

Field Report

Socio-demographic Determinants of Childhood Immunization Coverage among Mothers in Ogbaku Community, Imo State, Nigeria

Georgenia C. Njoku¹, Ihuoma N. Anukam¹, Obiageri B. Nwokoma¹, Flavia N. Ugwuegbu¹,
Cecilia E. Ezekwe¹, Julia E. Ibebuike¹, Chinelo C. Vincent¹, Adanma S. Nwagwu¹
¹Department of Nursing Science, Imo State University, Orlu, Nigeria

Corresponding author: Georginia C. Njoku
Email: njokugeorgenia@gmail.com
Phone: +2348068690794

Abstract

Background: Immunization reduces the number of vaccine-preventable diseases by attaining high levels of immunity using potent vaccines given at the right ages for children. This study examined the socio-demographic determinants of childhood immunization coverage among mothers in Ogbaku community in Mbaitoli Local Government Area, Imo State, Nigeria.

Methodology: A cross sectional study was adopted. 151 mothers of children aged 1-2 years were sampled. The sampling was done in multi stages involving cluster, purposive, and census sampling techniques. Data were collected from the respondents using close ended structured questionnaires.

Results: The study showed that 39.07% of the mothers use immunisation services fully, 38.41% use immunisation services partially, while 22.52% of the respondents do not utilise the immunisation services. The major constraints to utilisation of immunisation services in the community were inadequate information on immunisation (77.55%); myths that immunisation is unhealthy for the baby (51.02%); mothers' occupation (47.96%); inadequate supply of vaccines (58.08%) and attitude of health workers (48.98%); there was no significant ($p>0.05$) relationship between age, marital status and mothers' utilisation of immunisation services. However, there was a significant ($p<0.05$) relationship between mothers' educational qualification and their use of immunisation services for under-fives.

Conclusion: Vigorous campaigns to forestall the barriers to childhood immunization and proper education of the mothers will go a long way in providing solutions to the challenges of immunization.

Keywords: Socio-demographic, Determinants, Childhood, Immunization, Coverage

Introduction

One of the major causes of death among children in developing countries is vaccine preventable diseases. The six child killer diseases identified by the World Health Organization (WHO) are tuberculosis, whooping cough, diphtheria, tetanus, poliomyelitis and measles. These diseases combined with malnutrition, kill an estimated 400-450 Nigerian children per day ¹. In a bid to reduce the number of childhood deaths, vaccines are given at various ages to boost a child's immune system and significantly reduce mortality ².

Immunization is a process by which a person becomes protected against a disease through vaccination ³. Childhood immunisation is recognised worldwide as an essential component of health systems and an indispensable indicator of quality of care for vaccine-preventable diseases ⁴. Immunization is an inexpensive and increasingly easy to administer strategy which when combined with improved nutrition and sanitation saves children ⁵. In most developed nations, immunization programmes have had dramatic success in reducing morbidity and mortality rate significantly. Such programmes have helped in the eradication of diphtheria, measles, neonatal tetanus, pertussis and poliomyelitis since 1993 ⁶.

Political commitment to improve vaccination coverage in Africa and reduce Vaccine Preventable Deaths has increased in recent years. In 2018, the 2030 Ambition for Immunization in Africa was published by the WHO African Region and aims to (i) sustain the control, elimination, or eradication of poliomyelitis, rubella, tetanus, measles, and hepatitis B; (ii) reduce mortality attributable to rotavirus, cervical cancer, pneumococcal diseases, and malaria and; (iii) empower high-risk countries to fight against meningitis, cholera, yellow fever, and typhoid ⁷. These aims will help countries reach Universal Health Coverage and Sustainable Development Goals.

The National Programme on Immunisation (NPI) wing of the Federal Ministry of Health (FMOH) schedules routine immunisations nationally to administer vaccine dosages to infants at specified ages. This routine requires the parents/caregivers taking the children to the health facility to receive age-appropriate doses of the antigens. This is done on specific days of the week to reduce vaccine wastage since most of the vaccines are supplied in multi-dose vials ⁸.

Five visits are recommended by the National Programme on Immunization (NPI) to the health facility to enable the child receive one dose of Bacille Calmette

Guerin (BCG) and Hepatitis B at birth, three doses of Oral Polio Vaccine (including one IPV), and three doses of Pentavalent vaccine, at six, ten and fourteen weeks and one dose of measles vaccine and yellow fever given at nine months of age ¹. Despite the widespread importance of immunisation for the health and welfare of infants, there has been a continuous low level of full compliance with immunisation schedules by a lot of mothers especially in the rural areas of Nigeria ⁹.

