

Childhood Immunization and Factors Influencing Its Uptake among Mothers of Under-Five in Ede South Local Government Area, Osun State

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Abstract

Background: Immunization, an important tool in controlling and eradicating the spread of infectious diseases, is the most effective, cheap and safe health-investment program in reaching the vulnerable populations. This study examined childhood immunization and highlighted the factors influencing its uptake among under-five mothers in Ede South council, Osun state.

Methodology: The study adopted descriptive qualitative design method involving a focus group discussion in which people from similar backgrounds and experiences were recruited to share their perceptions, beliefs, and ideas on childhood immunization in the selected area. Forty mothers with under-five children were randomly recruited and engaged in a focus group discussion. Data were collected using focus group moderator guide, tape recorded, translated to English, and reported verbatim. Reliability test was pre-conducted among the nurses at Babcock University with a pre-designed questionnaire and ambiguous questions were paraphrased to suit the research objectives.

Results: The results showed that 55% (22) were aged between 20-30 years, 77.5% (31) married, 70% (28) Muslims, 30% (12) had two children, 30% (20) had secondary education, and 30% (12) were farmers. The majority had good knowledge about childhood immunization from friends, family and health workers. However, the benefits and risks are not fully recognized. The respondents expressed a moderate perception and positive attitude. The perception was based on negative experience and belief that childhood immunization is unsafe; while the attitude was influenced by friends and family members. The factors highlighted to influence the uptake of childhood immunization include health institution lapses, health workers and vaccination team attitudes, long waiting period, poor social welfare system, inaccessibility to health facility, financial extortions, cultural influences, husband's support and adverse effect of vaccines.

Conclusion: The study concludes that childhood immunization is controversially received by the people in the studied area. The low immunization uptake in this study is not unconnected to one central deficiency – misinformation about the benefits and side effects of immunization; which incurs greater economic stress, disease and death. In fact, the mother's knowledge, attitudes and compliance as well as other factors hindering the smooth uptake of immunization, are hinged on this central deficiency. The study recommends frequent immunization and enlightenment programs while reviewing the strategies for better outcome.

Key words: Childhood Immunization, Uptake, Mothers of under-five Children, Factors

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I. Introduction

Immunization is estimated to save over 20 million lives in the last two decades, three million lives annually¹. In contrast, about 6.3 million children under the age of fifteen died in 2017; four million of which were under age five; and 2.5 million died within the first month of life. This translates to 15,000 under-five deaths per day². Preterm birth complications, acute respiratory infections, intrapartum-related complications, congenital anomalies and diarrhoea were some of the major causes of death among children under age five in 2017. Nigeria records 132 deaths per 1000 live births implying that more than 1 in 8 children in Nigeria die before their 5th birthday³.

Globally, vaccination is estimated to save 2-3 million lives per year². In developed nations, immunization programs have been demonstrated to significantly reduce the morbidity and mortality rates. In many high-income countries, childhood vaccination-coverage rates are moderate to high. Countries like USA and the developed nations have used immunization to eradicate infections⁴. An example is polio which has been eliminated in the U.S. since 1979. Sadly, polio is still found in other parts of the world, including Nigeria and the people are at risk of contracting it^{5,2}.

Childhood immunizations have been the solution to the prevention of transmission of many diseases. As many as twenty-one diseases including polio, measles, diphtheria, pertussis (whooping cough), rubella (German measles), mumps, tetanus, rotavirus and *Haemophilus influenzae* type b (Hib) can now be prevented by vaccination⁶. Childhood immunizations are an essential aspect of public health nursing as they provide a primary prevention approach to health promotion⁷.

Immunization is defined as the creation of protection against a particular disease. It could be the treatment of an organ and/ or making a body immune to subsequent attack by particular pathogens through the giving of vaccine¹. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases. It can be delivered effectively through outreach activities and it is also 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. Immunization can be achieved in an active or passive manner. Vaccination is an active form of immunization. A vaccine provides a controlled exposure to a pathogen, training and strengthening the immune system so it can fight that disease quickly and effectively in future⁸. That is a vaccine contains the antigens from a pathogen, which are needed to provoke the body's immune response and stimulate the production of antibodies.

