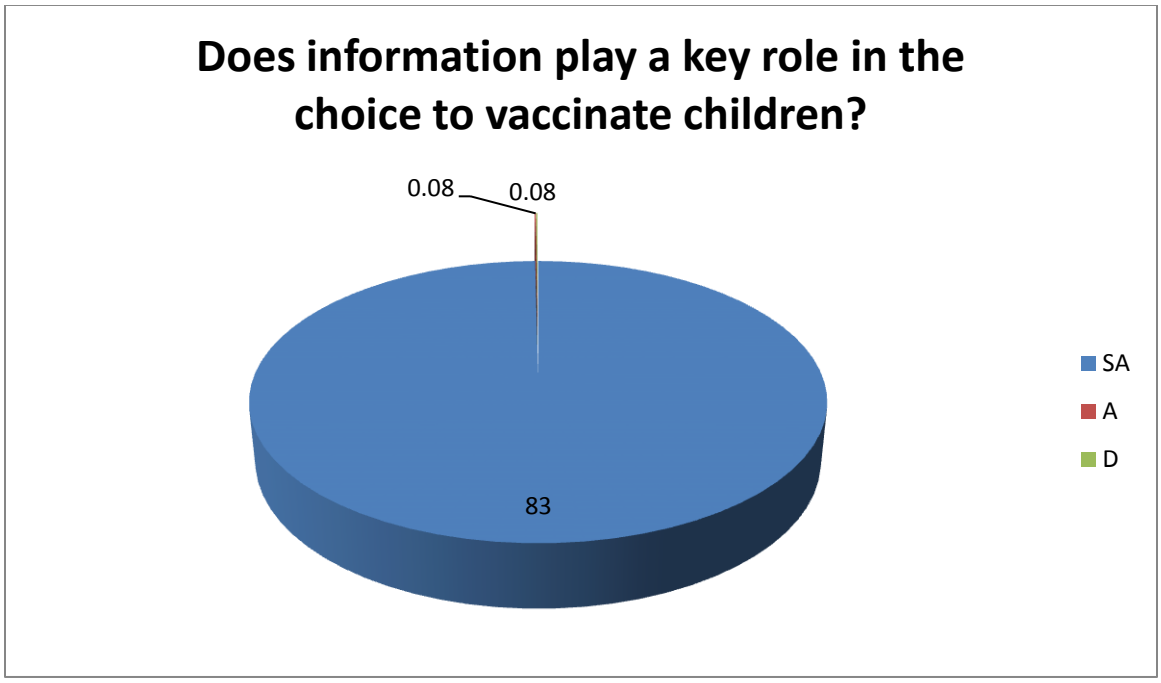


Figure 4.8 reveals that 83% of the respondents strongly confirmed the assertion that information influenced the choice to vaccinate; those who agreed and disagreed constituted 0.08% and 0.08% respectively. Therefore, the inference from these findings is that information is indeed a major determinant in relation to parent's decision making with regards to their children's vaccination.

Asked to state the sources of information on vaccination, the responses ranged from media outlets such as radio and television, social media like Facebook and whatsup, Barraza, community gatherings, and announcements through road shows and school communications through children.

When people are empowered in terms of having appropriate information, then they are able to have adequate understanding about vaccination and associated benefits. This influenced the adoption of vaccination services. In the current study, the media particularly TVs and radios formed the main source of health-related information. However, women groups and FCHVs also facilitated dispensation of health-related messages within the community hence controlled people's decision on vaccination of children.

The above observation is supported by one of the vaccinators who had the following to say:

> *"....am convinced that this change results from leaning from significant others. The other factor relates to the impact of media; such as vaccination related advertisement from our TV sets and radios. ……..people listen to radios and watch TVs and become empowered in terms of relevant information….the advisement are always incorporated with health based messages including the benefits of allowing children to be vaccinated…. The advertisements are always very thought-provoking and are able to hold people's attention.....a fact that may be attributed to FCHVs' movement to the villages passing vaccine related messages…..*

Another key informant had the following comments.