Nigeria is making efforts to strengthen its routine immunization so as to reduce the burden of vaccine preventable diseases especially in rural communities. However, records show that Nigeria is home to an estimated 14% of the world's unimmunized children ¹⁰. Not completing recommended routine vaccines, refusal, and non-compliance to the immunization schedule among caregivers of children in Nigeria are some of the reasons for the country's low immunization coverage, with over 3.2 million unimmunized children aged 12 months, resulting in outbreaks of Vaccine-Preventable Diseases ¹⁰. Frequent undersupply of vaccines and the need for repeated visits have been identified as major constraints to uptake of immunisation services among mothers of under-fives ¹¹. There is therefore the need

to investigate the barriers to the utilization of immunization services in order to optimize its benefits.

Methodology

Study design: The study adopted a cross-sectional survey design.

Study area: The study was carried out in Ogbaku community of Mbaitoli Local Government Area of Imo State, South Eastern Nigeria. The community is made up of eighteen villages. A primary health care centre is located in the heart of the community which provides immunisation services to the populace.

Ethical consideration: Permission was obtained from the Community Head (the Eze) to carry out the research in the community. Oral informed consents of the participants were obtained.

Population of the study: The target population for the study is made up of all the mothers of children aged 1-2 years in the community.

Sample and sampling technique: One hundred and fifty one (151) mothers with children aged 1-2 years in Ogbaku community were sampled. The sampling for the study was done in multi stages involving cluster, purposive and census sampling techniques. In the first stage, all the 18 villages in the community were

selected. From the 18 villages, households with 1-2 years children were purposively selected which numbered 151. The entire mothers with children aged 1-2 years in the selected households were used for the study.

Procedure for data collection: Data were collected using structured close-ended questionnaires. They were used to elicit information on the updated immunisation records of under-five children from their mothers. The questionnaires further elicited information on the socio-demographic status of mothers with children 1-2 years and the constraints to utilisation of immunisation services in the community.

Data analysis: The collected data were presented using frequency and percentages, while relationship between socio-demographic characteristics and utilisation of immunisation services was tested using chi-square statistics at 0.05 level of significance using IBM SPSS version 24 software.

Exclusion criteria: Women who had children above two were excluded from the study.

Results

Data on table 1 show the demographic characteristics of mothers with children 1-2 years in Ogbaku community. 37.74% are

aged 16-25 years, 45.69% are aged 26-35 years and 16.57% are aged 36-45 years. 15.89% of the respondents are single mothers, 65.56% are married, and 13.91% are either divorced or separated while 4.64% are widowed.

Data on educational qualification show that 9.95% of the respondents have received only up to primary education, 34.43% are secondary school graduates while 55.62% are tertiary education graduates, consequently mothers with one child are 21.85%, two children 33.77%, three children 17.27%, four and above 27.15%. Mothers that are from a nuclear family 80.1%, Extended 17.88%, about 57.62% of mothers delivered their babies in health, 29.8% delivered in maternity home while 12.58% delivered in traditional birth attendants, 82.11% accessed antenatal care during pregnancy while 17.88% did not.

Data on table 2 show that only 35 (23.18%) of the mothers had full immunisation for their children's age. 57 (37.75%) partially while 59 (39.07%) had not immunised their children.

Data on table 3 show the constraints to full immunisation of children 1-2 years among mothers in Ogbaku community. The data show that 151 mothers that were sampled 95 (81.85%) assert discouraging

attitude of health workers as one of the constraints to use of immunisation services; 65 (56.02%) cited long waiting time before immunization as a constraint 43 (37.06%) cited cost of vaccination; 31(20.53%) re-schedule of vaccination due to lack of vaccine, little percentage of 29 (19.21%) was of opinion that distance of health facilities for immunization service is a constraint to immunization of their babies, 41(35.34%) points lack of fund as constraints to full immunization of their children/ 65(56.036) was of opinion that with or without immunization, a child can be sick 59(50.86) asset that immunization causes fever,45(38.79) points t adequate information on immunization is not healthy for the baby, 72(62.06%) said that inadequate at supply of vaccine to be a constraints to full immunization

Data from table 4 show the chi-square analysis of relationship between mothers' demographic characteristics and the immunisation status of their 1-2 years children. The p-value of relationship between age of mothers and use is 0.61 which is greater than 0.05 level of significance. This implies that age is not significantly related to full immunization of children.

