



Knowledge, Attitude and Practice of Childhood Immunization among Mothers of Under-Fives in Kosofe Local Council Development Area, Lagos State

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KEYWORDS

childhood immunization, uptake, under-fives, care-givers, Lagos

ABSTRACT

Background and Objectives:

Vaccine preventable diseases cause significant morbidity and mortality among children in developing countries despite the availability of vaccines. This study determined childhood immunization uptake and associated factors among mothers of under-fives in Kosofe, Lagos State.

Methodology:

This was a descriptive cross sectional study among mothers of children less than five years of age who resided in Kosofe LCDA of Lagos State, Nigeria. It was conducted between April and June, 2013. A multi-stage sampling technique was used to select the 300 mothers who participated in the study. Data was collected with structured, pre-tested, interviewer-administered questionnaire and analyzed with Epi info version 3.5.1. Level of significance set for analysis was a 5% significance level.

Results:

Only a small proportion of respondents (17%) had good knowledge of childhood immunization; their attitude towards childhood immunization was generally positive (96.6%) and their immunization uptake was good (88.1%). The prevalence of individuals who had missed their immunizations was 14%. The commonest immunizations missed were measles and yellow fever. Higher maternal educational level, Christian religion and better knowledge of immunization had significant, positive influence on the uptake of childhood immunization.

Conclusion:

Mothers had poor knowledge but high uptake of childhood immunization. A high rate of incomplete immunisations was also observed. We recommend health education as well as female education to improve maternal knowledge and further improve the uptake of immunization. Short message service (SMS) reminders may also be considered to reduce incidence of incomplete immunization.

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Introduction

Childhood immunization is an effective public health initiative aimed at reducing the burden of vaccine preventable diseases (VPDs) and deaths among children, particularly under-fives. It averts an estimated 2.5 million deaths per year in all age groups from Diphtheria, Tetanus, Pertussis (whooping cough) and Measles.¹ Other VPDs include: Tuberculosis, Measles, Meningitis, Polio Hepatitis B and Yellow fever. These are sources of morbidity and mortality especially in developing countries.

In 2008, WHO estimated that 1.5 million of

child deaths among under-fives were due to VPDs, this represents 17% of global total mortality in children under five years of age.¹ To achieve the Millennium Developmental Goal MDG (4) aimed at reducing under-five mortality rate (U5MR) by 2/3 between 1990 and 2015, several interventions such as immunization campaigns, various immunization programmes and subsidization of vaccines have been put in place to tackle this burden. However certain regions of Africa and Southeast Asia contribute significantly to the presence and non-elimination of some of these VPDs. Globally, only three countries remain

polio endemic namely Afghanistan, Pakistan, and Nigeria. In 2010, 682 wild polio virus cases were reported; 13% of which was from the African region. The number of polio endemic countries in the African region has been reduced from 30 in 1988 to 1 (Nigeria) in 2008. Consequently, Nigeria presents the biggest obstacle in the eradication of polio in the African region.²

Globally, U5MR has reduced by 26% from 91 deaths per 1000 live births to 67 deaths per 1000 live births in 2007. Africa has the highest U5MR of the entire world's continents with 40% of all global deaths in under-five occurring in Sub-Saharan countries, U5MR reduced by 26% from 181 deaths per 1000 live births to 145 deaths per 1000 live births in the same year³ and but we are yet to meet the MDG 4. The region of Africa accounts for 24% of the global disease burden.⁴ Nigeria, one of the most populated nations in Africa (162,470,737)⁵ is burdened with U5MR of about 143 per 1000 live births. Twenty-two percent of these deaths are accounted for by VPDs amounting to over 200,000 deaths per year.⁵

Various intervention strategies have been employed by the Nigerian government towards tackling of this burden one of which was the initiation of the National Programme on immunization (NPI). The NPI employed the use of the four traditional EPI vaccines: Bacille Calmette Guerin vaccine (BCG), Diphtheria Pertussis, Tetanus (DPT), Oral Polio virus Vaccine (OPV) and Measles Containing Vaccine (MCV).⁶ The Vaccines currently employed in Nigeria include: Bacille Calmette Guerin (BCG) vaccine Oral Polio virus Vaccine (OPV), Measles Containing Vaccine (MCV), Pentavalent vaccine which

includes Hepatitis B, Diphtheria Pertussis Tetanus (DPT) and Haemophilus Influenza B (HiB), meningitis. With a high growth and high U5MR, issues surrounding under and non-immunization should be tackled. These include access to services, parental (maternal) attitudes, knowledge and practices.