> *".....we also sensitize the public on health related information on regular basis. FCHVs are also involved in the sensitization forums and teach people especially mothers on the importance of immunization ……there are also numerous health related programs and most of these programs target mothers and children. Again, the emphasis has always been on safe motherhood……..so it is discussed virtually everywhere ……..Similarly, there are some women groups who are often invited in these sensitization programs.*

The roles of several players in the facilitation of vaccination was also investigated; these people include: the family members, elders, pastors, community-based organizations, traditional health practitioners, health officers, chiefs and other stakeholders. The responses were varied: some stated that these people, especially family members, provided moral and financial support that

was needed to carry out the vaccination. This was done by the facilitation of the mothers, escorting them, giving them correct advice for sound decision making and at times reminding them of the obligations they had. The community leaders were cited as very instrumental in the sense that, apart from carrying out mobilization, they also gave vital information concerning vaccinations such as venues and dates for vaccination. Lastly, the health professionals were also lauded as significant contributors of vaccination uptake. This was done through the efficient mobilization of people, giving professional advice to them, disseminating information to them, especially on the effects of not utilizing vaccination and keeping track of the vaccination uptake in their children. They also carried out door-to-door drives for vaccination in the rural areas.

When it comes to information and how it influences the decision to vaccinate, hesitation about vaccination are relatively common; particularly among several and specific disenfranchised community members in almost all parts of the world. It is documented that in many societies, suspicion related to hesitancy in vaccination of children is partly linked to historical inequality and mistrust. A case in point is the legacy of racism in medical field that has existed in America for a long time. The other example is the U.S Tuskegee Syphilis Study, a clinical experiment that was carried out African Americans who ended up not getting equal opportunities for their treatment. This continues to haunt Americans and is the main reason for the distrust of medical and public health interventions, including vaccination, by the African Americans.

In other parts of the world, especially African and Asian countries, mistrusts of vaccination is usually linked to the so called western ploy theories which hold that vaccination are plans by the developed world to sterilize non-Western countries.

Sunguti (2016) avers that in Cameroon, rumors and fears that health officials were administering a range of childhood vaccines to sterilize women in the 1990s, negatively affected most of the government immunization initiatives. Similar fears were registered in Tanzania in the mid-1990s, where a missionary questioned tetanus immunizations based on safety concerns. This sparked rumors about the possible sterilization campaigns thus affecting the whole process. Unless information is well disseminated, it can be very hard to achieve acceptability of the vaccines by the parents because they will subscribe to laced rumors and misrepresentations of information.

Sunguti (2016) posits that one of most outstanding instances of suspicion on vaccine in Africa has always been linked to polio vaccination. Speculation by a British journalist in 1990 that the virus causing AIDS passed from monkeys to humans through polio vaccine is a good case that illustrates the effect of rumors and speculation on acceptance of vaccines. The British journalist alleged that polio vaccine was developed from the chimpanzees' cells that were infected with the primate form of HIV, which thereafter was adapted into human beings resulting in disease. Sunguti (2016) further reveals that media attention has introduced conspiracy theories and worries worldwide despite the commitment by scholars and scientist to disapprove Hooper's viewpoint.

Political and religious doubts by Muslim fundamentalists have spread rumors and suspicions about the polio vaccine in most of Islamic states including Nigeria, Pakistan and Afghanistan. A case in point is the case where the local Taliban in Southern Afghanistan said that polio vaccination was one of the plan or strategies by the Americans to inject Muslim population with

family planning compounds and an attempt to avert Allah's will. In some occasions, resistance to vaccination has led to violence and kidnappings.

Experience of mistrusts may be partly attributed to uncertainty about the complexity of the modern and dynamic world in which people are forced to rely on others in order to control some aspects of their lives. According to Kothari &Garg (2014) a general mistrust in science is to blame for paralyzing form of skepticism and scientific populism that rejects the importance of scientific knowledge and triggers anti-vaccination decision making process.

Studies reveal that parents who support government's initiatives are more likely to accept policies related to vaccination of children. Most of these parents view these policies as important as opposed to restricting their individual freedom. This implies that mothers who trust those in pro-vaccination authorities are less likely to avoid vaccination, but exhibit higher intention to vaccinate their children and have more freedom in their decision making.