To promote the use of vaccines and expand immunization programmes around the world, in 1974 WHO launched the Expanded Programme on Immunization (EPI). The goal was set to make immunization against diphtheria, pertussis, tetanus, poliomyelitis, measles and tuberculosis available to every child in the world by 1990. In Nigeria, the EPI targets eight diseases, namely tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus, hepatitis B, yellow fever and measles. The goal of both the WHO and Nigeria programmes was to reach every child with vaccines against six diseases: diphtheria, pertussis, tetanus, measles, poliomyelitis, and tuberculosis. Nigeria's routine immunization schedule stipulates that infants should be vaccinated with the following vaccines: a dose of Bacillus Calmette-Guerin (BCG) vaccine at birth (or as soon as possible), one dose of Hepatitis B vaccine at birth or as soon as possible, at least three doses of Oral Polio Vaccine (OPV) at birth, and at 6, 10 and 14 weeks of age, three doses of Pneumococcal Conjugate Vaccine (PCV) at 6, 10 and 14 weeks of age, three doses of Pentavalent Vaccine at 6,10 and 14 weeks of age, two doses of Rotavirus vaccine at 6 and 10 weeks, on dose of IPV at 14 weeks, two doses of measles vaccine at 9 months and 18 months of age, one dose of Yellow Fever and Meningitis Vaccines at 9 months of age as well as two doses of Vitamin A at 6 months and one year of age. Still some children received no vaccinations whatsoever or received incomplete coverage⁹.

In spite of the fact that childhood immunization is inexpensive and easy, it is still being resisted in Nigeria. In addition, irrespective of the huge investments in immunization programme by governmental and non-governmental organizations, Nigeria still remains one of the 10 countries in the world where most of the incompletely immunized children live¹⁰. According to Corbena and Leaskb¹¹, low vaccination coverage can have disastrous consequences for individuals and communities. Decisions to delay or avoid vaccination not only expose children to increased risk of disease but can also undermine the immunity and increase the frequency and severity of outbreaks of vaccine preventable diseases (VPDs). To maintain high vaccination levels, it is necessary to understand the factors some parents choose to delay or refuse vaccination, hence this study.

II. Methodology

2.1 Research Design

The study adopted a descriptive qualitative design method involving a focus group discussion^{12, 13}. That is people from similar backgrounds and experiences were recruited to share their perceptions, beliefs, and ideas on childhood immunization in the selected area. This study design makes provision for a detailed description and analysis of the factors associated with childhood immunization.

2.2 Eligibility Criteria

The participant must be a resident of Ede South Local Government Area, having under-five child and ready to sign the consent form. Mothers with children above five years and those who refused to sign the consent form were however excluded from the study.

2.3 Sample Size and Sampling Technique

A purposive non-probability sampling technique was adopted because it allows the researcher to quickly identify the targeted sample (which in this case are women with under-five children). Having compared the birth and immunization records, the areas with the lowest immunization uptake were identified as Olodan, Loogun, Oloki-Akoda, Alajue 2 and Jagunjagun wards at Ede South Local Government Area of Osun state, Nigeria. The participants from each ward were screened by asking them to provide their children's immunization cards and eligible participants were selected. One Focus Group Discussion consisting of 7-10 persons was conducted in each ward,¹⁴.

2.4 Instrumentation

The study employed a focus group discussion instrument in which the moderator guide was prepared to contain some basic questions. Also open-ended questions were used to start conversations; while closed questions were used to impose restrictions and answers. The moderator guide was divided into seven sections namely the consent, introductory, demographic, questions on childhood immunization, questions on the knowledge of childhood immunization, questions on the factors affecting the uptake of childhood immunization, and questions on the recommendations about childhood immunization.

2.5 Validity and Reliability of Instrument

Validity of the instrument was established via face and content validity techniques. The key questions for the focus group discussion were subjected to face validity. Reliability test was conducted among the nurses and public health practitioners at Nursing Department, Babcock University, with pre-designed questionnaires. The responses during the pre-testing were evaluated and ambiguous questions were rephrased for clarity to the research objectives.

2.6 Study Population

Forty mothers with children below age five from the lowest immunization uptake areas in Ede South Local Government (Olodan, Loogun, Oloki-Akoda, Alajue 2 and Jagunjagun wards) were recruited for this study. Ede is an ancient town in Yoruba land which lies along the Osun River with an estimated population of 76,035 as at the 2006 national census.

2.7 Ethical Clearance

The ethical permit was obtained from Babcock University Health Research and Ethical Committee (BUHREC), while the letter of introduction was obtained from the School of Nursing, Babcock University. Also permissions from the local government chairman, administrative heads of each centre and/or women associations were obtained. Also informed consent of the respondents was obtained.

