KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH EDUCATION AND PROMOTION

FACTORS INFLUENCING CHILDHOOD IMMUNIZATION SERVICES UPTAKE AMONG CAREGIVERS WITH CHILDREN UNDER ONE IN THE ASOKORE MAMPONG MUNICIPALITY IN THE ASHANTI REGION OF GHANA

BY

JOHN BAFFOE YEBOAH (BSC. PUBLIC HEALTH AND ALLIED SCIENCES)

MAY, 2019

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A THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH EDUCATION AND PROMOTION, SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH SCIENCES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTERS OF PUBLIC HEALTH IN HEALTH EDUCATION AND PROMOTION

BY

JOHN BAFFOE YEBOAH (BSc. PUBLIC HEALTH AND ALLIED SCIENCES)

MAY, 2019

DECLARATION

I hereby do declare that except for references to other people's work which have been duly acknowledged, this piece of work is my own composition and neither in whole nor in part has this work been presented for the award of a degree in this university or elsewhere.

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(HEAD OF DEPARTMENT)

DEDICATION

This work is dedicated to my lovely wife Theresa Tang and my children Elizabeth Nana Ntibeah

Yeboah and Stanley Kwaku Baffoe Yeboah. My late father Opanin. Francis Kwabena Baffoe and Mad. Mary Akosua Badu my mother.

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DEFINITION OF TERMS

EXPANDED PROGRAM ON IMMUNIZATION: is a World Health Organization programme with the goal to make vaccines available to all children

IMMUNIZATION: is the process by which an individual's immune system becomes fortified against an agent (known as the immunogen

VACCINATION: is the administration of antigenic material (a vaccine) to stimulate an individual's immune system to develop adaptive immunity to a pathogen.

PENTAVALENT: vaccine or (5-in-1vaccine): is a combination vaccine with five individual vaccines conjugated into one, intended to actively protect people from multiple diseases.

IMMUNIZATION COVERAGE: Percent of the target population that has received the last recommended dose for each vaccine recommended in the national schedule by vaccine.

LIST OF ABBREVIATIONS

ANC – Antenatal Clinic

AMMA – Asokore Mampong Municipal Assembly

BCG – Bacillus Calmette–Guérin

CDC – Center for Disease Control and Prevention

CHPS – Community-based Health Planning and Services

CHRPE – Committee on Human Research, Publications and Ethics

CWC – Child Welfare Clinic

DTP – Diphtheria, Pertussis and Tetanus

DHA – District Health Administration

EPI – Expanded Programme on Immunization

FQHC – Federally-Qualified Health care Center

FGDs – Focus Group Discussions

GAVI – Global Alliance for Vaccines and Immunizations

HPV – Human Papillomavirus

ICT – Information Communication and Technology

KMA – Kumasi Metropolitan Assembly

KNUST – Kwame Nkrumah University of Science and technology **LGA** - LaGuardia Community College

MMR – Measles Mumps and Rubella

OPV – Oral Polio Vaccine

RHC – Rural Health Clinic

SVD – Spontaneous Vaginal Delivery

UK – United Kingdom

UN – United Nations

US – United States

VFC – Vaccines for Children programme

WHO – World Health Organization

ABSTRACT

Immunization is a recognized health preventive intervention for controlling and eradicating deadly infectious diseases among children under 5 years. However, one of the major concerns surrounding the Expanded Programme on Immunization (EPI) is the failure to reach a satisfactory level of immunization coverage in rapidly growing urban areas. The main objective of this study was to determine the predictors of immunization uptake in Asokore Mampong Municipality.

A cross sectional study was carried out in the Asokore Mampong Municipality. A structured questionnaire was used to obtain data on knowledge and attitude of caregivers towards childhood immunization, immunization practices of caregivers and factors influencing immunization uptake in seven selected facilities.

More than 3 in 5 of the participants had good knowledge about immunization and mother's attitude towards immunization was also positive. Socio-demographic factors such as child's sex (p=0.013),

level of education (p=0.017), religious affiliation (p=0.002) and marital status (p=0.002) were associated with immunization uptake. Mothers with good knowledge about immunization were more likely to immunize their child up-to-date (p=0.012). The main reason why mothers present their children for immunization was for child's protection against diseases.

The immunization uptake (26%) is low in this municipality, per the national uptake of 95%. There is therefore the need for an implementation of new strategies such as establishment of more outreach services, intensive client education about immunization during ANC visits so as to improve immunization uptake.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Immunization is a recognized health preventive intervention for controlling and eradicating deadly infectious diseases among children under 5 years. The World Health Organization (WHO) initiated the Expanded Programme on Immunization in May 1974, with the objective to vaccinate children throughout the world, to protect or prevent them from contracting vaccine preventable diseases. It is one of the keys to achieving the Sustainable Development Goal three (3), which is to "ensure healthy lives and promote well-being for all at all ages". However, one of the major concerns surrounding the Expanded Programme on Immunization (EPI) is the failure to reach an acceptable level of immunization coverage of 95% in rapidly growing urban areas.

The mortality rate for children under 5 years of age globally was 43 deaths per 1,000 live births in 2015. That rate represents a 44 per cent reduction since 2000. Mortality among children under 5 years of age remains high in sub-Saharan Africa, with a rate of 84 deaths per 1,000 live births in 2015 (WHO, 2016). Children are most vulnerable in the first 28 days of life (the neonatal period). In 2015, the global neonatal mortality rate was 19 deaths per 1,000 live births, a decrease from 31 deaths per 1,000 live births in 2000. Neonatal mortality is highest in Central and Southern Asia and in sub-Saharan Africa, at 29 deaths per 1,000 live births in each of those regions in 2015 (Sustainable Development Goals Report, 2017). Immunization averts an estimated 2 to 3 million deaths every year from diphtheria, tetanus, pertussis (whooping cough), and measles. However, an additional 1.5 million deaths could be avoided if global vaccination coverage improves (WHO, 2016).

Despite the improvements made in global immunization coverage for children over the past decade, an estimated 21.8 million infants worldwide are still not being reached by routine immunization services. In 2013, most of the World Health Organization's regions reached more than 80% of their target populations with three doses of diphtheria, pertussis and tetanus (DTP) vaccine but coverage with such vaccine remained well short of the 2015 goal of 90%, particularly in the African (75%) and South-East Asia regions (77%), (WHO, 2016). During 2016, about 86% of infants' worldwide (116.5 million infants) received 3 doses of diphtheria-tetanus-pertussis (DTP3) vaccine, protecting them against infectious diseases that can cause serious illness and disability or be fatal. By 2016, 130 countries had reached at least 90% coverage of DTP3 vaccine.

In the same year 2016, an estimated 19.5 million infants worldwide were not reached with routine immunization services such as DTP3 vaccine. Around 60% of these children live in 10 countries: Angola, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan and South Africa. In Ghana, less than one percent of children have not received any vaccination or immunization at all, indicating that Ghana has made great strides in this area. A Multiple -Indicator Cluster Survey showed that 77 per cent of children aged 12-23 months were fully immunized before their first birthday and the coverage rate for all vaccination for children aged 12-23 months was 84% (Ghana Statistical Service, 2011).

The Asokore Mampong Municipality has been recorded poor immunization coverages and was ranked the lowest performing district nationwide in 2014. In the year 2014, it achieved 26 percent coverage, rising to 64.3 percent the following year, and hit 76.7 percent in 2016 (Municipal Health Directorate Annual Report, 2015).

1.2 Problem Statement

Immunization averts an estimated 2 to 3 million deaths every year from diphtheria, tetanus, pertussis (whooping cough), and measles; however, an additional 1.5 million deaths could be avoided if global vaccination coverage improves. During 2016, about 86% of infant's worldwide (116.5 million infants) received 3 doses of diphtheria-tetanus-pertussis (DTP3) vaccine, protecting them against infectious diseases that can cause serious illness and disability or be fatal. By 2016, 130 countries had reached at least 90% coverage of DTP3 vaccine. In the same year 2016, an estimated 19.5 million infants worldwide were not reached with routine immunization services such as DTP3 vaccine. Around 60% of these children live in 10 countries: Angola, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan and South Africa.

In Ghana, less than one per cent of children have not received any vaccination or immunization at all, indicating that Ghana has made great strides in this area. However, the Asokore Mampong Municipal Health Directorate has recorded poor immunization coverage and was ranked the lowest nationwide in 2015. It only achieved 26% coverage. DHA Annual report (2016). National target for Penta3 is 95%. This indicate that, there is 12.3% under one children unimmunized to be covered.

