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## Socio-cultural Factors Influencing Immunization of Children in Ekiti State, Nigeria

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### Abstract

Several studies have been conducted to urge efforts at reducing the rate of infant morbidity and mortality throughout the world. Scientific innovations and research for efficient immunization has been able to reduce the spread of poliomyelitis across the world and make this vaccine preventable disease a history. One hundred nursing mothers were interviewed on Socio cultural factors influencing immunization of children. Knowledge of immunization was observed to be average among the study population. Identified factors that limit immunization coverage include; attitude, culture, beliefs, religions, politics, economy, conspiracies, boycotts and human suspicions. Despite reasonable knowledge on immunization and its role in disease prevention, there is a need to improve availability of information on the importance of immunization and to change parents' negative beliefs and attitudes towards achieving total immunization coverage.

**Keywords:** Socio-cultural, Immunization, Child-Health, Influence, Nigeria

### Background to the Study

Immunization is a lifesaving and cost-effective medical intervention which reduces childhood morbidity and mortality. Immunization is a strong pillar of community health, as it is a cost-effective intervention to prevent illness and disability, and saves millions of lives every year and also a key to achieving the Sustainable Development Goals 3 (SCDs Goal 3) (Fikiri, Jumanne and Deodatus, 2016).

Globally, there are about 30 million children who are not routinely immunized every year and 1.5 million children under five years of age die each year from Vaccine Preventable Diseases (VPDs) namely measles, whooping cough (pertussis), *Hemophilus influenza* type B (HIB) and tetanus (Koskei, Simiyu, Paul, Irene, Robert and Constance, 2014). The mortality rates for under-fives have significantly remained high in African countries with rates above 180 deaths per 1000 live births compared to global average of 72 (Koskei, Simiyu, Paul, Irene, Robert and Constance, 2014).

Worldwide, there are still 27 million children who do not receive routine immunization and as a result, Vaccine Preventable Diseases (VPDs) cause more than 2 million deaths and disability every year (Oladipo and Clara, 2013). Childhood immunisations have been shown to be effective in protecting children against Vaccine Preventable Diseases (VPDs) in Low and Middle Income Countries (LMICs). Immunization prevents more than 2.5 million child deaths per year. The reasons for incomplete immunisation and non-uptake of immunization services are poorly understood (Lakew, Alemayhu and Sibhatu, 2015).

In Nigeria, the Expanded Programme on Immunization targets eight diseases, namely tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus, hepatitis B, yellow fever and measles (Lakew, Alemayhu and Sibhatu, 2015). Nigeria operates the immunization schedule of the Expanded Programme on Immunization which prescribes five visits to receive one dose of Bacille Calmette Guerin (BCG), four doses of oral polio vaccine, three doses of diphtheria, pertussis and tetanus vaccine, and one dose of measles vaccine (Ayebo and Charles, 2009). In 2004, the country included hepatitis B and yellow fever vaccines in its schedule, recommending the receipt of three doses of hepatitis B at birth, at six weeks of age, and at 14 weeks of age while yellow fever should be given at nine months of age, along with measles vaccine (World Health Organization, 2005).

Receipt of antigens at recommended ages and intervals ensures that the child is adequately protected from target diseases at all times. A previous study (Ayebo and Charles, 2009) from Nigeria provided some explanations for partial immunization and missed opportunities and these include late reporting for immunization, non-administration of simultaneous injections, longer interval between DPT3 and measles vaccine (three and a half months) compared to that between the other vaccines in the schedule (four weeks). It is also suggested that, as the number of weeks/months postpartum increase, mothers begin to be engaged in other activities such that they may forget and/or may not have time to make scheduled visits for immunizations (Ayebo and Charles, 2009).

However, inadequate levels of immunization against childhood diseases remain a significant public health



problem in resource-poor areas of the globe (Mayinbe, Braa, and Bjunne, 2005). Nonetheless, the reasons for incomplete immunisation and factors for missed opportunities are poorly understood. Childhood vaccines do much to provide lifetime immunity to certain diseases, but for other diseases, such as pertussis, additional doses of vaccine are now recommended to protect individuals with waning immunity (Centre for Disease Control and Prevention, 2009).

Parents' beliefs about immunization risks and benefits may be the most common reason for partial immunization (Allison, Cedric, Deborah, 2005). However, there are few data about this reason compared to other reasons such as medical contra indications or access issues (Yawn, Xia, Edmonson, Jacobson, Jacobsen, 2000). Quality of outreach services, cold chain, as well as linking community with health services are among the influencing factors of effectiveness of immunization programs in resource-poor setting like Nigeria. The relative effect of each one of the above factors may significantly vary according to geographical areas (Carr, Martin, Clements and Ritchie, 2000). This research therefore aims to study the Socio cultural factors influencing immunization of children in Ado Local Government Area

### Statement of the problem

According to Ataguba, Ojo, and Ichoku (2016) globally, about 6 million children younger than 5 years died from either an infectious cause or during the neonatal period. A large proportion of these deaths occurred in developing countries, especially in sub-Saharan Africa. Immunization is one way to reduce childhood morbidity and mortality. In Nigeria, however, although immunization is provided free a charge at public health facilities, coverage still remains low and death from Vaccine Preventable Disease (VPDs) is high.