In Kinshasa, Democratic Republic of the Congo (DRC), majority of mothers had been informed about immunization but were not clear on the diseases targeted by the EPI.⁷ In Nigeria, varying reactions concerning immunization have been reported. In North-east Nigeria, respondents cited that immunization programmes were a means of family planning⁸ while in Enugu State, South-east Nigeria, 13% of participants outrightly rejected immunization.⁹ In the South-south region (Khana LGA of Rivers State), respondents (most of whom were farmers) were considered indifferent as they did not possess immunization cards or did not present their children for immunization.¹⁰

Barriers to childhood immunization include parental (maternal) lack of knowledge about the importance of immunization, poor perception of the potential threats of VPDs on the child's health, culturally based beliefs and the relative lack of medical knowledge leading to the assumption that the disease is harmless, minimally contagious or a 'normal' part of childhood.¹¹

Mothers in Northern Nigeria (Nasarawa) had poor knowledge about childhood immunization¹² while care-givers in the South-east region (Nnewi) exhibited good knowledge.¹³ In another study in Lagos, awareness of immunization was high however knowledge of VPDs was poor in both urban and rural areas. Mothers in the urban

areas had better understanding of immunization than the mothers in rural areas.¹⁴

In Nasarawa, the knowledge of immunization, educational level and occupation were significantly associated with immunization status (complete or incomplete) of the child.¹²

In the view of achieving global immunization coverage, multifaceted strategies are required particularly by those regions with the highest values of unvaccinated children. The behavioural processes associated with low immunization are also important for the success of immunization campaign and efficient and effective allocation of public health resources.

The aim of this study was to assess the knowledge, attitude to, uptake of childhood immunization and associated factors among mothers in Kosofe Local Council Development Area of Lagos State. Vital information obtained would inform the design of appropriate and effective intervention in the control of VPDs and subsequently achieve MDG⁴.

Materials and Methods

The study was descriptive cross-sectional study conducted among mothers of children less than five years of age who reside in Kosofe Local Council Development Area of Lagos state. Kosofe is located on the northern part of Lagos with a population of 527,539 men, 407,075 women and a total population of 934,614.¹⁵ There are seven wards in Kosofe LCDA. Two of these words were chosen using simple random sampling (balloting). The study population included mothers of children less than five years of age and are permanent residents in this area. Appropriate sample size was determined using the formula for descriptive studies at a precision of 5%. A

sample size of 272 was calculated and rounded up by a factor of 10% to 300 to give room for missing questionnaires. The prevalence from a previous study used was $p = 0.23$, where p was the national average from immunization coverage in Nigeria.¹⁶ Multi-stage sampling approach was used to select 300 respondents (150) from each ward. A total of four (4) stages were used in this technique. At each stage, simple random sampling technique was employed.

Stage 1 involved selection of Wards: 2 Wards from the 7 wards in Kosofe were selected; Stage 2 involved selection of Streets: Each ward had an average of 30 streets out of which 6 streets each were selected from both wards making a total of (12) street. Stage 3 involved selection of Houses: each street had an average of 70 houses and Twenty- five (25) houses were selected on each street. Stage 4 involved selection of Respondents: in each of the 25 selected houses, one questionnaire was administered to one eligible mother. Only one respondent in each house was interviewed and if there was more than one, simple random sampling was done to select only one. The mother was questioned on her youngest child.

A structured interviewer administered questionnaire was used to collect data. The questionnaire was pretested among twenty mothers of under-fives who were residents of Surulere Local Government Area, appropriate corrections were made thereafter. Ethical approval to undertake this study was obtained from the Health Research and Ethics Committee of Lagos University Teaching Hospital (LUTH).

Completed questionnaires were collated, entered and then analyzed electronically using Epi info version 3.5.1. Results were

presented in tables. Chi square tests and Fisher's exact tests were used to test for associations between dependent variables such as knowledge attitude and practice of childhood immunization and independent variables such as socio-demographic factors. The level of significance was set at 5% ($p < 0.05$).

Scoring Method

Respondents were asked a total of 12 questions pertaining to their knowledge of immunization. The total possible score was 12 as respondents received 1 mark for each correct answer and no mark was awarded for wrong answers. The maximum score was 100%. Scores above 67% (8 out of 12) were considered good, between 42% (5 out of 12) and 67% were fair less than 42% were considered poor.