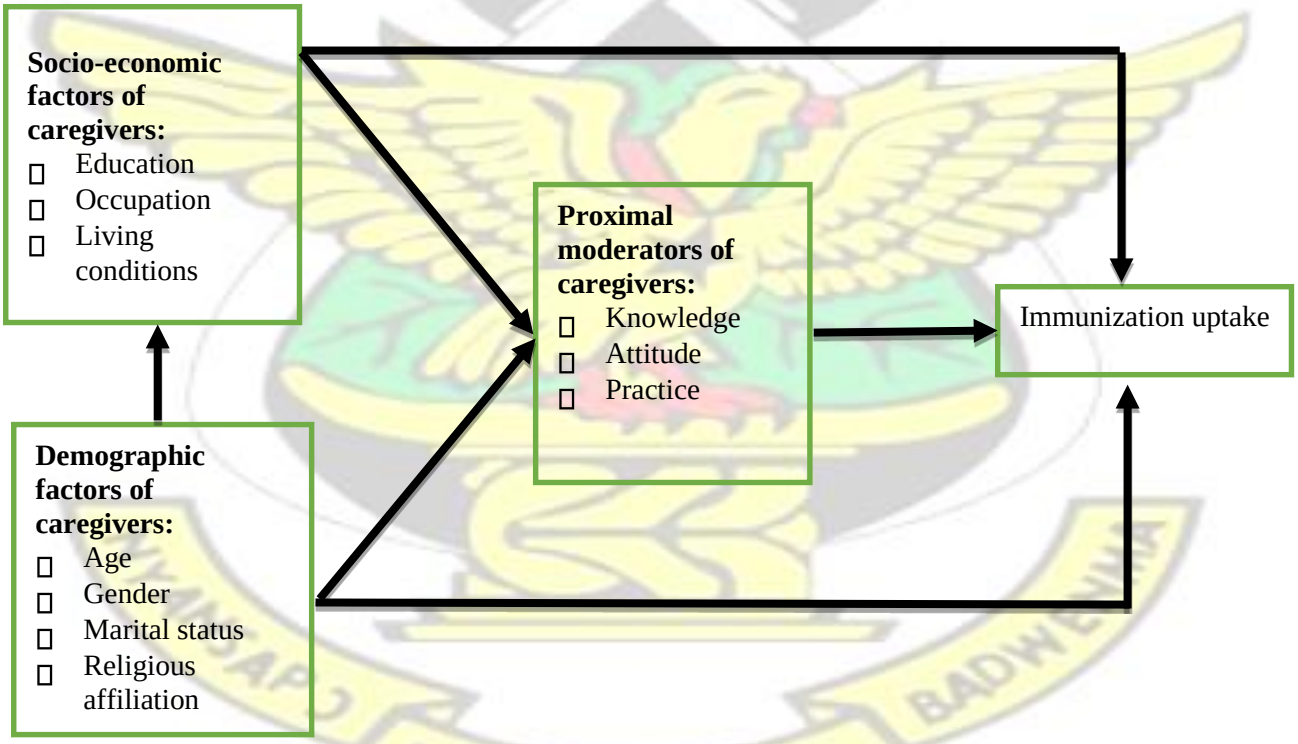
1.3 Rationale of Study

The study will bring to bear the reasons motivating mothers/care givers to present their children for vaccination, which will in-turn inform policy makers to develop appropriate strategies to improve immunization coverage of under-five. When immunization coverage is improved, vaccine preventable deaths of under-five will be avoided. Pentavalent (Penta3) will be use as a proxy. The study will assess only children below one year annually in terms of immunization, because the

Ghana Health Services used children below one year to assess the districts performance regarding Penta3. Every child supposed to receive three doses of Penta before one year of birth, hence the use of this target population in the study and to predict why the district is not performing in immunization uptake of children below one.

1.4 Conceptual Framework

A conceptual framework is a schematic plan, which graphically depicts the relationship between the independent variables and the dependent variable in a study. In this study, the established dependent variable is uptake of childhood immunization. The independent variables include; caregivers' socio-demographic characteristics, socio-economic status, educational status and occupational status.



Source: Author's construct, 2018.

1.5 Research Question

1. What is the knowledge of caregivers towards childhood immunization?
2. What is the attitude of caregivers towards childhood immunization?
3. What are the practices of caregivers on immunization?
4. What are the factors influencing immunization uptake among caregivers?

1.6 Main objective

To investigate the factors influencing childhood immunization uptake among caregivers with children under one in the Asokore Mampong Municipality.

1.7 Specific objectives

1. To assess the knowledge of caregivers towards childhood immunization

2. To assess the attitude of caregivers towards childhood immunization

3. To assess the immunization practices of caregivers

4. To determine the factors influencing immunization uptake among caregivers

1.8.0 Health profile of the study area

Background

The Asokore Mampong Municipal Assembly is one of the thirty (30) Administrative districts in the Ashanti Region. It was carved out of Kumasi Metropolitan Assembly due to the growing population of the Kumasi Metropolis. This was aimed at allowing government to implement her policies of local governance for the benefit of the entire citizenry. The Municipal Assembly was

created under the Government's Decentralization Programme in 2012 under Legislative Instrument (L.I) 2112 on June 29, 2012, with Asokore Mampong as its capital.

1. 8.1 Setting and size

The size of the Asokore Mampong Municipality is 23.91 km2 and lies at the North-Eastern part of Kumasi Metropolitan Assembly. It is surrounded to the west, east, south and north by Kumasi Metropolitan Assembly (KMA). It can be found on Longitude -1.565 and latitude 6.715

1. 8.2 Language and ethnic diversity

The Asokore Mampong community is a community of diverse ethnic groups. The ethnic groups are people from Northern Ghana (43.4%), followed by Akan (40.9%), the Guans (10.7%), Ewes (3.0%), Ga-Dangme (1.2) and others (0.8). The main language spoken are Twi and Hausa

1. 8.3 Religion

Islamic religion is most dominant among all the religious groups in the study area with 55.4% of the total population, followed by Christians with 41.8%, and other religious groups constitute 2.8%.

1. 8.4 Culture

Nana Boakye Ansah Debrah is the traditional ruler of Asokore Mampong. He is the overseer of all land under his jurisdiction. Akwasidae is the main festival celebrated by the people, and this occurs every forty days. Therefore, there are nine Akwasidae in every one year. Akwasidae kese, being the last in the year is therefore observed on a very high note to end the year.

The Imams also serve as the heads of the Muslim communities within the Zongos, and this has ensured peaceful co-existence among the various diverse cultural groupings in Asokore Mampong.

1. 8.5 Population

The Asokore Mampong Municipality has a population of about 363,692 (projection from 2010 Population Census) with 4% as under one population (14,548). The municipal has been divided into seven sub-municipalities namely; Aboabo, Adukrom, Airport, Asawase, others include Asokore Mampong, Sawaba and Sepe Timpon. Each of the sub-municipality has its target population under one as follows; Aboabo (23.4) 3,979, Adukrom (15) 2,182, Airport (6) 655, Asawase (35.3) 5,135, others include; Asokore Mampong (6.3) 917, Sawaba (6.3) 917 and Sepe Timpon (6.4) 931. There are 42 communities and Community Health Planning Services (CHPS) zones in the municipality. It also has nineteen health facilities, four public and fifteen private, which provide health care to the inhabitants.

1. 8.6 Economic Activity

An economic activity refers to the main work that the people do to earn their daily bread. The highest proportion of the employed are engaged in the service and sales (36.0%). The next in line are those engaged in craftmanship trades (27.1%), with ordinary works contributing (14.2%). These are followed by technicians with 7.2 percent and other Professionals making up for 5.7 percent. Farmers contribute the least with together with the clergy at 1.9 percent each.

Employed females in the Asokore Mampong Municipality are mostly service and sales workers (51.5%) compared with craftmanship trades where there are more males than females by as much as 20 %. For ordinary works, females dominate (19.2%), with males making just (9.2%). similarly, females (3.5%) dominates males (3.3%) in formal managerial work settings. In contrast, males are more (7.1%) than females (4.3%) in professional careers. For technicians-oriented jobs, males are dominant with (4.1%) and the same trend is observed for mechanical oriented works (13.9%).

1. 8.7 Education

The municipality has 276 different educational facilities, 137 of which are private and 139 public. Pre-schools numbered up to 93, Primary schools are 101, Junior High Schools are 76, Senior High Schools (5), one Tertiary school and one Special school. However, there are no Vocational/Technical Institutions. The municipality has two (2) community ICT Centres located at Asawase and Adukrom. That notwithstanding, almost all the primary to tertiary educational institutions have ICT laboratories.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature that focuses mainly on the study, and other literature of relevance to the study. The literature review focused mainly on knowledge and attitude, immunization practices of caregivers and social-economic predictors of immunization uptake.

2.1 Knowledge on immunization

Education is known to offer people with the knowledge and skills to lead a quality life. It is proposed that persons who are literate due to their knowledge levels are more likely to inspire immunization and studies done in other places have established that educational level of mothers do impact the attendance for immunization (Cufts et. al.,1992; Angelillo et. al., 1999). Another study by Bonsu, 2005 in the Techiman district of Ghana also exhibited that knowledge of the schedules of the antigens was high among the literates and that there is an amplified percentage of a child being immunized if parents are well cultivated about the schedule of EPI. A study in Oyo state, Nigeria presented that there was a high level of knowledge about immunization, the diseases prohibited and the side effects (Oyerinde, 1999). One of the reasons initiated to be responsible for mothers failing to accomplish their child's or their own vaccination was lack of knowledge of vaccine preventable diseases (Zimicki et. al., 1994). A study in Burkina Faso in the early 1990s displayed that mothers who had been exposed to a variety of interpersonal and media messages were more likely to know the necessities to complete vaccination schedule and know the dates for precise vaccines than mothers in the control group (Bhattacharyya et. al., 1994).

Odusanya, et al., (2008), explored the determinants of vaccination insurance in rural Nigeria determined that mother's understanding of immunization and vaccination at a privately funded health facility was substantially connected with the rate of full immunization. Abdulraheem et al., (2011) established that the main immunization records sources have been friends (3%), family contributors (4.9%), radio (5.1%), city announcers (10.3%) and health workers (72.7%). Just ninety-seven (97%) were aware of the immunization towards deadly diseases in infancy must be achieved in the 9th month period after birth with the measles and yellow fever serums. 12.8% of care givers were aware that during birth, BCG is given whereas only 6% knew that vaccine for Hepatitis B might additionally be provided during birth as well as these care givers had been the teachers and other skilled team of workers of the Local Government Area. Vaccination was once stated by 20.1% as deterrence ability against deadly diseases during infancy. According to Abdulraheem et al., (2011), less than half of 37.2% of the caregivers goes by the routine of their wards who are 9 months old immunization schedules.

According to Rahji and Ndikom (2013), caregivers' knowledge on non-immunization had no understanding about the place and schedule of childhood immunization. Additional motives comprised of less attention concerning immunization health remunerations. About one- fifth of the care givers offered motives exposing their absence of understanding about the schedule of routine immunization, benefits of immunization as well as the prerequisite doses range. Most ladies have the notion that their wards were too young to take particular vaccines, predominantly these consisting of the use of syringes and needles. Moreover, limited number of care givers alleged that their kids had acquired some serums and were seemingly flourishing and healthy hence there is no need for extra serums. Most care givers however have the belief that a lot of serums might be

dangerous to proportion 94% of care givers gave reasons that total reliance on immunization campaigns for infant immunization.