It was therefore imperative to assess inequalities in immunization coverage in Nigeria and ascertain the factors that accounted for disparities in child immunization coverage in the country. Research has shown that the time spent by mothers at the immunization center and the attitude of health workers to mothers had often discouraged mothers from attending immunisation centers (Imoh, 2014). Some mothers use the time that should have been used for immunization to pursue economic and social activities at the cost of the health of their children

Factors such as mother's literacy, region and location of the child, and socio-economic status are important determinants of immunization coverage in Nigeria which brought about the need for this research to

investigate the socio cultural factors influencing immunization of children in Ado Local Government Area

### Aims and Objectives of the study

1. To examine the conditions that influence mother's decision to complete childhood immunization
2. Determine the influence of husbands and other opinion leaders in the community have on mothers' decision to immunize their children
3. Determine the role staff motivation plays in the quality of services delivered to mothers during immunization
4. To investigate the factors that influence the commitment of mothers to return and complete immunization visits

### Concept of immunization

Immunization according to WHO (2015) is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease. A vaccine is a biological preparation that provides active acquired immunity to a particular disease.

A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and keep a record of it so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters. Vaccines can be prophylactic (example: to prevent or ameliorate the effects of a future infection by any natural or "wild" pathogen), or therapeutic (e.g., vaccines against cancer are being investigated). The administration of vaccines is called immunisation (Fiore, Bridges and Cox, 2009).

Immunization is the most effective method of preventing infectious diseases; widespread immunity due to immunisation is largely responsible for the worldwide eradication of smallpox and the restriction of diseases such as polio, measles, and tetanus from much of the world (Liesegang, 2009). The World Health Organization (WHO) reports that licensed vaccines are currently available to prevent or contribute to the prevention and control of twenty-five preventable infections (WHO, 2012).

In the study area, A common concept of immunization as preventive measure in the study communities is "ajesara", which literally means "something absorbed into the body". Absorption is not the key issue as this happens frequently with



other substances, such as food nutrients, vitamins and drugs. Rather, the emphasis is on things of a peculiar content or properties made specifically to prevent diseases. The prevention of diseases through absorption of certain properties may happen in different ways. First, the substances may be taken orally, like Oral Polio Vaccine (OPV). The administration of OPV was described as “atola”. “Ato” means “droplet” and “la” means ‘licking’. Droplet in this sense explains issues of volume and size, referring to a minute volume of liquid at a point in time (Jegade and Owumi, 2013).

Also, immunization is defined as “abere iwosan”, literally meaning ‘healing injection’. The word “injection” is central to all drugs administered using syringes and needles in health-care delivery among the Yoruba populace. This is likely to cause confusion between vaccines administered through intra-dermal process and curative medicine administered through the same process. Therefore, referring to immunization as “abere ajesara”, or injection absorbed into the body, provides a different layer of meaning distinct from the utilization of services for “iwosan”, meaning ‘healing’. This is also different from the common concept of “abere ilera”, literally meaning “health promoting injection.” Another concept used by respondents is “abere agbomola”, literally meaning “injection that saves children.” For them, certain injections were capable of promoting the health of children. Hence, all types of immunisation are simply described as “protective injections” (Jegade and Owumi, 2013).

### **Routine immunization in Nigeria**

Child immunization in Nigeria is provided through routine immunization and catch-up supplemental immunization campaigns (also known as National Immunization Days) organized across the country or subnationally in selected areas (Comfort and Hannah, 2016.). A fully immunized child in Nigeria is expected to have received one dose of Bacillus Calmette–Guérin (BCG) at birth or soon after, 3 doses each of diphtheria, pertussis, and tetanus (DPT) and oral polio vaccine (OPV) vaccines at 6, 10, and 14 weeks, and one dose of measles vaccine (at 9 months or soon after) (Ophori, Tula, Azih, Okojie, and Ikpo, 2014). Yellow Fever immunisation is also provided at 9 months.

Vaccines introduced more recently and administered during the first year of life include hepatitis B, pneumococcus, and rotavirus vaccines. In addition, vitamin A is administered at 9 and 15 months (Ophori, Tula, Azih, Okojie and Ikpo, 2014). As part of the Polio Eradication and Endgame Strategic Plan, inactivated polio vaccine was introduced in the routine immunization schedule in 2015, and Nigeria

participated in the April 2016 switch from trivalent to bivalent polio vaccine (WHO, 2013). Furthermore, as countries introduce a second dose of measles vaccine and other booster doses, improved coverage of routine immunization is expected in the second year of life and beyond as this provides opportunities to catch up on any missed immunizations from the first year (Ophori, Tula, Azih, Okojie and Ikpo, 2014).