Studies indicate that parents who exhibit higher degree of distrusts towards those in authorities tend to be reluctant accept information from official .Based on this assertion, the relationship between extent of trust and possibilities of availing children for vaccinate tend to be moderated by information source used in deciding on whether or not to consume vaccination (services. Therefore, the degree of people's trust towards those in authority tend to be predictive to the number of official information sources consulted in making decisions. All these studies demonstrate the centrality of information dissemination to the parents as a way of enabling them to make meaningful decisions (Legesse, 2015).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary based on the findings of the study. It also presents the conclusions and thereafter the recommendations that the study came up with in view of the findings from the data analyzed from the field.

5.2 Summary

The study on the socio-cultural effects of parental decision to undergo polio vaccination. It was based on the following specific objectives. To establish the effects of education levels on the utilization of vaccination services in Mwala Sub County; assess the extent to which parental social status influences parental decision to vaccinate children; to analyze the effects of religion on parents decision to vaccinate their children and to examine the effect of information access on parents decision to vaccinate.

5.1.1 Summary on the Effects of Education Levels on the utilization of Vaccination Services

It was established from the findings that indeed education plays an important role in influencing parental decision to vaccinate their children; the more educated parents are, the more likely they are to vaccinate their children. Education acts as a catalyst to sound decision making when it comes to the health matters is concerned. The parents attested that acquisition of more education translated to better decisions. In fact, many of the parents who were interviewed were in possession of secondary education and above.

5.1.2 Summary on the Effects of Religious beliefs on parental decision to vaccinate their children

The study was able to establish that religion plays a very instrumental role in shaping attitudes and perceptions concerning all matters of live, health being one of them. From the data that was gathered in the field through interviews and questionnaires, it was established that religious beliefs can impede or influence vaccination uptake. Some religious beliefs were against the uptake of vaccines; expressing reservations about their safety and consequences. Therefore, religion plays a very important role in influencing vaccination.

5.1.3 Summary on the Effects of Parental Social Status on decision to Vaccinate their children

As to whether social status also has an influence on parental decision to vaccinate, this research answered in the affirmative; that higher social status correlates with vaccination uptake in Mwala Sub County. Those with a higher social status were bestowed with the responsibility of leading as an example. These are those who have positions in the society ranging from leadership positions in all respects to those who wield respect. However, those with a lower social status were found to be the ones who were reserved in the uptake of vaccines for their children.

5.3.4 Summary on the Effects if Information Access on the decision of parents to vaccinate their children

The study also established that information access plays a very crucial role in vaccination campaigns. When the public has access to information through the various media platforms, they are able to diffuse the cultural stereotypes against the uptake of vaccines hence they will be better placed to make the right and informed decisions concerning the uptake of vaccines. To this end, it was established that the Ministry of Health through the Public Health together with the

County Government have mounted spirited campaigns that are aimed at sensitizing the people on the importance of vaccination. Similarly, media platforms such as radio, television and through mobile texting help in broadening information base for the people making them to understand the importance of vaccinating their children.

5.1 Conclusion

Therefore, it can be deduced from these findings that the issue of vaccination is a holistic one which needs a multifaceted approach; this approach needs to encompass both medical and non-medical determinants of vaccination uptake. The non-medical determinants include the issues such as religious, social, cultural factors. Since people live in the society which is guided by social norms and perceptions, in addressing vaccination, such issues need to be put into consideration when planning for mass mobilization.

5.2 Recommendations

Based on the study findings , the following recommendations are made:

5.3.1 Recommendations on the effects of Education on Parental Decision to Vaccinate their children

- Education institutions should be used as a platform of sensitizing the parents on the importance of vaccination
- Vaccination should be carried out in schools to ensure all children are covered
- Social; Workers and Community care givers should organize sensitization campaigns to parents in a bid to enable them to vaccinate their children

5.3.2 Recommendations on the effects of Religion on the parental decision to Vaccinate children

- Vaccination information needs to be disseminated even in churches and community social gatherings
- There should be a dialogue between the traditional African religious leaders and the public health officers so that some redundant cultures can be subjected to rethinking
- Need to sensitize opinion leaders on the issue of vaccination