Shehu et al., (2015) famed that consciousness performs a key function in the adoption of new thoughts closer to fixing human problems, particularly as they relate to health seeking behavior. Gaining antenatal care and delivery health services differs in quite some ways associated with children immunization reputation. Research designate that care givers who go to their antenatal care and give birth at the health facility are most definitely to immunize their kids. According to Mutua et al. (2011) and Takum et al., (2011), Antenatal facility is the capacity for caregivers to be conscious of programs pertaining to immunization. A Nigerian researcher, Adedayo et al., (2009) established that most of the care givers interacted with, obtained their immunization consciousness at the antenatal clinics. According to Big bam et al., (2006), this is not different from what another study established in Cambodia to link how parents behaved positively towards hepatitis B vaccine as a result of haven been introduced earlier to the idea of the same vaccine at a health facility they visited. (Caruana et al., 2005)

In addition, research conducted by Abidoye (2013) in Lagos kingdom suggests that majority, 89.5% of care givers are aware of BCG whilst 85.5% and 78.5% of the respondents are aware of OPV and DPT respectively. However, situated on the awareness of what vaccine defend against, 54.5% were aware of what yellow fever, measles and OPV vaccines prevent, 36% were also aware of what DPT vaccine avoids. In addition, the mothers' understanding about the distinctive types of immunization used to be quite remarkable as majority of them were aware of BCG, OPV, DPT, Yellow fever and measles vaccinations. The high level of information about measles, Yellow fever, OPV, BCG and DPT vaccinations might additionally be because of the element used to name the vaccines by using the ailments they avoid and to a certain level, by means of the respondents'

academic reputation. Regarding the knowledge of the ailments vetoed via these distinct types of vaccines, greater than half of the care givers knew what OPV, Yellow fever and measles vaccine fight against and a less percentage of the caregivers retorted to what DPT vaccines avoids. Even though, greater than three-quarter of the care givers have been somehow knowledgeable about the vaccination for BCG, solely a quarter were aware of its uses (Abidoye, 2013). A research on the knowledge, attitudes and practices of immunization in a city educated population of India recognized good sized variant in vaccine awareness from one vaccine to another. In addition, prior work in Kumasi, Ghana, in 1999 by means of Browne et al. observed that full immunization coverage of the children of care givers who had been fully immunized. 2.3 Attitude towards immunization

A Canadian lookup amongst caregivers of early children specific a generally positive attitude in the direction of immunizations (Freeman et al., 1992). In a European plan, care givers with children below 3 years of age had generally constructive attitudes toward immunizations among infant immunization programmes, and between 81% and 97 % of care givers would vaccinate their child in the future (Stefanoff et al., 2010). Health care providers' attitudes regarding vaccination have an impact on vaccine acceptance in a neighborhood and ought to decide how efficiently vaccine references are applied (Bovier et al., 2002). Acceptance of varicella vaccine amongst health care providers at Antelope Valley, California after its licensure in 1995 was now not initially uniform, as evidenced by means of a national coverage estimate of 25.8% in 1997 for children 19–35 months of age, however vaccination gradually received acceptance, with coverage achieving 87.9% in 2005 (Lumen et al., 2006).

In a study in Ghana, it was once found that notwithstanding the obvious deficiencies in knowledge, the participants' common attitudes and practices in the direction of childhood vaccination had been

tremendous (Asong, 2014). Majority of the individuals declared that each and every infant has the obligation to vaccination and that there is no alternative to this. The individuals were unbelievable to discover motives that would possibly stop them from taken part in immunization clinics. In other words, beside the few reasons stated by using the minority of topics such as an unwelcoming health worker, fear of side effects, fee of vaccines, and a extensive distance from immunization clinics, contributors referred to no professed limitations to vaccination of their children (Browne et al., 2002).

This is conflicting to a research in Pakistan by Ahmad et al., (1999) in which enormous populations. This reinforces the findings of bad mind-set being proven by care givers studied for their mind-set towards returning to entire vaccination of their children (Chris–Otubor et al., 2015). Only a small proportion of care givers (less than 3%) gave palpable responds for their failure in availing their children for immunization. The most famous reasons given had been “mother being too busy” and “there was once a family problem”. The least mentioned motives given through care givers had been “Did now not recognize the place and time for immunization”, “long queue and delaying time”, “Strike (industrial action by health workers)” and “Lack of money”. The unobtainability of vaccines as an intent for now no longer being immunized was once given by way of entirely 2.3% of women. It is additionally critical to be aware that “Lack of money” need no longer so a notable deal be an problem in Jos North due to the fact the authorities have delivered a facility that is very reliable and the services provided in the facility is free such as the vaccines given. These in a similar fashion stresses the fact that lack of awareness is a foremost reason for care givers no longer immunizing their children. Health education have to be utilized to motivate health safety via vaccination to forestall these childhood killer illnesses.

Health workers' attitudes and conduct had been commonly valued via the mothers, even though some whined about the insufficient specialized students' ability without experience. In accordance with Favin et al., (2012), Comparable high-quality understanding of fitness workforce conduct has been pronounced from Dominican Republic and Uganda. As per Sia et al., (2011), health workers' behaviors throughout the vaccination session, which determined that the workers are typically variety with moms at some stage in the vaccination session in general relate this to some other research. The founding indicates that the health workers' behavior establishes the identifying element of immunization inclusion. They have to develop an atmosphere of self-assurance among the populace who would accept their kids to be vaccinated so long as the providers are accessible. In most situations, care givers suggested vaccinators conduct themselves nicely in association to their technical understanding. They fingered out that these authorities except trainees were performing well. According to Sia et al., (2011), only occasionally, contributors stated that vaccinators have been impolite and yelled at moms or they felt the vaccinators do not inject well and hurt offspring through the procedure.

2.2 Practices on Immunization

Parental practices have been recognized as most essential boundaries toward immunizations in children. By use of a German internet vaccine discussion board for lay people (Gellin et al., 2000), a survey was carried out to determine present day practices of care givers regarding popular problems related to childhood vaccination. Of 6025 participants, 5722 (95.0%) regarded their paediatrician as the most fundamental source of information associated to immunization, accompanied by using leaflets (48.0%), health magazines (44.7%), and the internet (38.7%). Of in modern times frequently inspired childhood immunizations, these in opposition to pertussis, Hib and particularly measles–mumps–rubella was once measured least integral by way of parents.

Furthermore, 22.6% of survey participants felt that immunizations are administered “too early” in existence and 21.0 and 12.2% concept that overload of the child's immune machine and induction of allergies, respectively, would be facet consequences of immunizations. This survey delivered archives on general parental attitudes in the direction of immunization, which have to be used to format records techniques to counteract existing misperceptions.

Immunizations misinformation is typical exercised in West Africa. Foum et al., (2009) discloses a lot of misinformation on immunization of children:

. The individuals who are restrained state immunization drives in opposition to the desire of God, that it is a toxin from the "white witch specialist". Tagbo et al., (2003) demonstrates that care givers wrongly trusted that their kids would no longer go through the ailments even if no longer immunized. Odebiyi and Ekong (1982) regarded that convictions about the causes and assumed preference of managing sicknesses and the education dimension of care givers impact their acknowledgment or rejection of immunization. The creators presumed that as prolonged as individuals described in the religious well-known setting, they would be hesitant to utilize logical measures to forestall as well as control it.

According to Tagbo et al., (2003), in distinct global areas and regions a research uncovered rumors, misinformation or vaccination practices that vary from the biomedical view. For example, a find out about in Nigeria exhibited that care givers mistakenly believed that their children would now no longer go by means of the illnesses even if now no longer immunized (Tagbo et al., 2003). In rural Western Burkina Faso area, transporting immunization is often nicely referred to via the utilization of the care givers and the importance of infant protection towards deadly infectious ailments is identified by all find out about participants. These findings useful resource related

findings from low-income international places on this concern matter (Garcia et al., 2014). A vaccination coverage finds out about in the identical research neighborhood determined higher vaccination achievement in rural as in big difference to city zones. Full coverage in formative years aged 12–23 months was once round 75%. According to Shann (2011), the equal conclusion that rural childhood has leeway over urban children. The massive distinction is probably inferable from the effort immunization organizations working in the rural area at the same time as care givers in the urban location have to pursue vaccination in well-being services. The manner in which the immunization interims are prearranged in the rustic regions a sort of social weight on the ladies. In the towns, each care giver is mindful of who got right here to the immunization session as well as who no longer. Despite the fact that there is no punishment if a care giver does not think of her infant for immunization. The way for beholding for the missing care givers in the town in this manner prompts expanded inclusion. Also, the scope of outreach services augmented in the provincial region. Between 2009 and 2013, 233 new satellite services opened in Burkina Faso and make more noteworthy from 1373 out of 2009 to 1606 out of 2013 (Ministère, 2013).

Greatest care givers apprehend the EPI goal illnesses. Illnesses are clarified in the local language in the way of the vaccination session. However, these who do no longer have full understanding of these illnesses are regularly youthful mothers. This chains former discovering in Burkina Faso, The EPI interests' ailments are right recognized and labeled amongst the illnesses of the white people.

According to Salmon et al., 2015, systematic reviews of interventions meant at descriptive practices and/or reducing parental vaccine hesitancy and refusal have yet to come to be conscious of profitable techniques for commendation and/or to correctly reflect on consideration on their popular impact on indecision and vaccine uptake. As stated, reasons for vaccine hesitancy are

complex, range widely, alternate over time and rely on a variety of factors. Furthermore, interventions designed at plummeting practices about vaccines and ailment may additionally be counter-productive and reduce intent to vaccinate.