Nigeria has been part of the global efforts to eradicate polio since 1988 though things have obviously not always gone smoothly. In 2003, a polio immunisation boycott in three northern states caused a major setback in Nigeria and surrounding countries, contributing to the reintroduction of the wild polio virus (WPV) into 31 countries that were previously polio free (WHO, 2014). This boycott was triggered by political tension between the north and south of the country, which ultimately led to allegations by political and religious leaders in the three affected northern states that the vaccines were contaminated with antifertility agents and HIV targeting the northern population (Yahya, 2007).

More recently, attacks on health workers and frequent attacks on communities by Boko Haram in some parts of northeastern and Fulani herdsmen in some north central Nigeria have created barriers to access to immunization in these affected parts of the country (WHO, 2014). Remarkably, and despite these and other setbacks, Nigeria was declared polio free in September 2015. Nonetheless concerted efforts are still required to ensure polio does not reemerge and to have the African region certified polio free in 2018.

There are marked disparities in immunization coverage between low- and high-income countries as well as within countries (Holte, Mæstad, and Jani, 2012). Individual, community and systemic factors contribute to inequitable uptake of childhood immunization. Antai (2011) posited that regional disparities in immunization coverage are linked to contextual factors distinguishing one region from another.

### **Immunization as a social event**

A visit to an immunization assembly point is usually an event associated with group movement, singing and dancing and social networking. Nursing mothers engage in group visits to immunization centers as they sometimes come in company of those living in the same neighborhood, or with friends. Sometimes, it involves those who give birth to babies in the same place at the same time. This behavior promotes compliance, since mothers tend to remind one another about the need to go for immunization, while everyone sees it as an opportunity for



relaxation and an outing. Women dress themselves and their babies in their best clothes, suggesting a degree of competitive behavior amongst mothers, as well as an attempt to demonstrate to the nurses how well they comply with clinic instructions about hygiene (Jegade and Owumi, 2013).

Singing and dancing at immunization centers stimulate the interest of nursing mothers' attendance as a social event. Even some who may have defaulted on immunizations continue to come to the clinic as an occasion for relaxation. This suggests that not only do the singing and dancing prepare the women for the immunisation while the procedure is being prepared; it also promotes demand for it. For men, the situation may be a bit different as they often claim ignorance of what happened at the clinic. However, immunization events also promote social networking among married men. Sometimes, a husband may contact a neighbor whose wife has been going for immunization, and inquire about his experience (Jegade and Owumi, 2013). This, most of the time, creates a type of relationship based on a common interest.

### **Reasons for incomplete immunisation among Nigerian children**

Inadequate levels of immunization against childhood diseases remain a significant public health problem in resource-poor areas of Nigeria. The standard measure of immunisation coverage is the percentage of children who have received the requisite number of vaccine doses irrespective of the age at receipt of the vaccine. However, to attain maximal protection against vaccine-preventable diseases (VPDs), a child should receive all immunizations within recommended intervals (Glauber, 2003).

A previous study (Ayebo and Charles, 2009) from Nigeria provided some explanations for partial immunization and missed opportunities and these include late reporting for immunization, non-administration of simultaneous injections, longer interval between DPT3 and measles vaccine (three and a half months) compared to that between the other vaccines in the schedule (four weeks).

Quality of outreach services, cold chain, as well as linking community with health services are among the influencing factors of effectiveness of immunization programs in resource-poor setting like Nigeria. The relative effect of each one of the above factors may significantly vary according to geographical areas (Carr, Martin, Clements, Ritchie, 2000). Knowledge of local impediments to effective immunization programs is very important in the development and implementation of appropriate solutions.

In a research by Abdurraheem, Onajole, Jimoh and Oladipo (2011), various reasons were adduced by the mothers for incomplete immunisation of their children. These include long waiting time at the health facility, lack of vaccine on the appointment day, absence of personnel at the health facility, child ill-health at the time of immunization, lack of information about the days for immunisation, forgetting the days of immunization, long distance walking, and lack of money were given as the reasons for missing immunization appointments.

According to them, understanding of the importance of immunisation, education and occupational status showed significant differences with respect to children with complete and incomplete immunisation status. Factors such as mothers' age, marital status, schooling level and gender of the child showed no significant differences with respect to immunisation completeness. Similarly, factors such as transportation need, physical accessibility, religious affiliations and knowledge about immunisation contraindication were confounders for incomplete immunisation status of the children and were found to be statistically non-significant.

### **Socio-cultural factors as predictors of immunization participation among rural mothers**

In the rural communities of Nigeria, where good coverage has not been attained, reaching children not yet immunised has proved difficult due to several limiting factors leading to annual increase in death of children. The aforesaid difficulties are often due to geographical, economic and other socio-cultural inaccessibility (Okueso, and Oke, 2016). The World Health Organization (WHO) gave the nation clean slate of health on polio eradication but barely few months after, there were reported cases of poliomyelitis infection in some rural communities of Nigeria. The Country is still among ten countries in the world with vaccine coverage below 50% (Itimi, Dienne and Ordinioha, 2012).