2.8 Data Analysis

The data collected were subjected to a qualitative data format and transformed using conversational analysis tool. Results were considered significant at $p < 0.05$.

III. Results

The results are presented in three thematic formats namely the response rate, demography and qualitative analysis of responses.

3.1 Participants and their Response Rate

The number of participants and their response rates are presented in Table 3.1. The study recorded 80% response rate for Olodan and Loogun; 70% for Oloki-Akoda and Jagunjagun and 100% for Alajue 2 ward, bringing the average response rate to 80%.

Table 3.1: Participants and their response rate

Ward	Number of Participants	Response rate (%)
Olodan	8	80
Loogun	8	80
Oloki-Akoda	7	70
Alajue 2	10	100
Jagunjagun	7	70
Total	40	

3.2 Respondents Demographic Distribution

Table 3.2 shows the socio-demographic characteristics of the respondents. Result showed that married women, single mothers, Christian, Muslim, and women between 20 - 30 years constituted 77.5, 22, 25, 70 and 55%, respectively. Twenty five percent had one child, 30% had two children and 9% had three children and above. Fifty percent had secondary education while 37.5% had primary education. Traders and farmers constituted 25 and 30%, respectively. The participants are literate, and stem from different professions suggesting that they can understand the subject under investigation.

Table 3.2: Socio-demographic characteristics of the respondents

Variables		Frequency	Percentage (%)
Marital Status	Single	9	22.5
	Married	31	77.5
Age	Below 20	10	25
	20-30	22	55
	30-40	8	20
Religion	Christian	10	25
	Muslim	28	70
	Traditional	2	5
Number Of Children	1	10	25
	2	12	30
	3	9	22.5
	4 and above	9	22.5
Qualification	No formal Education	3	7.5
	Primary School	15	37.5
	Secondary School	20	50
	Tertiary School	2	5
Occupation	Trader	10	25
	Farmer	12	30
	Student	4	10
	Artisan	8	20
	House Wife	6	15

3.3 Qualitative Response Themes and Sub-themes

The results of the qualitative response are captured in Table 3.4. The results showed that mother's knowledge on immunization was influenced by multiple sources of information, perception about immunization based on previous experience and their belief that immunization is not safe even though it prevents childhood illnesses. Conversely, the factors influencing immunization uptake were poor financing, previous encounter with healthcare workers and husband's attitude and support.

Table 3.3 Qualitative response themes and sub-themes

Themes	Sub-themes
Mother's Knowledge on immunization	Multiple sources of information about immunization
	Perception of mothers about immunization
	Immunization is not safe based on previous experiences
	Immunization prevents childhood illnesses
Factors affecting immunization uptake	Financial implications of immunization
	Previous encounter with healthcare workers
	Husband's consent and support

IV. Discussion

This study evaluated the childhood immunization and factors influencing its uptake among mothers of under-five in Ede South Local Government Area of Osun State, Nigeria. The participants (40) had 80% response rate which is considered significantly efficient for a focus group discussion study. Zahra¹⁴ reported that an ideal size for a focus group discussion is between 5 to 10 persons; which was also maintained in this study. Furthermore, the socio-demographic information revealed that married women, single mothers, Muslim, and women between 20-30 years constituted the greater proportion of the respondents. They were also found to have one to three and above children. Half of the population completed their secondary education which suggests that they are capable of understanding the subject under consideration. Some were traders, farmers, students and house wives. Qualitative analysis of their responses crystalized two major themes (mother's knowledge on immunization and factors influencing immunization uptake). The mother's knowledge on immunization was influenced by multiple sources of information, perception about immunization based on previous experience and their belief that immunization is not safe even though it prevents childhood illnesses. Conversely, the factors

influencing immunization uptake were poor financing, previous encounter with healthcare workers and husband's attitude and support.

The respondents' sources of information include the family relatives, nurses, friends, marketplaces, antenatal clinics, schools and radio broadcasts. The participants indicated that they got the right information from nurses at the health care centres while others received their information on childhood immunization at informal gatherings. The participants' knowledge or perception about the benefits of immunization was still debated; some perceived the benefits of immunization but others disbelieved the health benefits. Some explained that the reason why they may continue the vaccination exercise is avoid regret and stigmatization when the baby falls ill. It was largely acknowledged that immunization protects children against morbidity and mortality. This finding corroborates Smith *et al.*¹⁵ on a close association between vaccine uptake and not perceiving vaccines to cause adverse effects; general positive attitudes towards vaccination; positive vaccine recommendations; and perceiving fewer practical difficulties of vaccination responsible for the immunization uptake.