Considering the scarcity of profitable interventions and the context of the findings here, the exceptional need for cautious assessment of messaging influence prior to intervention is again emphasized comprising these delivered by providers (Salmon et al., 2015). For example, peer-peer training programmes may also be a goal for intervention in high-exemption schools. However, while a directed and well-timed labors communicating appropriate, evidence- primarily based information are needed, a great deal has been tried and the lack of high-quality interventions among vaccine-hesitant care givers is of awesome concern (Williams, 2014).

Many of the lousy caregivers behaviour and practices are attributable to a choice of understanding of the scientific importance of several vaccine-preventable infections and the actual protection and acceptability of all available certified vaccines in use currently. A large number of diseases with vaccines available are now very rare and people hardly remember their debilitating effect. consequently, people seem to underrate the importance of their prevention. The same thing happens when a vaccine preventable disease appears not to be serious any more simply because children have suffered from it even though they have been vaccinated against the same disease or the vaccination has improved conditions to an extent that people have become indifferent. (Williams, 2014). This is also observed by (Salmon et al., 2015), in the case of Human papilloma virus (HPV) vaccine.

An Italian study of children and care givers find out that solely 68% of females and 65% of males support vaccinating their kids towards HPV Vaccination, that solely 45% of girls under 20yrs have been conscious that Human Papilloma Virus contamination ought to situation itself, with 68%

willing to be vaccinated. Some care givers trust that the protection to be derived from vaccines is not as efficacious as the one obtained from the natural course of the infection, and would therefore prefer to acquire it rather than be vaccinated, with its attendant risks. This was proven by Prislin et al., 1998, who noted that in addition to issues of safety, beliefs in naturally acquired- immunity as well as caregivers' bad behaviour were the most significant factors in immunization determinants. One other common belief is to the effect that when numerous vaccines are administered, it results in weakening the child's immune system or even aggravates chronic conditions such as asthma, diabetes, or sclerosis.

As observed by a study in the US (Gellin et al., 2000), 25% of care givers alleged that their vaccinated children's immune system got weaker as the children were aging due to the numerous vaccines they received, and a further 23% said the vaccine received by children were too much for their age. Again, due to the campaign activities of anti-vaccination agents and the proliferation of internet and social media, a lot of misinformation on vaccines seem to have done some damage to the credibility of vaccines worldwide. Classical examples of these are the unsubstantiated attribution of autism to Measles-Mumps-Rubella vaccine and hepatitis B vaccine to a persistent weakness condition or some forms of sclerosis (DeStefano et al., 2002).

A research conducted in the United Kingdom observed that Measles-Mumps-Rubella and meningococcal C had been the commonest fingered of the endorsed vaccines, commonly due to the fact of issues about vaccine practices (Smailbegovic et al., 2003). A third of the subjects surveyed perceived immuninzing their infants to be more dangerous than leaving them unimmunized with Measles-Mumps-Rubella and meningococcal C vaccines. These subjects however turned out to have had previous experiences with Measles-Mumps-Rubella vaccine but not immunization as a whole. (Smailbegovic et al., 2003).

The current authorized human papilloma infection antibody inspired protest among certain societal communities due to individual convictions and practices. In this regard, dark and Asian guardians living in the UK communicated complaint to the HPV antibody because of the sexual transmission of the infection and their faith and practice that inoculations should upgrade sexual undertaking between youngster (Marlow et al., 2009).

As indicated by the Center for Disease Control and Prevention (CDC), 48 US states grant exclusions from antibody necessities for spiritual reasons and for individual convictions (The College of Physicians of Philadelphia, 2011). According to Salmon et al. (1999), kids and young people getting special cases from immunizations have been multiple times additional helpless to contracting measles as interestingly with inoculated people. Numerous settler bunches are directly dwelling in center and high-salary nations. Migration into these nations has prompted demographical changes in a significant number of them. These populaces, if under-inoculated upon migration or from there on, may likewise add to episodes of immunization preventable illnesses in the host nations. In this regard, lacking in these nations.

In the US, variations in earnings that have influenced vaccination cites prompted the foundation of the Vaccines for Children program (VFC). This kingdom worked government privilege program gives financing to embraced antibodies to kids from low financial acclaim (Santoli et al., 1997). The program was reputable in 1994, subsequent teachings from a measles flare-up enduring from 1989 to 1991. The degree, occurrences as well as infection rate of that flare-up was associated with low performance of measles inoculation among kids of low financial standing (Hutchins et al., 1996).

Qualification for immunization through the VFC programme is constrained to teenagers and kids underneath the age of 19 who are either uninsured, Medicaid-qualified, or are of American Indian or Alaskan Native legacy.

Also, kids who have medical coverage that neglects to cover immunization charges are confirmed for the VFC programme conferring they are assisted with the aid of a Federally Qualified Health Care Core (FQHC) or Rural Health Clinic (RHC). In 2006, it was once assessed that half everything being equal and youths in the US guaranteed for VFC funds. Inoculation checking records recommend that, all in all, VFC has effectively affected immunization inclusion of its objective populace. Notwithstanding, a most recent finding about introduced that conveyance and organization of VFC-financed influenza immunizations have been deferred by means for one month, as related with secretly bought flu antibodies. This can likewise have brought about the abatement costs of finishing of the two dosages obligatory for kids underneath 9 years who acknowledge the flu antibody for the initial time.

2.3 Factors influencing immunization uptake among caregivers

Immunization services have mostly been influenced by a host of factors such as health care staff attitudes towards mothers/caregivers, fear of vaccine side effects, size of the family of eligible children, false contraindications, bad timing of vaccination services, illegal extortion of money from mothers by health care providers, vaccine shortages, missed opportunities, educational level of mothers, religious beliefs, conflicts and wars, lack of information (on venue of service provision, date, need to return for additional vaccinations, etc.), failure to address negative rumors about a

particular vaccination exercise, living in peri-urban areas (inner cities) and its associated factors, (Topuzoglu et al., 2014).

Health care staff attitude: In Africa in general and Ghana in particular, the behavior of health care staff has been fingered as one of the main reasons why most mothers and caregivers fail to finish their immunization schedules. This behavior issue bothers especially on the rude manner staff talk to mothers and caregivers during immunization sessions. These staff question clients on their time of coming for the service (supposed lateness) as well as reasons for defaulting, without recourse to challenges or peculiar circumstances they had to deal with in coming to the service provision center (Jani et al 2008). These mothers, once they feel disrespected, subsequently do not continue with immunization services started, resulting in drop-outs (Antai, 2009.).

Fear of vaccine side effects: some mothers and caregivers cite fear of vaccine side effects as the reason they avoid vaccinating their children. Some of these mothers and caregivers may have experienced such side effects in their children, while others are purely based on rumours. Some of these side effects include abscess, tenderness, fever, vomiting, diarrhoea, rashes, etc. These undesirable side effects are inherent with the immunization system, and the health system has dealt with it proactively through health education. This intervention however does not always have the intended outcome or comes too late to make the desired effect, hence some children falling out of the immunization series before they complete it (Antai, 2009).

Family size of eligible children: it has been found that, the larger the family size, the less attention individual children receive on immunization activities. This results in children from larger family

size not receiving all the immunization they are eligible for. This gets compounded if there is a single parent (Rosenstock., 2014). Wrong timing of services: if immunization activities are not planned according to the local dynamics of economic activities, mothers and caregivers are inconvenienced and the consequence is to sacrifice voluntary activities such as immunization of their children, after all the child is not sick. Ill –timing could take the form of having vaccination exercises on unfavorable days or too early in the day or too late in the day. This calls for careful planning with the full understanding of local cultural, economic and social dynamics (Sykes et al., 2013).

Illegal extortion of money from mothers by health care providers: This practice has been recorded to deter some parents and caregivers from accessing vaccination services (Peckham et al., 2009).

Vaccine shortages: when mothers and caregivers visit the service, provision point to vaccinate their children and there is shortage of vaccines, their children are not vaccinated and are usually rescheduled. Some mothers and caregivers however, do not return for the vaccination, with their children missing these vaccines, and reason for non-accessing of the service attributable to vaccine shortage. Some mothers sometimes end up forgetting the remaining antigens.

Missed opportunities: This refers to a situation where a client visits the facility or service provision point to get vaccinated, but healthcare providers are unable to render the immunization services as required. In most cases, such clients do not return for the services initially intended (Jefferson, 2007).

Educational level of mothers and caregivers: According to research (Riley et al., 2012), the higher the educational level of the caregiver, the more likely the chances of completing their childrens' vaccinations and vice versa. This relationship implies that a lot of children do not receive their full vaccination simply due to the fact that their mothers and caregivers do not attach the necessary

importance to immunization due to lack of education necessary to fully understand the concept of immunization.

Lack of information: Quite often, healthcare providers fail to provide vital information to caregiver which in turn prevents such caregivers from seeking further services that they ought to receive. Such information includes the need to return for additional immunization services, when to come for those services, where to come for such services and what specific services to come for. A lot of women leave the initial immunization service provision session not armed with the adequate information needed to conveniently attend the next session as required (Hodes et al., 2009), with the obvious consequence of not completing the series.

Inner city fame has been recognized in nearly all research to be a significant threat element related with infancy immunization acceptance. In spite of the fact that there can likewise be varieties in immunization practices between internal urban communities and country or rural regions, we trust that the fundamental commitment to limit acceptance of immunizations in internal urban areas is because of the make-up of the people in such deprived regions. For example, internal town locale tends to have more noteworthy extents of families from minority ethnic groups, in abatement social classes; with more prominent youngsters, exclusively one parent or youthful or old moms and with greater probability of being temperamental. Such damaging components appear to be more prominent plausible to quickly affect negative vaccination acceptance than the status of internal town. We consider in enhancing the acceptance of rubella immunization, measles immunization and mumps immunization. It would be more noteworthy beneficial to target exact groups on the other hand than to extensively target inward city populaces (Xie, 2015).