It is also of interest that Nigerian's under five mortality rate is 124 per 1000 and currently ranking 9th according to recent United Nation Children's Fund (UNICEF) estimates (UNICEF, 2014). Religion is said to have influence on Immunization as reported in Oluwadare (2009), that North east and west of Ekiti state dominated by Moslem had low immunization coverage. Waisbord and Larson (2005) also identified four key challenges facing active immunization uptake which includes: poor knowledge of the importance of vaccines, poor physical access to immunization service, lack of trust of the safety of the vaccine and non-availability of the vaccines (antigens).



## Factors Affecting Immunization Status of Children

Various socioeconomic and demographic factors may influence immunization coverage of children. Maternal characteristics, sex of child and birth order of the child, place of delivery, household income/economic status, knowledge about immunization and vaccine preventable disease (VPDs), and residence are the main factors associated with immunization coverage among children.

### Maternal Characteristics

According to Kidane, Yigzaw, Sahilemariam, Bulto, Mengistu and Belay (2006), maternal characteristics are the most known determinant factors of child immunization. According to a study by comparative study done among slum and non-slum dwellers in Bangladesh children age of 12-23 months of age in three zone of Dhaka demonstrated that complete coverage is associated with educational status of the mother, income and living conditions. The study revealed that mothers with lowest education, households with limited monthly income and people living in slum area were less likely to complete a child immunization. It also indicated that children whose mothers were born in a rural area or an urban slum, and those whose mothers were aged less than 30 years are 0.35 and 0.43 times less likely to be fully immunized respectively.

But in Kenya, according to a study by Kamau and Esami (2001) young age of mothers was associated with high immunization coverage as compared with the older mother. In other cross sectional study done in Burkina Faso children of educational status of mother significantly associated with complete immunization. It also showed children of polygamous parent were less likely to be completely immunized than that of monogamous. Religion also showed significant association with the immunization status of the children in which children of non-Muslim followers were 1.8 times more likely to complete immunization than other religion.

A study by Mosiur and Sarker (2010) in Bangladesh compares the educational status of mothers of children less than five year of age indicated that mothers who had primary, secondary and higher education were more likely to fully immunize their children than those with no education. In the study also age of the mother was also another determinant of child immunization status in which children of middle age mothers are more likely to be fully immunized than children of youngest and oldest mothers.

A case control study done in Southern Ethiopia in 2008 identified monthly income as the only factor associated with defaulting from immunization. But other socio demographic factors such as family size, age of the mother or immediate care taker, occupational status, ethnicity, religion, parity, and educational status does not show an association with defaulting. Also mothers age and mothers job were significantly associated with complete immunisation (Tadesse, Deribew and Woldie, 2009).

Caring for multiple children can create barriers to immunisation. A study in the USA by Elizabeth, Mary, Abigail and Susan (2003) found that mothers with 2 to 3 children were 20% less likely and those with 4 or more children were 40% less likely to have immunised children than those with only 1 child. It was also found that children were less likely to be fully immunised if their mothers were black or Hispanic, were 19 to 29 years of age, were unmarried, had less than a college education, had multiple children, or were living near or below the federal poverty level.

A cross sectional study done in Ethiopia by Kidane and Tekei (2003) indicates that, fully immunised coverage among children 12-23 months was higher for literate compared to illiterate mothers. Fully immunised coverage was higher in rural than in urban areas. The difference in the coverage of the various EPI vaccines among the four groups of mothers of 12-23 months old children increased with time. In the study area of rural residence and maternal education significantly predicted immunisation compliance among 12-23 months old children. In contrast to these in Sudan urban residence are 7.4 times more likely to complete immunization of their children than rural residence.

### Knowledge of Care Takers on Immunization

Knowledge is another factor which affects the immunization status of the child. These include knowledge and attitude toward immunisation and vaccine preventable disease. A Study done in Nigeria on determinants of immunization status children in rural area showed that mothers of higher knowledge score more fully immunize their children. Also it was found that more than half of mother can correctly recall the symptoms of vaccine preventable disease. And 99% the mothers felt immunization is good for the child (Olumuyiwa, Ewan, Francois and Vincent, 2008).

### Availability and accessibility of health care service

Health facility is another factor which contributed to full immunization of the child. Different studies showed the importance of availability and accessibility of health facility in immunization



coverage. According to Rup, Manash and Jagadish (2008), families nearer to the health facility are more likely to complete the immunization than those far from it. Cross sectional study done in India, Assam district showed that immunization status of the children was significantly higher where the distance of the health centre was <2km compared with those residing in remote inaccessible areas with a distance of >5km to the health centre.

In a study in Bangladesh, it was discovered that mothers near to health facility (<1km) were 2.11 times more likely to fully immunise than those who were far away from health facility (Mosiur and Sarker, 2010). In contrast, a study done in rural Mozambique showed that accessibility to health facility in terms of distance and need of transport to get immunisation facility significantly associate with the complete immunization (Jagrati, Caroline, Ilesh, and Gunnar, 2008). Another cross sectional study done in Sudan showed that walking time to the nearest place of immunisation strongly influenced the correct immunisation status of the child. Children of mothers who have better access to immunisation services (less than 30 minutes walking time to the nearest place of immunisation) were 3.4 times more likely to have had the correct immunisations than were children of mothers who have to walk 30 minutes or longer (Ibnouf, Van den Borne and Maarse, 2007).