For their attitude towards childhood immunization, respondents were asked 4 questions. Respondents received 3 marks for each positive response, 2 marks for indecisive response and 1 mark for negative response. The maximum score was 12 (100%). Scores above 8 (67%) were considered as positive attitude and less than 7 (58%) were considered negative attitude.

With regards to uptake of childhood immunization, respondents were asked 2 questions and received 2 marks for each good practice, 1 mark for indecisive answers and 0 for bad practice. The maximum score was 6 (100%). Scores below 3 (50%) were considered as poor practice.

Results

Socio-demography of respondents

The ages of respondents ranged from nineteen to forty-nine (19-49) years, with a mean age of

thirty-two (32.6 ± 5.8). A higher proportion of the respondents were Christians (80.5%), married (93.9%), and Yoruba (63.5%). Higher proportion of the respondents had post secondary level of education (47.8%), (46.8%) were semi-skilled. Higher proportion of respondents were of nuclear family type (90.4%), with number of children between one and four (92.5%), index children aged between 48-60 months (24.6%) with mean age of ($2.2 \pm 1.67.2$) months.

Respondents' knowledge about immunization

Less than one-tenth of respondents were of the belief that only healthy children should be immunized, 2.4% of respondents reported that immunizations were meant for only sick children. Higher proportion of the respondents (60.6%) believed that sick children ought not to be immunized. Respondents knew the following VPDs; Measles (75.4%), whooping cough (15.7%), and diphtheria (13.9%). Higher proportion of the respondents (93.2%) knew immunization makes children healthier, 53.2% of respondents knew that childhood immunization had side effects. The most mentioned side effect of immunization by the respondents was fever (51.9%) and the least mentioned was inconsolable tears (12.2%). Higher proportion of the respondents (45.7%) believed immunization makes children brilliant, (78.8%) gave negative response on immunization preventing HIV/AIDS. In the overall knowledge of childhood immunization, only 17.1% of respondents had good knowledge, 44.7% of respondents had fair knowledge about childhood immunization while 38.2% had poor knowledge about childhood immunization.

Respondents' attitude towards childhood

immunization

Majority of the respondents (95.9%) were of the opinion that immunization is necessary. Majority of the respondents (94.2%) would recommend immunization to their relatives. Majority of the respondents (56.3%) who would not recommend childhood immunization to their relatives identified their reason as their relatives have no need of it while 43.8% of respondents would not recommend immunization believed their relatives have already heard about it. Almost all (96.6%) of the respondents had positive attitudes towards childhood immunization.

Respondents' uptake of immunization

Eighty-six percent of respondents had never missed any immunization. Higher proportion of the respondents (74.1%) that had missed

immunizations reported missing only one immunization especially Yellow fever (37.9%) mainly because they did not remember (70.3%). Higher proportion of respondents (88.1%) had good uptake of childhood immunization

Factors influencing the uptake of immunization by respondents

There was statistically significant association between religion $p=0.020$ and respondents' practice, more Christian respondents' practiced immunization. Respondents' educational level also had a positive influence on the uptake of childhood immunization. Respondents who were married were more likely to obtain immunization for their children than singles and widowed. (Table I)

Table I: Association between respondents' socio-demographic characteristics and overall practice

Variable	GOOD PRACTICE	POOR PRACTICE	TOTAL	χ^2	P-VALUE	
Marital status						
Married	244(88.7%)	31(11.4%)	275(100%)	8.69	0.013	
Single	13(86.7%)	2 (3.3%)	15(100%)			
Widowed	1(33.3%)	2 (0.7%)	3(100%)			
Total	258(88.1%)	35(11.9%)	293(100%)			
Religion						
Christianity	213(90.3%)	23(9.7%)	236(100%)		FISHER	
Islam	45(78.9%)	12(12%)	57(100%)			Exact
Total	258(88.1%)	35(11.9%)	293(100%)			0.020
Education Level						
Primary	18(81.8%)	4(18.2%)	22(100%)	21.07	0.001	
Secondary	110((90.2%)	12(9.8%)	122(100%)			
Post- secondary	126(90%)	14(10%)	140(100%)			
Nil	4(44.4%)	5(55.6%)	9(100%)			
Total	258(88.1%)	35(11.9%)	293(100%)			

There was statistically significant association between knowledge of childhood immunization and its practice by the respondents. Higher knowledge of childhood immunization significantly increased the uptake of childhood immunization. $p=0.018$ (Table II)

There was statistically significant association between respondents' attitude towards childhood immunization and their practice of childhood immunization. Positive attitude of respondents increased the uptake of childhood immunization. Fisher exact <0.001 (Table III)