A few families, particularly in inward metropolis regions with excessive hardship, are pretty portable, residing in transient settlement as well as these family units are remarkably hard to follow. So, vaccination arrangements are less possibly to attain them. Few youngsters may additionally have been inoculated with the aid of a non-public specialist. Few of whom make contribution to an automated vaccination framework. The primary component is additional presumably in internal city locale while the second might be impressive in rustic and rural regions (Nasrullah, 2012). The team might also encompass sure households who refuse all immunization tactics or who decide on a choice of technique as well as other people who are forewarned never again to be immunized because of "contraindications" (a significant number of which would possibly not be true) to rubella, mumps and measles immunization. The connection between rubella, measles, pertussis and mumps immunization acceptance recommend that vulnerabilities about these two antibodies have been greater probable than these about different vaccines. The benefits of receiving infants inoculated are once in a while flawed, however research have demonstrated that, in many developing nations, a gigantic assortment of guardians commonly belonging to socioeconomically deprived populations, refused infant immunization. The significant thought process in guardians not getting their kids vaccinated is the understanding that teenagers won't be tainted with beyond any doubt sicknesses, for example, whooping cough, polio and measles. Further, the care givers are nervous about the aspect aftereffects of vaccination.

Because of auxiliary, social and budgetary components, Pakistan has lower inoculation inclusion than different countries in the region (Xie, 2015).

Immunization might also now not be a segregated wonder; its auspicious agreement is connected with guardians' previous communications with the health care framework. For instance, if a

pregnant lady visits antenatal, she may also get certainties about vaccination and develop to be familiar with the workers of the health care. Such associate may moreover be advantageous in getting the infant inoculated after giving birth. According to Torun (2006), statistics additionally demonstrated that moms who had rare or no visit to the antenatal care had a high probability of fragmented vaccination for their young people. Correspondingly, moms who give birth at domestic additionally had a less risk of the entire vaccination. The motive ought to be that the moms who had delivered their homes may also have had more fragile or no colleague with medicinal services work force and accordingly had been considerably less aware of the noteworthiness of the wellcoordinated finishing of inoculation. In male centric social orders, which incorporate Pakistan, a male infant is more prominent esteemed than a young lady infant, since men are respected to have money related and social utility in households (WHO, 2013).

The order of giving birth has an association with the contracting of mumps, measles and rubella immunization. Kids from large households have been observed to have decrease immunization acceptance. Kids who stay with a single parent have been additionally much less possibly to acquire rubella vaccine, measles vaccine, mumps vaccine, a discovery constant with beforehand outcomes. Relatives with other young people to pay attention of or single parents with little aid may discover it difficult to get around to having their young people immunized. According to Jefferson (2007), these households may additionally want extra guide from health personnel in the community such as nurses or visitors as well as the need to be specifically focused. Making immunization periods extra accessible, at times when care givers discover it less difficult to join, covering creche services in health clinic for relatives, offering resourceful immunizations when kids show up at well-known exercises, clinics or hospitals for other motives and offering home

immunization provider by guests or other neighborhood worker for households with specific problems must enhance immunization acceptance.

Research conducted in Mozambique, Ghana, and Brazil have detailed low immunization inclusion related with wellbeing framework related components, for example, deficiency of vaccine at nearby dimension, the quantity of days vaccination was accomplished and separation to the closest vaccination office (Cruz, 2002). Proof from countries that are developing and developed has additionally distinguished explicit practices inside the wellbeing framework that lead to low immunization inclusion: proficient wellbeing specialists questioning the adequacy of vaccines, having exaggerated worry about antagonistic responses, and following wrong contraindications. Wellbeing administrations work force neglecting to utilize open doors for immunization can represent a critical extent of the disappointments to immunize kids. Sharp increments in inclusion saw in some developing countries related with mass immunization crusades have demonstrated that the conveyance framework assumes a significant job in immunization take-up (Logullo, 2006).

CHAPTER THREE

METHODS

A research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes success. This part therefore discusses the methodology which deals with techniques for data collection, processing and analysis.

3.1. Study Methods and Design

A research design is a planned structure and strategy of investigation, so as to obtain answers to research questions or problems (Cochrane, 1977). A cross-sectional study design was adopted.

Cross-sectional studies are suitable for estimating the prevalence of a behaviour or disease in a population at a particular point in time (Sedgwick, 2014). The approach enabled the researcher to obtain data on knowledge and attitude of caregivers towards childhood immunization, immunization practices and factors influencing immunization uptake. The design was a method of choice and was the most appropriate for this research because of its ability to scoop both qualitative and quantitative information in its natural setting (Black et al., 2016).

3.2. Data Collection Method and Instruments

Structured questionnaires were designed to extract the socio-demographic parameters as well as the attitude, knowledge and factors influencing immunization uptake in Asokore Mampong municipality. The questionnaire administrations were conducted by the researcher personally together with three (3) experienced research assistants that were recruited and trained for the purpose of the data collection. The questionnaire administration took place in the selected communities using the local dialects of the respondents and English depending on which language the respondent is more conversant with.

The questionnaire was adapted from an unpublished thesis and tailored according to the objectives of the study (Ahiavi, 2017). The questionnaire was also structured into five sections based on the objectives of the study. The section A covered questions on relevant background information of the respondents. Section B covers questions on the knowledge and attitude of caregivers towards immunization, section C cover questions on practice of immunization, whereas section D captures factors influencing immunization uptake in Asokore Mampong.

3.3 Study population

The study population composed caregivers. These children were selected from the 14,548 children born to 14,548 caregivers in the Asokore Mampong Municipality. The municipality has an estimated population of 363,692 using projection of the 2010 census. The 14,548, which forms the 4% of the total population and represent the children below one year, constituted the target population for the study, and covered the entire seven-sub municipalities.

3.4 Study Variables

Two groups of variables were identified for the study. These are the dependent variable and independent variables. The dependent (outcome) variable was whether the child had been fully immunized at the study. For this study, the independent (response) variables included: Sociodemographic factors (Educational level, Occupation, Religious denomination and sex of the child, marital status); attitudes of mothers, knowledge, distance form facility, attitude of health workers.

3.5. Knowledge of Participants about child's Immunization

To determine the level of knowledge of immunization among mothers, a seven-point knowledge statements were administered. Participants were given marks based on their responses (agree, or disagree). Correct answer on the knowledge question of the questionnaire attract 2 marks, incorrect answer attracted 1 mark. Total cumulative score of 60% and above is regarded as good knowledge, 59% and below was regarded as poor knowledge.

Table 1.0 Variables, measurement and description

Variable	Operational definition	Level of Measurement	Variable type
Sex	Sex of the child	Nominal	Explanatory variable

Age	Age of mother in years	Ordinal	Explanatory variable
Religion	Religious affiliation of the respondents	Nominal	Explanatory variable
Occupation	Economic profession of respondent	Nominal	Explanatory variable
Attitude	Reaction respondent towards immunization	Nominal	Explanatory variable
Knowledge	Level of knowledge of immunization	Ordinal	Explanatory variable
Immunization uptake	Status of child's immunization status	Binary/Nominal	Dependent variable
Immunization factors	Extent to which some factors influence immunization uptake	Nominal	Explanatory variable

Source: Author's Compilation (2018)

3.5.1 Inclusion criteria

The study included all caregivers of children under one who did receive immunization for their under one children within the seven sub-municipalities. These include Aboabo, Adukrom, Airport, Asawase, Asokore Mampong, Sawaba and Sepe Timpon

3.5.2 Exclusion criteria

The study excluded caregivers within the municipality with children under one who do not receive immunization at the seven sub-municipalities and children above one year of age

Table 1.1 Summary of Study Population and Sampling process

Community	Population	Sample determination	Sample size
Aboabo	3797	$= \frac{3797}{14548} \times 374$	98
Adukrom	2182	$\frac{2182}{14548} \times 374$	56
Airport	655	$\frac{655}{14548} \times 374$	17
Asawase	5135	$\frac{5135}{14548} \times 374$	132
Asokore Mampong	931	$\frac{931}{14548} \times 374$	24
Sawaba	917	$\frac{917}{14548} \times 374$	23
Sepe Timpon	931	$\frac{931}{14548} \times 374$	24
Total	14,548		374

3.6 Sampling

In order to ensure efficiency in the collection of data, a number of the caregivers from the study population were selected for the research. Due to the large size of the study population, it was impractical to use census approach necessitating the need to use sample.

Taking all into consideration, multi-stage sampling approach was employed. In the first stage, seven health facilities in the Municipality were randomly selected. The seven health facilities selected included; St Helena Maternity Home, Owusuaa Maternity, Airport CHPS zone, New Zongo CHPS zone, Garden City Hospital, Amaamata Maternity Home and Sepe Dote Health Centre. Proportionate allocation was adopted to allocate the required sample for each facility. A convenient sampling was employed in the selection of individual participants. Every third, fourth attendant of Child Welfare Clinic (CWC) was consented and interviewed. To avoid repeated recruitment in subsequent CWC visits, a sticker with a number was attached to participant's child's card.

3.7. Sample Size Calculation

The sample size was calculated using the Cochran's formula of $n=Z^2*p(1-p)/M^2$ (Cochran, 1977). The total population of caregivers in the seven facilities selected was 300.

Where n is Sample Size, Z (Z-Score) is the normal standard deviation set at 1.96, confidence level specified at 95%, M is the tolerable error margin (d) at 5%, and P is the Population Proportion assumed to be 50% or 0.50 based on the prevalence from a previous study done (Ezeonu *et al.*, 2017; Walana *et al.*, 2017)

$n=1.96^2*0.50(1-0.50)/0.05^2$

$n=3.8416*0.25/0.0025$

$n=384.16$

Adjusted Sample Size to the required Population of 14,548 thus the projected number of underone children born to caregivers in the Asokore Mampong Municipality (GSS, 2010).