#### **Maternal Health Care Utilization**

Maternal health utilization like antenatal care, status of mother and place of delivery are those factors that are associated with the immunization status of children. Studies indicate that mothers who attended ANC and give birth at health facility are more likely to fully immunise their children. Some studies also show that attendant at birth has an impact on the immunization status of children. For example a study done 2001 in rural Mozambique showed that home delivered children have a 2.27 times higher risk of not completing their immunisation program (Jagrati, Caroline, Ilesh and Gunnar, 2008).

In another study done in India mothers who received ANC services and also immunised their children was two to three times higher than the percentage of those who did not receive any antenatal care. And mothers who received ANC service from a trained or traditional birth attendant appeared to be aware of child immunization. Also mothers who received tetanus toxoid vaccination during pregnancy are more likely to completely immunise their children (Partha, 2002). In Bangladesh, number doses of doses tetanus toxoid immunization mother received associated with full immunization of the child (Mosiur and Sarker, 2010).

In institutional based study done in Uganda, 68% of the children were fully immunised for age. A child born in a health facility was significantly more likely to have been immunised BCG, and to be up to date with their immunisation compared to a child born at home. However, vaccine drop-out rate was similarly high irrespective of whether the children were born at home or in health facilities (Odiit and Amuge, 2003).

#### **Sex of the child**

Studies have shown that sex of the child is found to predict the immunization status of the child in the societies in which gender inequality is prevalent. A review done in India from 1996- 2006 showed girls were found to have significantly lower immunization coverage than boys for BCG, DPT, and measles (Daniel, Diego, Rajesh, Shally, Raju and Navkiran, 2009). But another study done Nigeria in 2003 showed no significant sex difference (Diddy, 2009). In 2006 Ethiopian EPI survey also showed that no statistically significant difference between girls and boys with regard to their immunization status (Kidane, Yigzaw, Sahilemariam, Bulto, Mengistu and Belay, 2008).

#### **Birth Order**

Birth order has a close relationship with immunisation coverage. According to the EDHS 2005 immunisation coverage generally decreases as birth order increases, 27% of first-born children have been fully immunized, compared with 18% of children of birth order six and above (Central Statistics Agency, 2006).

#### **Reason for Non-immunization**

Different reasons are given by mothers/caregivers not to immunize their children. These include parental lack of knowledge of benefit of immunization and immunization schedules, health facility related problems, cultural and religious reasons, maternal and children illness' were identified by many studies. In Bangladesh it was shown that programmatic factors are linked to drop out from immunization. In the study lack of information about schedule of session and non-holding of session according to schedules were commonly cited reasons for dropouts. The other reasons identified were no idea about doses; vaccinator did not inform about subsequent doses, refusal by health professionals due to lost card or vaccine exhausted (Abdul, Rukhsana, Azharul, Jasim, Meghla and Faiz, 2010).

In study done in Nigeria one the reason for defaulting was child illness and perceived contraindication by the health worker are the significant reason given by the caregivers for



defaulting (Onyiriuka, 2005). Knowledge on the benefit of immunization is also an important reason for the defaulting and non-immunization. For instance in southern of Ethiopia Wanago Woreda mothers who had poor knowledge about the benefit of vaccines were 6 times more likely to have defaulted than mothers who had good knowledge, also mothers who had negative perception towards health institution support were 2.3 times more likely to have defaulter children than mothers with positive attitude (Tadesse, Deribew and Woldie, 2009).

According to Eyob Tsegaye (1988), the reasons for defaulting from immunization are, mother had not enough time (17.6%), sickness of the child (37.2%), missed appointment time (41.8%) are the most mentioned by mothers (36). A base line survey conducted in Ethiopia in 2008 by core group polio project indicated that, a reason for not immunization were, health workers did not come and give vaccine at the village (28.2%) followed by lack of awareness about immunisation (25.9%), absence of health facility in the locality (19.1%), immunisation is of no use (7.7%), and immunisation hurts children (5.0%). Also reasons for defaulting are reported absenteeism of vaccinators (23.8%), immunisation time is inconvenient (18.7%), lack of awareness on the importance of immunisation (15.2%) and immunisation site is far away (10.9%), not knowing whether to come back for second and third immunisation (9.8%) are the main reason identified (Bisrat and Worku, 2008).

### Methodology

This section described the research design, area of study, population for the study, sample and sampling techniques. It also presented the instrument for data collection, validity and reliability of the instrument, method of data collection and data analysis.

### Research Design

The research design of any study is the process and/or step the researcher choose to carry out the research. To thoroughly examine this topic, the survey method was used. This design was adopted because the population of the study comprised of different types of people who are dispersed in their socio-economic characters and behaviour and who were prone to give answers that vary.