Misinformation that immunization should be administered when the child gets sick or the assumption that a single dose vaccine is enough, has been shown to produce negative impacts on the caretakers¹⁵. Two schools of thought were largely observed: some participants strongly believed that immunization is not safe based on previous experiences following their children vaccination. Others believed that the benefits of immunization outweighs the adverse effects; otherwise it would not have been a global phenomenon. It could be surmised therefore that the low immunization uptake predominant at Ede South Local Government Area of Osun state, may not be unconnected to the perceived misinformation about immunization. It is noteworthy that misinformation about the safety of vaccine and false contra-indications affect the level of immunization coverage, incurs greater economic burden and even increases the risk of spreading the disease¹⁵. Mother's knowledge, attitudes and compliance towards childhood immunization could therefore be responsible for the low vaccination rate in the studied area. The mothers' compliance with childhood immunization is determined by the mothers' educational status and their knowledge about childhood immunization. In this study however, 80% was recorded as the level of compliance of mothers with the childhood immunization. The results corroborate the findings of Nigeria Demographic and Health Survey³ which indicated a statistically significant association between education and the completion of immunization schedules.

Moreover, the health care systems have been identified as a way of facilitating and hindering access to childhood immunization programmes and services. Several studies have highlighted how the flaws in the health care systems negatively impact the childhood vaccination rates. For example, caregivers' knowledge, attitudes and practice have been shown to account for the low vaccination rate. In this study however, husband's support and consent were found to be a factor that influence the uptake of immunization. It has been reported that some women skipped the immunization schedules because their husband did not grant them the permission. The findings also revealed that financial constraint also contributed to the uptake of immunization. The mothers revealed that money is needed for health care service and transportation to and from the health centres. This corroborates the findings of Nigeria Demographic and Health Survey³ which indicated a statistically significant association among the four factors (education, wealth index, religious affiliation, and cost of healthcare) and the completion of immunization schedules. It has been reported also that children residing within one mile of the health facility had a higher chance to be immunized than those residing more than two miles away from the health facility¹⁶.

Attitudes of women towards immunization have been extensively reported. In fact, the chances of starting and completing immunization exercise is heavily dependent on attitude. The attitudes of mothers were also influenced by friends and family members. Frustration was identified as one of the factors that can make a willing mother not to immunize her child. According to Afiong *et al.*¹⁷, frustrations could be as a result of the inability of the caregivers to locate a child's vaccination record promptly and missed opportunities. Positive attitudes such as considering immunization as a protection or a cure for any health problem has a positive impact on the caretakers and caretakers by encouraging them to immunize their kids (Tefera *et al.*, 2017). Afiong *et al.*¹⁷ reported that funding constraints, human resource factors (health worker shortages, training deficiencies, the poor attitude of health workers and vaccination teams), inadequate infrastructure and equipment and the weak political will were responsible for the low vaccination uptake in some Nigerian communities. The study also recommended that adequate attention should be paid in those areas to improve the uptake of immunization.

4.2 Conclusion

In conclusion, childhood immunization is controversially received at the study area. The low immunization uptake observed in this study may not be unconnected to one central deficiency – gross misinformation about immunization benefits and side effects; which incurs greater economic stress, disease and death. In fact, the mother's knowledge, attitudes and compliance as well as other factors hindering the smooth uptake of immunization, are hinged on this central deficiency.

4.3 Recommendation

The study recommends adequate regular immunization training programmes for caregivers and caretakers on the benefits of immunization. Health talks on immunization should go beyond antenatal clinics, child health days and health centres; but extended to schools and public places, and other major gatherings of women in order to ensure that the awareness is created and sustained. This will raise the general awareness of people and prevent rumours and cultural misinformation. Government should provide robust social welfare to assist the women of low-income group to immunize their under-five children.

4.4 Limitation of the study

The researcher encountered some challenges among these were reluctant of some of the volunteers to fill the consent form and stay through the entire process. The study was also limited by size as compared with the large population of mothers of under-five children in Ede South Local Government, Osun State.

4.5 Conflict of Interest

The authors wish to state that there is no conflict of interest.

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