Adjusted Sample (n) =n/1+[n-1]/Population

N=384.16/1+ [384.16-1]/14,548

N=381.84

N=374

The estimated Sample Size was 374. However, 300 respondents were used (given a response rate of 80.2% of the initial sample). And 74 (19.8%) of the sample population refused to participate due to various reasons.

3.8. Pre-testing

To ensure accuracy, reliability and validity of the instrument that was used in data collection, a pretest was done in the Asokwa sub-metro. The pretest was necessary to enable us to assess the field competence of the data collection tools; do away with bias (selection) and also to make the necessary corrections and inputs to it. The data of the pretest was not included in the study.

3.9 Data Handling

Data collected from respondents were handled with confidentiality while maintaining the accuracy and reliability of the data. In the field, completed questionnaire was perused and evaluated for completeness and consistency. This was done to minimized incidences of missing data and outliers and to ensure that the data are valid, reliable and accurate. After the field data collection, the responses were evaluated again to ensure no error was committed in the recording. After this, the data were coded and entered into a Microsoft Excel spreadsheet and saved for analysis.

3.10. Data Analysis

Data were coded and entered using MS Excel version 2010 for Windows and then exported to Stata version 14.0 for analysis. The mean, standard deviation and percentages and cross tabulation were used for descriptive analysis of obstetric and socio-demographic characteristics of study

participants. To determine the level of knowledge of immunization among mothers, a seven-point knowledge statements were administered. Participants were given marks based on their responses (agree, or disagree). Correct answer on the knowledge question of the questionnaire attract 2 marks, incorrect answer attracted 0 mark. Total cumulative score of 60% and above is regarded as good knowledge, 59% and below was is regarded as poor knowledge (Faremi et al, 2014).

Multiple logistic regression was performed to examine the simultaneous effects of multiple factors whilst controlling the effects of confounding factors. Univariate logistic regression analysis was used to compare the associations between the outcome variable (immunization uptake) and independent variables such as age, educational level, religion, occupation, distance to health facility, sex of the child, knowledge and attitudes. Crude and adjusted Odd Ratio (OR) and 95% Confidence Interval (CI) and p-values were computed.

The fitness of the logistic model was assessed using the Pearson's chi-squared goodness-of-fit test, The Fisher's exact was only used for tables in which the cell is less than 5 percent. To form the best fitting model which is parsimonious but biologically sound, variables with $p < 0.25$ from the Univariate analysis, variables that predicts immunization uptake as well as variables that had a significant association with immunization uptake were all included into the multivariate model. (Apanga & Awoonor-williams, 2018).

3.11. Ethical Consideration and Confidentiality

Ethical approval for the study was obtained from the Human Research, Ethics and Publications Committee of the Kwame Nkrumah University of Science and Technology (KNUST) to carry out this study. Permissions was also obtained from the following institutions: Asokore Mampong

Municipal Health Directorate and the seven facilities where the study was conducted. Informed consent was obtained from each participating expected mother who met the inclusion criteria and agreed to participate in the study. At the beginning of all interviews, the purpose of the study was thoroughly explained to each expected mother including making her aware that the information collected was confidential and purposely used for research only. She was constantly reminded that she had the right to participate or refuse to participate or opt out at any stage of the interview and this will not have any consequences.

3.12. Limitations of study

Small sample size due to time and resource was identified as one limitation of the study. A study of this kind should have covered large population and facilities in the Municipality. This limits the generalizability of our findings to geographical settings outside the study areas.

The study was cross-sectional, and therefore only able to suggest associations rather than causal relationships.

3.13. Strengths of the Study

The adoption of systematic random sampling and the choice of statistical analysis helped minimized bias and subsequently improved the outcome of the study.

CHAPTER FOUR

RESULTS

4.1 Demographic characteristics of the study participants

A total of 300 consented women participated in this study. The age of the participants ranged from 19 to 41 with a mean age of 29.07 (SD 4.53) and the modal age group was 25-29years representing 41.33% of the participants. This wasn't surprising as that represent the reproductive peak of every woman. A good proportion of respondents have had at least primary level of education 251 (83.67%), with only 49 (16.33%) of the participant had no form of education. Overwhelming majority of the women, 248/300 or 82.67% were married and over half (60.00%) of the respondents worked in the informal sector. More Muslims 214 (71.33%) participated in the study compared to their Christian counterpart.

Table 4.1 Below demonstrate the demographic characteristics of the participants in the study.

Table 4.1. Demographic characteristics of study participants

Demographic factors	Frequency/Percentage N=300 (100%)	Mean (SD)
Mothers' Age		
15-19	2 (0.67%)	29.07 (4.53)
20-24	26 (15.33%)	
25-29	124 (41.33%)	
30-34	95 (31.67%)	
35-39	29 (9.67%)	
40-44	4 (1.33%)	
Marital Status		1.24 (0.71)
Married	248 (82.67)	
Single	46 (15.33)	
Widowed	3 (1.00)	
Cohabitation	3 (1.00)	
Level of Education		
No formal Education	49 (16.33)	2.41 (0.85)
Primary Education	104 (34.67)	
SHS	122 (40.67)	
Tertiary	25 (8.33)	
Occupation		
Artisan	19 (6.33)	3.54 (1.31)
Civil Servant	20 (6.67)	
Trader	161 (53.67)	
Not employed	79 (26.33)	
Other	21 (7.00)	
Religion		
Christian	86 (28.67)	1.71 (0.45)
Muslim	214 (71.33)	

Source: Fieldwork, 2018

4.2 Knowledge of Mothers toward Immunization

About two-hundred and four 204 (68%) or more than 3 in 5 of the participants had good knowledge about immunization and ninety-six (32%) or more than 1 in 5 of the participants knowledge about immunization was regarded as poor.

Table 4.2, indicating results on the knowledge statements on immunization of mothers which depicted that all (100%) said they know that immunization protects their child from disease. However, 96.3% of the respondents said immunization promotes their child's growth. Majority of the respondents (99.0%) also said healthy children should be immunized and 91.0% of the respondents said immunization cannot treat disease. On whether a child who is sick can be immunized, 51.7% of the caregivers said their children who are sick be immunized while 70.3% of the respondents said that immunization cannot cause sickness in a child. Majority of the respondents (68.7%) said that children will not be fully protected if they do not complete their immunization.

Table 4.2: Results of Knowledge Statements on immunization

Knowledge Categorical variables	Frequency (n=300)	Percentage (100%)
Knowledge on Schedule of Childs' Vaccination		
Yes	175	58.33
No	125	41.67
Knowledge on number of vaccinations required to complete the schedule		
Yes	149	49.67
No	151	50.33
Knowledge on benefits of Immunization	**Yes**	**No**
Protect your child from disease	300 (100%)	0 (0%)
Promote child's growth	289 (96.30%)	11 (3.70%)
Unmasked hidden disease	200 (66.67%)	100 (33.33%)
Cure disease	273 (91.0%)	27 (9.0%)
Children will be fully protected if they complete their immunization	206 (68.70%)	94 (31.30%)

Source: Fieldwork, 2018

4.3. Attitude towards Immunization among study Participants

Table 4.3 indicates that one hundred and two (34%) of the respondents perceived immunization can cause serious health problem, whereas one hundred and seventy-four representing 58% thinks otherwise. Nineteen (6.33%) of the respondents sees vaccination as expensive. More than half (58% or 176/300) of the participants however belief that children who are not vaccinated have a risk of numerous disease infection. In general, there was a positive attitude towards immunization among participants.

Table 4.3: Attitude Statements of Immunization among study Participants

Attitudinal Statements about Immunizations	Agree	Undecided	Disagree
Vaccination may cause health problems	102 (34%)	24 (8%)	174 (58.00%)
Vaccinations are expensive	19 (6.33%)	21 (7%)	160 (86.66%)
Children not vaccinated have a high risk of disease	109 (36.34%)	15 (5%)	176 (58.67%)
Ensuring that my child is fully immunized is beneficial	221 (73.67%)	0 (0%)	79 (26.33%)

Source: Fieldwork, 2018

4.4. Perceived factors influencing childhood Immunization uptake

Of the 300 mothers that was interviewed, only ninety-four (31.33%) of them have had their children not immunized up-to-date based on the child record booklet. About two hundred and six (68.67%) were immunized up-to-date based on the recommended immunization scheduled.

The main reasons given for up-to-date immunization of children among participants included: Protection against child diseases, 94 (45.67%); unmask hidden diseases, 41 (19.67%); cure some diseases, 34 (16.67%); Pressure from friends and relatives, 27 (13.00%); and School admission requirement, 10 (5.00%).

The main reasons or factors that prevents mothers from presenting their children for immunization were: busy with work, 25 (26.00%); child was sick, 17 (18.0%); do not believe in immunization, 4 (3.6%); fear of side effects, 13 (14.7%); religious reasons 7 (5.00%); Long distance to the immunizing facility, 11 (12.0%); and rumours about the vaccine, 19 (20.7%).

Sixty-six (22.0%) of the respondents think frequent availability of vaccines will help improve Childs' immunization, one hundred and eighteen (39.3%) strongly suggest to intensify public sensitization on the benefits of immunization is the way to go, a small proportion (27/300 or 9.0%) of the respondents thinks the creation of more outreach delivery point will help improve child immunization. About one in ten (12.0%) thinks that a good attitude by healthcare providers towards mothers will help improve child immunization, and only ten (3.30%) suggest giving of incentives to caregivers as a way of improving immunization patronage.