### Population for the Study

Nursing mothers with children 0-3 years old and health workers in Ado Local Government Area of Ekiti State were the target population for the study and measures were taken to identify where they can be easily located in the study area.

**Sample Size:** The sample size was 150 of all nursing mothers and health workers randomly

selected from all the nursing mothers and health workers in the study area

**Sampling techniques:** A sample of 150 nursing mothers and health workers representing the target population was utilized for the study. This involved the use of simple random sampling technique to select 150 nursing mothers.

**Instrument of Data Collection:** The instrument for data collection was a questionnaire designed on socio cultural factors influencing immunization of children in Ado Local Government Area. The questionnaire will be divided into two sections, Section A consisted of the bio-data (age, level of education and marital status) of the respondents. Section B comprised of multiple choice questions for testing the respondent’s knowledge and attitude about factors influencing immunization.

**Data analysis method:** The collected data was organized, tabulated and analysed by using descriptive statistics using percentage distribution.

**Ethical Consideration:** Ethical approval was sought and obtained from Ekiti State University Teaching Hospital Ethical committee. Permission was sought and obtained from health centers to be used for the study. Only eligible and consenting nursing mothers were recruited for the study after due explanation of the purpose, objectives, benefits and risks of the study. Confidentiality was ensured by avoiding writing names on the research tools; instead they were coded for the purpose of follow up.

### Results and Discussion

This section presented the data analysis, interpretation and discussion of findings based on the research questions. The researcher made use of simple percentages to illustrate the findings on socio cultural factors influencing immunization of children in Ado Local Government Area. The total number of nursing mothers interviewed was 150. They were interviewed on their age, education, marital status, occupation, and ethnicity.

**Table 1: Age of Respondents**

Age	Frequency	Percent
Below 20	9	6.0
20-30 years	45	30.0
31 - 40 years	68	45.3
41-50 years	28	18.7
Total	150	100.0

Table 1 above showed that age distribution of respondents. 9 (6%) of the respondents were below 20 years of age, 45 (30%) were between 20 – 30 years, 68 (45%) were between 31-40 years and 28





(18.7%) are from 41- 50 years. This showed that the highest age range was from 31 – 40 years.

**Table 2: Level of Education of Respondents**

Level of Education	Frequency	Percent
Tertiary Education	115	76.7
Secondary Education	23	15.3
Primary Education	2	1.3
<b>Sub-Total</b>	<b>140</b>	<b>93.3</b>
Missing	10	6.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

On education of the respondents, Table 2 showed that 115 (76.7%) of the respondents had tertiary education, 23 (15.3%) had secondary education, 2 (1.3%) had primary education while 10 (6.7%) of the respondents did not specify their level of education. The results showed that majority of the respondents had tertiary education

**Table 3: Marital Status of Respondents**

Marital Status	Frequency	Percent
Married	129	86.0
Single	10	6.6
Widowed	5	3.3
Missing	6	10.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

Table 3 showed that 129 (86%) of the respondents were married, 10 (6.6%) are single, 5 (3.3%) are widowed and 6 (10.7%) of the respondents did not indicate their marital status. The results showed that a larger percentage of the respondents were married.

**Table 4: Religion of respondents**

Religion	Frequency	Percent
Christianity	138	92.0
Islam	10	6.7
Traditional	2	1.3
<b>Total</b>	<b>150</b>	<b>100.0</b>

One hundred and Thirty Eight (92%) of the respondents were Christians, 10 (6.7%) were Muslims, while 2 (1.3%) were traditionalists. This showed that majority of the respondents are Christians.

**Table 5: Ethnicity of respondents**

Ethnicity	Frequency	Percent
Yoruba	135	90.0
Igbo	13	8.7
Others	2	1.3
<b>Total</b>	<b>150</b>	<b>100.0</b>

Table 5 showed that a greater percentage of the respondents are Yoruba (90%), 13 (8.7%) are Igbo while only 2 (1.3%) of the respondents were from other ethnic groups.

**Table 6: Occupation of respondents**

Occupation	Frequency	Percent
Civil Servant	108	72.0
Self-Employed	36	24.0
Factory Worker	5	3.3
Missing	1	.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

Table 6 showed that most of the nursing mothers interviewed were civil servants 108 (72%), 36 (24 %) were self-employed, while 5 (3.3%) were factory workers. This showed that majority of the respondents were civil servants while 1 (0.7%) of the respondents did not indicate her occupation.

**Table 7: Income of respondents per month**

Income per month	Frequency	Percent
Less than 20,000	21	14.0
21,000 - 50,000	67	44.7
51,000 - 100,000	43	28.7
Above 100,000	11	7.3
Missing	8	5.3
<b>Total</b>	<b>150</b>	<b>100.0</b>

Table 7 showed the income per month of respondents. Almost half of the respondents (43%) have monthly income from 51,000 to 100,000 Naira while more than half (67%) of the respondents had a monthly income from 21,000 to 50,000 Naira per month while 21 (14%) earned less than 20,000 per month and only 11 (7.3%) earned more than 100,000 Naira per month. However, 8 (5.3%) of the respondents did not indicate their monthly income.