Table II: Association between respondent's knowledge and practice

Variable	Good practice	Poor practice	Total	X ²	P - value
KNOWLEDGE					
Good	46(92.6%)	4(8%)	50(100%)	7.99	0.018
Fair	121(92.4%)	10(7.6%)	131(100%)		
Poor	91(81.3%)	21(18.8%)	112(100%)		
Total	258 (88.1%)	35(11.9%)	293(100%)		

Table III: Association between respondents' attitude and uptake of childhood immunization

Variable	Good Practice	Poor Practice	Total	Fisher exact
ATTITUDE				0.0003
Negative	4(40%)	6(60%)	10(100%)	
Positive	254(89.8%)	29(10.2%)	283(100%)	
Total	258(88.1%)	35(11.9%)	293(100%)	

There was statistically significant association between respondents' attitude towards childhood immunization and their practice of childhood immunization. Positive attitude of respondents increased the uptake of childhood immunization. Fisher exact <0.001 (Table III)

Discussion

The mean age of respondents in this study was 32.6 years which is similar to earlier studies conducted in Kinshasa, DRC (29.4 years)⁷ and Nasarawa (29.9 years).¹² Higher proportion of the respondents of this study were married and of the Christian religious denomination. Few respondents in this study had studied beyond secondary school. Thus the lack of higher education may have hindered a high proportion of respondents from understanding the implications of not procuring immunization for their children. The major source of information on immunization for this study as cited by a high proportion of respondents was health personnel, similar to reports in Rivers state where the major source of information was ante-natal clinics.¹⁰

Immunization as cited by a high proportion of the respondents was a preventive measure, however few respondents had erroneous views on immunization such as causing sterility and meant only for healthy children. An earlier study conducted in South Western Nigerian on the uptake of childhood immunization among mothers of under-fives had similar observations.¹⁷ The most recognizable immunization preventable disease by respondents in this study were polio (76.1%), measles (75.4%), tuberculosis 42.7% yellow fever (42.3%), diphtheria (13.9%), malaria (7.5%) as opposed to the study conducted in Lagos on the knowledge and attitude towards

childhood immunization among mothers attending antenatal clinic in LUTH where the most recognizable diseases were as follows measles (93.0%), polio (88.7%), yellow fever (88.3%), diphtheria (78.2%), tuberculosis (76.3%) and malaria (48.6%).¹⁸ This is probably because the effects of polio and measles were more visible than other VPDs like diphtheria. These results also show that some respondents were ignorant of the fact that malaria was not preventable by immunization. This has implications for malaria control. A number of respondents cited that immunization improves the intelligence capacity of a child and prevents HIV/AIDS which is similar to previous studies.^{17,9}

High proportion of the respondents in this study cited that immunization was important which is similar to studies conducted in Barcelona on parental knowledge of paediatric vaccination where 68.9% of the respondents felt that immunization was obligatory¹⁹ and Lagos where 89% of respondents cited that immunization was necessary.¹⁸

The reason highlighted by few respondents for missing immunization was the inability to recall their next appointment which is similar to studies conducted in Nnewi and South-Western Nigerian where a few respondents didn't complete immunization schedule due to lack of vaccines.^{13,17} In Enugu state, 17.4% of mothers had also missed some immunizations,⁹ but in Nasarawa, as much as one third (33.4%) of respondents had missed immunization probably because of the distance of the health facility and parents concern about immunization safety as this was a rural study.¹² As opposed to the Nnewi study, the commonest missed immunizations involved the immunizations given between birth and 6 weeks of age.¹³

Similar to the Enugu study,⁹ the more educated respondents were, the better their knowledge of immunization. This was probable because the more educated respondents had more access to information than respondents with lower level of education. Respondents' educational level also had a positive influence on the uptake of childhood immunization. Respondents who were married were more likely to obtain immunization for their children than singles.

The higher the respondents level of education the more respondents uptake of immunization this may be due to the fact that the more educated respondents were, the more information they were able to access and as such improve their health seeking behaviour. Respondents knowledge in this study influenced their uptake of immunization $p=0.018$. It is safe to say that their knowledge about immunization benefits enables them to obtain immunization for their children.

Conclusion

This study has shown that mothers had high awareness of childhood immunization but poor knowledge. They also had positive attitude and good immunization uptake. As a result of this it is recommended that female education be encouraged and health education programmes involving the use of posters and hand bills (pictorial aids) showing major childhood killer diseases in their native dialect to pass the message to the community and also Short message service reminders should be considered to reduce incidence of incomplete immunization.

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