4.5. Immunization Practices by Respondents

The proportion of children that had received immunization were universal among respondents, 297 (99.0%). Four in five of the children (85.0%) had received Penta 3 before four months. About two hundred and sixty-eight (89.33%) of the participants had receive some form of counselling/information about immunization, with only thirty-two (10.67%) participants never having counselling session about immunization. The main source of counselling/information were from the hospital and health centers (94.70%)

Table 4.4: Immunization Practices by Respondents

Variables	Responses	Frequency (n=300)	Percentage (100%)
Has your child received any vaccination before?	Yes	297	99.00
	No	3	1.00

Age child received Penta 3	First day of delivery	37	12.33
	Before 4 months	255	85.00
	Before 1 year	8	2.67
Counselling/information about Immunization	Yes	268	89.33
	No	32	10.67
Source of Counselling/ information	Hospital/health center	250	94.70
	Media	11	4.17
	Others	3	1.14
What will you do if your child suffers from adverse effects after been immunized	Treat the child at home	127	42.33
	Take the child to the herbalist	3	1.00
	Take the child to the hospital	170	56.67

Source: Fieldwork, 2018

Table 4.5: Reasons for low and high Immunization Uptake

Reasons for up-to-date Immunization uptake	**Frequency N=204**	**Percentage 100%**
Protection against diseases	94	45.67

Unmask hidden diseases	41	19.67
Cure diseases	34	16.67
Pressure from friends and relatives	27	13.00
School admission requirements	10	5.00
Reasons for low Immunization uptake	**N=96**	**100%**
Busy with work	25	26.00
Child was sick	17	18.00
Do not believe in immunization	4	3.60
Fear of side effects	13	14.70
Long distance to the immunization facility	11	12.00
Negative rumours about the vaccine	19	20.70
Religious reasons	7	5.00
Opinions on how to improve child Immunization	**N=300**	**100%**
Frequent availability of vaccines	66	22.00
Education on the benefits of immunization	118	39.30
Good attitude by the staff	37	12.30
More outreach points	27	10.00
Incentives to caregivers	10	3.30
Mother should be reprimanded for failure to attend CWC	19	5.80
No response	23	7.70

Source: Fieldwork, 2018

4.6. ASSOCIATION BETWEEN PREDICTORS AND IMMUNIZATION UPTAKE

Adjusted logistic regression results shows that socio-demographic factors such as **child's sex (p=0.013)**, **level of education (p=0.017)**, **religious affiliation (p=0.002) and marital status**

(p=0.002) were found statistically significantly associated with immunization uptake of the child (p<0.05). Female children were 2 times more likely to be immunized compared to their male counterpart (aOR 2.05 95% CI 1.16-3.61, p=0.013). Immunization uptake increases with the level of education of the woman. Mothers with primary level of education were 3.9 times more likely to immunized their children (aOR 3.90 95% CI 1.16-3.61, p=0.017), and ten times higher among mothers with Tertiary level respectively (aOR 10.53 95% CI 8.02-14.37, p=0.005 respectively). Mothers who are "single" were 9 times more likely to immunized the child (aOR 9.26 95%CI 6.19-11.40, p=0.002), whereas Muslim mothers were found to be less likely to immunized their children (aOR 0.33 95%CI 0.17-0.67, p=0.002). Other socio-demographic variables such as occupation (p=0.642), mother's age (p=0.588) were not found statistically significance with immunization uptake of the child (p>0.05).

The level of knowledge of mothers is critical to immunization uptake. The findings of immunization uptake did not depict anything different. Mothers who had knowledge about immunization were 8 times more likely to completely immunize their child compared to mothers who had poor knowledge about immunization (aOR 8.20 95%CI 8.85-15.40, p=0.012). The results are shown on table 4.5

Table 4.6 Regression of the Association between Categorical factors and Immunization uptake

Categorical Factors	Immunized but not up-to date n (%)	Immunized Up-to-date n (%)	OR (95% CI)	P value	aOR (95% CI)	P value

Sex of Child						
Male	61 (20.34)	99 (32.99)	1		1	
Female	33 (11.00)	107 (35.67)	1.99 (1.21-3.31)	0.007	2.05 (1.16-3.61)	0.013*
Marital Status						
Married	91 (3.00)	157 (79.67)	1		1	
Single	3 (0.99)	43 (14.34)	8.31 (2.51-27.54)	0.038**	9.26 (6.19-11.40)	0.002*
Widowed	0 (0)	3 (1.00)	1		1	
Cohabitation	0 (0)	3 (1.00)	1		1	
Level of Education						
No formal education	18 (5.99%)	31 (10.34%)	1		1	
Primary	38 (12%)	66 (22.00%)	1.01 (0.49-2.04)	0.981	3.90 (1.27-4.01)	0.017*
SHS	35 (11.67%)	87 (29.00%)	1.44 (0.72-2.91)	0.305	8.74 (6.83-10.08)	0.008*
Tertiary	3 (0.99%)	22 (7.34%)	4.25(1.12-16.24)	0.034**	10.53 (8.02-14.37)	0.005*
Occupation						
Artisan	6 (1.99)	13 (4.34)	1		1	
Civil Servant	3 (1.00)	17 (5.67)	2.61 (0.55-12.48)	0.228	0.66 (0.12-3.76)	0.642
Trader	46 (15.33)	115 (38.34)	1.15 (0.41-3.22)	0.785	1.09 (0.35-3.39)	0.875
Unemployed	32 (10.66)	47 (15.67)	0.67 (0.23-1.97)	0.475	0.38 (0.113-1.28)	0.118
Others	7 (2.33)	14 (4.67)	0.92 (0.25-3.48)	0.906**	0.58 (0.13-2.58)	0.480
Religious Affiliation						
Christian	14 (4.67)	72 (26.67)	1		1	
Muslim	80 (24.00)	134 (44.66)	0.32 (0.158-0.635)	0.001	0.33 (0.17-0.67)	0.002*
Mothers' Attitude						
Good Attitude	83 (27.67)	158 (52.66)	0.43 (0.215-0.884)	0.021	0.66 (0.29-1.54)	0.343
Poor Attitude	11 (3.67)	48 (16.00)	1		1	

* $p<0.05$ variable with significant association with complete immunization.

** Fishers exact p value estimated

CHAPTER FIVE

DISCUSSIONS

The proportion of children who have been vaccinated up-to-date was overwhelming high (68.67%) in this study. We therefore assessed the demographic factors, knowledge and attitudinal factors, and that might have influenced this high immunization rate as discussed in this chapter.

5.1. Knowledge and Attitude of Mothers towards Child's Immunization Uptake

Lack of knowledge of mothers on immunization is a huge barrier and detrimental to immunization coverage (Chris-Otubor *et al.*, 2015). Majority of the women in this study have good knowledge about the benefits of immunization, and immunization schedules. Mothers with good knowledge were more likely to immunized their child up-to-date compared with those with little or no knowledge of immunization. This corresponding the findings of a study conducted in Somalia (Mohamed *et al*. 2016) and the results from the Ghana Demographic Health Survey (2014) and subsequently affirmed in a study in Oyo state, Nigeria showed that there was a high level of knowledge of caregivers about immunization, the diseases prevented and the side effects of immunization (Oyerinde, 1999).The findings however contradicts with a study conducted in Ghana by the Ghana Statistical Service, in which the results showed that knowledge about immunization was poor among women in the Northern (GSS, 2014).

5.2. Attitude of Mothers towards Child's Immunization Uptake

Acceptance of any immunization program among under-five is highly dependent on parental attitude toward immunization. The attitude towards immunization was positive in this study. Four in five mothers had positive attitude towards immunization. This result is inconsistent with a study conducted in a traditional city in the United Arab Emirates and Canadian study among mothers of young children (Freeman et al 1992; Bernsen *et al.*, 2011). It also commensurate with a study in Ghana, which found that notwithstanding the deceptive lacks in knowledge, the care givers' overall attitudes and practices towards childhood immunization were encouraging (Asong, 2014). However, it contradicts with the results of a study conducted in Nigeria (Chris-Otubor *et al.*, 2015).

5.3. Factors influencing childhood Immunization uptake

Socio-demographic factors such as level of education, religious affiliation and sex of child were found to be determinant factors of immunization. The sex of the child is a very important determinant of immunization. In most local communities of west Africa, male children are often not immunized because they are presumed to be strong and should be able to withstand any form of attacks unlike their counterpart female children presumed to be weak and needs more protection (Tagbo *et al.*, 2003) In this study, female children were twice more likely to be fully immunized than their counterpart male children. This finding is inconsistent with a study conducted in Techiman municipality, Ghana were the ratio of male to female against immunization was almost 2 to 5 in favour of the female child (Adokiya *et al.*, 2017)

Education is known to offer people with the knowledge and skills to lead a quality life and many observational studies attest to that (Cufts et. al.,1992; Angelillo et. al., 1999). In this study, the association between immunization uptake and the level of education of the mother was found positive. The advanced the level of education of the care giver, the higher the odds of presenting

her child for immunization. This correspond to the findings of a study conducted in Somalia (Mohamed *et al*., 2016) and the results from the Ghana Demographic Health Survey (2014), which found that immunization uptake increases with level of education of the mother.

Religious affiliation was also found as a determinant factor to immunization uptake. In this study, Muslim mothers were less likely to immunization their children up-to-date. This finding was found consistent with a review of immunization study conducted in three districts of North-West frontier province in Pakistan, where an extensive proportion of Muslim women rejected and condemned vaccination as an American ploy to sterilize Muslim populations (Ahmad et al., 1999). Religiousbased faith have a general the notion that God gives health to a individual and God will control health deprived of the requirement for medicine, and henceforth no motive for one to immunize the child (Marlow et al., 2009).