**Table 8: Family size of respondents**

Family size	Frequency	Percent
Less than 5	103	68.7
5 - 10 members	39	26.0
More than 10 members	5	3.3
Missing	3	2.0
<b>Total</b>	<b>150</b>	<b>100.0</b>

Table 8 showed that More than half of the respondents (68%) had a family size of less than 5 people, 39 (26%) had a family size from 5 – 10 and only 5 (3.3%) had family size of more than 10 people. However, 3 (2.0%) of the respondents did not indicate their family size. This showed that majority of the respondents had a family size of five people.

**Table 9: The first child is always completely immunized**

Variable	Frequency	Percent
Strongly Agree	80	53.3
Agree	50	33.3
Strongly Disagree	9	6.0
Disagree	11	7.3
Total	150	100.0

Table 9 showed the response of respondents to the statement that the first child was always completely immunized. More than half (53.3%) of the respondents strongly agreed that the first child was always completely immunized, 50 (33.3%) agreed, 9 (6%) strongly disagreed and 11 (7.3%) disagreed that the first child is always completely immunized. This show that majority of the respondents agreed that the first child’s immunization was always complete.

**Table 10: Single women do not always complete their children immunization**

Variable	Frequency	Percent
Strongly Agree	12	8.0
Agree	65	43.3
Strongly Disagree	33	22.0
Disagree	40	26.7
Total	150	100.0

Table 10 showed that 65 (43%) strongly agreed that single women did not always complete their immunization while 12 (8.0%) agreed. However, 33 (22%) of the respondents strongly disagreed while 40 (26.7%) disagreed that single women did not always complete their children immunization.

**Table 11: Educated mothers always complete their child immunization**

Variable	Frequency	Percent
Strongly Agree	55	36.7
Agree	75	50.0
Strongly Disagree	4	2.7
Disagree	16	10.7
Total	150	100.0

Table 11 showed that 55 (36.7%) and 75 (50%) of the respondents strongly agreed and agreed respectively that educated mothers always complete their child immunization while only 4 (2.7%) strongly disagreed and 16 (10.7%) disagreed that educated mothers always complete their child immunization.

**Table 12: Women who live with their husbands always immunize their children**

Variable	Frequency	Percent
Strongly Agree	43	28.7
Agree	82	54.7
Strongly Disagree	9	6.0
Disagree	16	10.7
Total	150	100.0

On the result of cohabitation of husband and wife on child immunization, table 12 showed that 43 (28.7%) strongly agreed that women who live with their husbands always immunize their children while more than half i.e 82(54.7%) agreed that women who live with their husbands always immunize their children. However, 9 (6%) and 16 (10.7%) strongly disagreed and disagreed respectively that women who live with their husbands always immunize their children

**Table 13: Women who are abused by their husbands do not immunize their children**

Variable	Frequency	Percent
Strongly Agree	16	10.7
Agree	50	33.3
Strongly Disagree	26	17.3
Disagree	58	38.7
Total	150	100.0

Table 13 showed the response of women on the statement that women who were abused by their husbands did not immunize their children; 16 (10.7%) strongly agreed while 50 (33.3%) strongly disagreed that women who were abused by their husbands did not immunize their children. However, 26 (17.3%) strongly disagreed while 58 (38.7%) disagreed that women who were abused by their husbands did not immunize their children.

**Table 14: When the husband does not cater for the child the mother may not immunize the child**

Variable	Frequency	Percent
Strongly Agree	29	19.3
Agree	72	48.0
Strongly Disagree	22	14.7
Disagree	27	18.0
Total	150	100.0

Table 14 showed that 29 (19.3%) of the respondents strongly agreed that when the husband does not cater for the child the mother may not immunize the child while 72 (48%) agreed. However, 22 (14.7%) of the respondents strongly disagreed that when the

husband did not cater for the child the mother may not immunize the child while 27 (18%) disagreed.

**Table 15: Health workers should call immunization defaulters to motivate them when they miss their immunization appointment**

Variable	Frequency	Percent
Strongly Agree	50	33.3
Agree	84	56.0
Strongly Disagree	12	8.0
Disagree	4	2.7
Total	150	100.0

Table 15 showed that 50 (33.3%) of the respondents strongly agreed that health workers should call immunization defaulters to motivate them when they miss their immunization appointment while 84 (56%) agreed. In contrast, 12 (8%) of the respondents disagreed that health workers should call immunization defaulters to motivate them when they miss their immunization appointment while 4 (2.7%) disagreed.

**Table 16: Health workers are not motivated enough to deliver adequate immunization services**

Variable	Frequency	Percent
Strongly Agree	19	12.7
Agree	87	58.0
Strongly Disagree	26	17.3
Disagree	14	9.3
Missing	4	2.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

On the impact of motivation on health workers, table 16 showed that 19 (12.7%) of the nursing mothers interviewed strongly agreed that health workers were not motivated enough to deliver adequate immunization services while 87 (58%) agreed. However, 26 (17.3%) strongly disagreed while 14 (9.3%) disagreed that health workers were not motivated enough to deliver adequate immunization services. Four of the respondents did not fill this option of the questionnaire.