5.3.3 Recommendations on the Effects of Parental Social Status on Decision to Vaccinate

- Information sharing platforms should be organized among community members where they share the merits of vaccination and the demerits of not vaccinating children
- Through the Nyumba Kumi initiative, people should be encouraged to ascertain those parents who have vaccinated their children and be encouraged to do so
- Incentives should be given to those who are of lower social status to vaccinate their children

5.3.4 Recommendations on the Effects of Information Access on the parental decision to vaccinate their children

- More personalized information be given by the Ministry of Health to communities on the advantages of vaccination
- Accurate information be availed to counter misleading information on the effects of vaccination

- Pamphlets and posters be put in all public places to encourage people to vaccinate children
- Information on the day of vaccination also needs to be availed to the public in advance

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APPENDICES

APPENDIX1: QUESTIONNAIRE FOR PARENTS

SECTION A: Demographic Information

1. **Gender**

Male ☐

Female ☐

2. What is your marital status?

Married ☐

Single ☐

Divorced ☐

Others (Specify) ……

3. What is the highest level of school you attended?

Tertiary/Post- tertiary) ☐

Vocational ☐

(Post – secondary) ☐

Secondary ☐

Primary ☐

No education ☐

4. How many people live in your household?

1 – 3 ☐

4 – 5 ☐

More than 5 ☐

5. What is your main occupation?

None ☐

Formal Employment ☐

Informal ☐

Others (specify) ……

SECTION B: Effects of Education levels and community engagement in utilization of immunization services in Mwala sub-County

6. Kindly respond to the following questions on how education levels influence vaccine uptake

b) Do you agree that the level of education has helped you to make a choice as to vaccinate your child or not? Strongly Agree ☐ Disagree ☐ Agree ☐ Strongly Disagree ☐

c) How does parental education influence the choice to vaccinate their children or not?

……

……

……

……

……

d) In which ways can low education levels influence the choice to vaccinate children?

……

……

……

……

SECTION C: The effects of religion on parents' decision to vaccinate their children

9. a) Do your religious beliefs influence your choice to vaccinate your children? Yes☐ No ☐

b) If so kindly explain your answer

……

……

……..

d) How does your religious persuasion affect the decisions concerning vaccination of children against Polio?

……

……

……

…….

e) Are there differences in teachings between Protestants and Catholics on the issue of Vaccination? Yes☐ No ☐

f) Kindly Explain your answer below

……

……

……

g) How can Religion be used as a tool to encourage parents to vaccinate their children?

……

……

……

…….

SECTION D: The effects of information access by parents on the choice to vaccinate children

10. a) Do you think information plays an important role in influencing the choice to vaccinate children? Yes ☐ No ☐

a) How do you receive information concerning vaccination of children?

……

……

……..

b) Is there enough information that encourages parents to vaccinate their children? Yes ☐ No ☐

c) What type of information is usually spread through mass media on vaccination?

……

……

……

……

SECTION E: Effects of Parental Social Status on the decision to vaccinate children against Polio

11a) Do those people who are low income earners have the same chance to vaccinate their children as those from high income status? Yes ☐ No ☐

b) Kindly explain your answer below

……

……

……

…….

c) What are the barriers that prevent those from low social status to vaccinate their children against Polio?

……

……

……

…….

THANK YOU

APPENDIX II: INTERVIEW SCHEDULE FOR KEY INFORMANTS

1. Name of the respondent (Optional) ……..
2. Designation ……..
3. In your opinion, what role do parents in vaccinating their children?.....
4. In your opinion, explain how education levels influence a parents decision to vaccinate their children……
5. In your opinion, explain how a parents economic status influences their decision to vaccinate their children……

6. What is your view regarding the role of religion on parents' vaccination decisions?.....
7. In your opinion, how does access to information affect a parents' decision to vaccinate their children?.....
8. What measures exist to ensure that all parents avail their children for vaccination?

APPENDIX III: KREJCIE AND MORGAN SAMPLE SIZE DETERMINATION

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

APPENDIX 4: RESEARCH PERMIT

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