In this study also, protection against disease, unmask of hidden diseases, cure of some diseases and pressure from friends and relative were cited as the reasons for immunizing their child. This finding is well elaborated in a study conducted in Burkina Faso, where protection against child killer diseases and treatment of diseases were cited as the main reasons for immunization uptake in the region (Bhattacharyya et. al., 1994). It also commensurate with the results of a study conducted in western Burkina Faso, where routine immunization is well acknowledged because of its importance of protecting children against deadly infectious diseases (Garcia et al., 2014). Participants also consistently cited the fear of side effects of vaccine, availability of vaccines, long distance to vaccination center, rumours of vaccine as reasons for not immunizing their children up-to-date. This result is inconsistent with a study conducted in Kumasi, Ghana (Browne et al.,

2002) and affirmed in a research carried out in Nigeria, which stressed that, the availability of vaccines and distance of health facility are determining factors that influences immunization uptake among mothers (Odebiyi & Ekong, 1982)

5.4. Immunization Practices among Mothers

Child's immunization was almost universal in this study. Majority of the children had received Penta 3 before 4 months. Overwhelming number of the mothers had received some form of counselling/information about immunizations and its benefits their children. Hospitals and Health centers were the main source of counselling/information about immunization. These findings are explained in a secondary analysis study conducted in the United States and southern Italy, where health facilities were the main source of information about immunization followed by the media (Abbey et al., 2012; Tabacchi et al., 2016).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

6.1.1. Knowledge and attitude toward immunization

A good proportion of the children were immunized up-to date by the time of the study, indicating the value placed on the importance of immunization among mothers in Asokore Mampong. High Immunization uptake was prevalence among single mothers and also with mothers with good knowledge about it.

6.1.2. Immunization practices

Fear of side effects of vaccines, long distance to health facility, negative rumours about the vaccine and busy with work were the main reasons for mothers not presenting their children for immunization.

6.1.3. Factors affecting immunization uptake

Socio-demographic factors such as sex of the child, level of education, marital status and religious has an influence with immunization uptake. Immunization uptake also increases with level of education of the mother and female children were more likely to be fully immunized compared to their male counterpart.

6.2. Recommendations

1. Per the results from this study, health staff should continue to encourage all caregivers to keep up with the good habits of always taking their children for immunization as and when scheduled.
2. The Ghana Health Service should ensure that more outreach centres be established in the communities to make CWC services very close to caregivers.
3. Implementation of behavioural change strategies aimed at altering some negative attitudes such as busy with work, and addressing any major perceptions and rumours of vaccines used for immunization. The behavioural change strategies should include routine public education on the benefits of immunization by Ghana Health Services.

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QUESTIONNARE ON PREDICTORS OF CHILDHOOD IMMUNIZATION SERVICES UPTAKE AMONG CAREGIVERS WITH CHILDREN UNDER ONE IN THE ASOKORE MAMPONG MUNICIPALITY OF ASHANTI REGION

Introduction

Good morning/afternoon, I am a student at the Kwame Nkrumah University of Science and Technology, Kumasi. I am undertaking a research on Determinants of childhood immunization services uptake among caregivers with children under one in the Asokore Mampong Municipality in this community/facility/District during Child Welfare Clinics (CWC) to come out with the best programmes to improve immunization coverage. I will be much grateful if you could help in answering a few questions for me. Be assured that your responses will not be linked to your identity in any way.

The purpose of this study is to fulfill an academic requirement for the award of MPH. For this reason, sincere and accurate responses are required please.

Please, you are assured of adequate confidentiality of all your responses. These responses will be used for academic purpose only. Thank you for the maximum co- operation. **Questionnaire**

Point of Service delivery….....Community…….....

Name of interviewer:.....

Date of interview:.....Time started…….....Time finished…….....

NO QUESTIONS AND FILTERS CODING REPONSE

SECTION A: BABY'S BIODATA

Q1	Sex	Male…….1 Female……..2
Q2	Date of birth:__ __/__ __/__ __ __ __(dd/mm/yyyy)	

35. In your opinion, what do you think can be done to improve your ability to take your child for immunization?

a)……

b)……

Q3	Age of baby (Months/weeks): Month (s) __ __ Week(s)___ ___
Q4	Immunization Card. Yes [ ] No [ ]
Q5	Immunization status. Fully immunized [ ] Partially immunized [ ] Not immunized [ ]

SECTION B: DEMOGRAPHIC CHARACTERISTICS OF THE CAREGIVER

		Response
Q6	Age of mother: ___ ___ (years)	
Q7	Marital status	Married……..……..1 Single…….…….....2 Separated…….…….....3 Divorced…….…….....4 Widow……..……..…….……5 Cohabitation……..…….....6

Q8	Level of education	No formal education……..…..…....1 Primary education……..…..……2 Secondary school……..…….....3 Tertiary education…….……4
Q9	What is your occupation?	Artisan…….……..……....1 Civil servant…….……..2 Trader…….……....3 Farmer…….……4 Not employed…….……....5 Other…….……....6 Specify……..
Q10	What is your religion?	Christian……1 Muslim……..2 Traditional……3 Other……..4 Specify……..

SECTION C: SOCIO-ECONOMIC CHARACTERISTICS OF THE CAREGIVER		
Q11	What is/are your sources of income?	Salaried job……....…….1 Husband…… ……..……....2 Own business…….…….3 Other……. ……..4
		Specify:
Q12	Do you live in a;	Rented house……..……..……1 Owned house……..……..……2 Family House…….…..……3

Q13	How many room(s) is/ are in the house?	One……..……..…1 Two ……..…...2 Three or more…….…….3
Q14	What is your main source of lighting?	Kerosene……...…1 Candle……..…2 Electricity…….……....3 Solar…….…….4 Other Specify:…….…….…5
Q15	What is your main source of cooking fuel/energy?	Firewood……...1 Charcoal……....2 Kerosene……...3 Gas……4 Electricity…….5 Other…….6
		Specify:
Q16	Do you possess the following item(s)?	Items / No. of Items / **Response** Yes=1, No=0 1= Radio 2= Bicycle 3= Motorcycle 4= Television 5= Car/truck 6= Video/VCD/DVD 7=Donkey cart 8= Land 9= Goats 10= Chicken 11= Sheep 12=Cow

		Other (specify)

SECTION D: KNOWLEDGE ON IMMUNI

Q17	Does immunization protect your child from diseases?	**ZATION**
Q18	Does immunization promote your child's growth?	Yes……...1 No……..…….2
Q19	Healthy children should be immunized	Yes……...1 No……..…….2
Q20	Can immunization treat a disease?	Yes……...1 No……..…….2
Q21	Children who are sick should not be immunized.	Yes……...1 No……..…….2
Q22	Do you think immunization can cause sickness to your child?	Yes……...1 No……..…….2
Q23	Children will be fully protected from diseases even if they are not able to complete their immunization schedule	Yes……...1 No……..…….2
		Yes……...1 No……..…….2

SECTION E: IMMUNIZATION PRACTICES

Q24	Has your child received any (vaccination) childhood immunization before?	Yes……..……..……...1 No……..……2

Q25	If No, why	Do not have enough time……1 Because of sickness……2 Doctors' advice……3 Cultural believes……4 Problem with the husband……5 Workload……6 Mother died……7 Other Specify……8

Q26	At what age did your child receive the Penta3 vaccination?	The very first day after delivery……1 Before 4 months ……2 Before 1 year ……3 Don't know ……4
Q27	What would you do after vaccination, if your child suffers from adverts events following immunization? (AEFI)	Treat the child at home……1 Take the child to herbalist……2 Take the child to hospital……3 Take the child to spiritualist……4 Do nothing to the child……5
Q28	What reasons would prevent you from presenting your child for immunization?	Busy with other work……1 Religion does not allow……2 Child was sick……3 Fear of side effects……4 Do not belief in immunization……5 Rumours about the vaccine……6 Long distance to the immunizing facility……7
Q28	What problems at the health facility would prevent your child from getting vaccinations? (Tick more than 1)	Attitude of health workers [ ] Lack of vaccines [ ] Lack of staff [ ] Days of immunization inconvenient [ ] Long waiting time at the clinic [ ]
Q29	Where did you give birth to your baby?	Hospital …… 1 Health Centre……2 Maternity Home……3 TBA... ……4
Q30	How did you deliver your baby?	Own self (Normal)……1 Caesarean Section……2
Q31	Did your child received any vaccination after delivery?	Yes ……1 No…… ……2 Do not know… ……3

Q32	Have you received any counseling/information on immunization?	Yes ……..……..……1 No …….……2
Q33	If YES, what was the source of the information/counseling?	Hospital/ health centre…….…..…..1 Traditional birth attendant…….....2 Family/friends/relatives…….3 Media (radio, television, newspapers, magazines and internet)…….4 Other specify……..5
Q34	Were you assisted and supported in the health facility to vaccinate your baby successfully.	Yes…….……..……..1 No…….....2

SECTION F: Factors influencing immunization uptake.

Here are a number of statements. Please state the precise answer.

Factors influencing immunization uptake	Responses	
Has your child been immunized up-to-date? (Yes	Using the child's health record booklet	
	1. Yes	2. No
What are the main reasons for sending your child for immunization? (multiple choices allowed)	1.Protection against child diseases 2. Unmask hidden diseases 3. Cure some diseases 4. Pressure from friends and relatives 5. School admission requirement	
What are the main reasons or factors preventing you from presenting your child for immunization? (multiple choices allowed)	1.Busy with work 2.Child was sick 3. Do not believe in immunization 4.Fear of side effects 5.religious reasons 6. Long distance to the immunization center/facility 7.Rumours about the vaccine	

What do you suggest or recommend should be done to help improve immunization uptake in this metropolitan?	1.Frequent availability of drugs 2. Intensify public sensitization on the benefits of immunization 3.Creation of more outreach delivery points 4. Good attitude by healthcare providers 5. Giving of incentives to caregivers

SECTION G: Attitudinal Statements about Immunizations

Attitudinal Statements about Immunizations	**Agree**	**Undecided**	**Disagree**
Vaccination may cause health problems	Agree	Undecided	Disagree
Vaccinations are expensive	Agree	Undecided	Disagree
Children not vaccinated have a high risk of disease	Agree	Undecided	Disagree
Ensuring that my child is fully immunized is beneficial	Agree	Undecided	Disagree