**Table 17: Inadequate education about the importance of immunization can lead to incomplete immunization**

Variable	Frequency	Percent
Strongly Agree	82	54.7
Agree	55	36.7
Strongly Disagree	9	6.0
Disagree	4	2.7
Total	150	100.0

Table 17 showed that 82 (54.7%) of the respondents strongly agreed that inadequate education about the importance of immunization can lead to incomplete immunization while 55 (36.7%) agreed. On the contrary, 9 (6%) of the respondents strongly disagreed that inadequate education about the importance of immunization can lead to incomplete immunization while only 4 (2.7%) disagreed.

**Table 18: Wrong information from religious leaders sometimes prevent women from completing their child immunization**

Variable	Frequency	Percent
Strongly Agree	74	49.3
Agree	59	39.3
Disagree	17	11.3
Total	150	100.0

The religious leader have a great impact on people, Table 18 showed that almost half (49.3%) strongly agreed that wrong information from religious leaders sometimes prevent women from completing their child immunization while 59 (39.3%) agreed and 17 (11.3%) disagreed. None of the respondents strongly disagreed that wrong information from religious leaders sometimes prevent women from completing their child immunization.

**Discussion of findings**

In this study, knowledge of immunization was observed to be average among the study population. This high level of awareness of the importance of immunization might be due to increased access to health education by health workers.

Education has been reported to have a profound effect on mother's health seeking behaviour which includes child immunization. Knowledge of education of nursing mothers and immunization status of children is high among the respondents where more than half of the respondents agreed that educated mothers always complete their child immunization. This is in accordance with Shuaib et al. (2010).

This research has demonstrated the importance of a united family on immunization status of the children as 82(54.7%) of the respondents agreed that women who live with their husbands always immunize their and is consistent with observations from Eugene (2012) who is of the opinion that divorced parents often disagree on when and if their child should be immunized which often leads to the not being fully immunized against some diseases.



The position of the child in the family seems to influence immunization status of the child. Many of the respondents (53%) agreed that the first child was always completely immunized. This is in contrast with the findings of Negussie et al. (2015) who asserted that children of young women (15–24 years) are more likely to be incompletely immunized when compared with children of older women which implies that the probability of having a child immunized increases with increasing age of mothers. This scenario may be attributed to the child care experience which the young mothers are yet to acquire. Older mothers have gone through the rigours of caring for sick children with the resultant effects on time and household income. Such mothers would appreciate any initiative designed to prevent the occurrence of childhood illness.

Religious leaders and religion affiliation affiliations have a great impact on immunization as 74 (49%) of the respondents agreed that wrong information from religious leaders sometimes prevent women from completing their child immunization. This is in agreement with Edward (2013) whose results showed that there are differences in immunization status owing to religious affiliation. This is especially common in settings where the literacy levels are low and may be attributable to low level of education in the community.

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert 2 to 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations.

In this research, the respondents had good knowledge on the impact of proper education on immunization where 54% of the study participants agreed that inadequate education about the importance of immunization can lead to incomplete immunization, but this knowledge does not necessarily translate into improved practice of immunization.

Thus, policy makers in the health sector should recognize the role of immunization in disease prevention and provide trainings for the adequate uptake of the services in health facilities. The findings of this research show that misconceptions about immunization still exist. Increasing the knowledge about immunization and benefits of its uses by the individual households and the community could contribute much to the overall reduction of childhood killer diseases.

## Conclusion

The result of this study has clearly indicated that mothers in Nigeria had improved on taking their children for immunization. The challenge however is that most Muslims women, women without education, women that are poor seem not to still take their children for immunization and this affects the percentage of children fully immunized and many nursing mothers in Nigeria belong to these groups.

This calls for intervention towards helping these categories of mothers in Nigeria to know the advantage of taking their children to clinics for immunization. Concerned authorities should ensure that parents especially Muslim, uneducated and poor parents immunize their children since low coverage will always draw back the efforts of fighting vaccine preventable diseases (VPDs).

## Recommendations

1. Media outreach should be intensified among the population, and the Government can use this channel to disseminate consistent pieces of information concerning the importance and doses of childhood immunization.
2. Maternal child healthcare services (MCH), such as prenatal, natal and postnatal care, should be enhanced so that there is a continuous contact between mothers, children, and health workers until a child reaches adolescence.
3. Efforts are needed to create a comprehensive immunization plan labeled on an immunization card in a way that can easily be understood by the less educated.
4. Also, the government at federal level should address the problem of over-centralization of the immunization policy, government at both state and federal levels should provide funds for the establishment of mobile clinics in order to ensure that immunization services are available to children whose mothers reside in remote areas. This would also eliminate the problem associated with lack of money for transportation.
5. Adult literacy programme should be resuscitated in Nigeria to give illiterate mothers the opportunity of being educated

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