In testing the relationship between marital status and utilisation of immunisation services, p-value is given as 0.828 which is

greater than 0.05. There is therefore no significant relationship between marital status and full immunisation of their children 1-2 years

In testing the relationship between educational qualification and full immunisation of their children, p-value is given as 0.000 which is less than 0.05. There is therefore a statistically significant relationship between marital status and full immunisation of their children.

The results also show a p-value of 0.000 for number of children, place of birth and assessment of ANC by the women. This implies that there is a statistically significant relationship between number of children, place of birth and assessment of ANC by the women and the immunisation status of their children.

Discussion

The findings from the study revealed that out of 151 respondents, 39.07% use the immunisation services fully, in the sense that their under five children are fully immunised. 38.41% of the sampled population use immunisation services partially while 22.52% of the respondents do not utilise the immunisation services in Ogbaku community. This is consistent with the findings of a previous study ¹² in Nigeria which reported that some mothers

use the immunisation services available in Ibadan but partially.

The present study also revealed that the major constraints to utilisation of immunisation services in Ogbaku community among others include inadequate information on immunisation (77.55%); myths that immunisation is unhealthy for the baby (51.02%); mothers' occupation (47.96%); inadequate supply of vaccines (58.08%) and attitude of health workers (48.98%). These findings are strongly supported by the findings of Tobin-Briggs and Tobin-West⁹ who reported that major constraints to use of immunisation services include myths about immunisation, poor information on immunisation and occupation of the mother. Furthermore, a previous study¹³ also reported low supply of vaccines as a major constraint to use of immunisation services among mothers in Northern Nigeria.

The findings the current study also showed no significant ($p>0.05$) relationship between age, marital status, type of family and immunisation status of the under-five children in Ogbaku community. However, there is a significant relationship ($p<0.05$) between educational status of the mothers and their utilisation of immunisation services. This finding is buttressed by the findings of previous studies^{9, 12}, where

insignificant ($p>0.05$) relationships between age, occupation, type of family, marital status and mothers' use of immunisation services were recorded. However, Rahji and Ndikom¹² recorded a significant ($p<0.05$) relationship between educational status of mothers and their use of immunisation services in Rivers state.

Conclusion

The study attempted to identify the constraints to utilisation of immunisation services among mothers of under-five children in Ogbaku. Despite the major constraints listed by the respondents as inadequate information on immunisation, myths, and mothers' occupation and so on, the importance of immunisation for under-five children cannot be overemphasised. Full Immunisation is a *sine-qua-non* to sound health in children and the surest bet to prevent childhood mortality in Nigeria. Mothers and caregivers of under-five children in Ogbaku community have a very significant role to play in the actualisation of the immunisation agenda of their community. It is therefore important that mothers and caregivers of under-five children fully utilise the immunisation services made available at their various vicinities so as to improve the health of their under-five children.

Recommendations

The researchers recommend the following:

1. Vaccines should be made available and promptly by the Federal Ministry of Health through the various immunisation centres.
2. Health workers should carry out vigorous campaigns on immunisation at the local levels so as to educate mothers properly and dislodge their pre-existing myths on immunisation.

References

1. Federal Ministry of Health. National Immunization Policy and Standard of Practice. Abuja: Federal Ministry of Health 2009; 16
2. Salah AA, Nega BGE, Godana W. Evaluation of the quality of Expanded Program on Immunization service delivery in Primary Health Care Institutions of Jigjiga Zone Somali Region, Eastern Ethiopia. *European Journal of Preventive Medicine* 2015; 3 (4): 117-123
3. Wade GH. Nurses as primary advocates for immunization adherence MNC. *The American Journal of Maternal Child Nursing* 2014; 39: 352 -356
4. Olusanya BO. Pattern and determinants of BCG immunisation delays in a Sub-Saharan African Community. *Health Research Policy and Systems* 2010; 8 (1) <http://www.health-policy-systems.com/content/8/1/1>
5. World Health Organization. An Evaluation of Infant Immunization in Africa a Transformation in Progress. *Bulletin of the World Health Organization* 2005; 6:85.
6. World Health Organization. Immunisation. *Bulletin of the World Health Organization* 2010; 5: 210-350.
7. WHO Regional Office for Africa. Business case for WHO immunization Activities on the African Continent. Retrieved from https://www.afro.who.int/sites/default/files/2018-05/WHO_Bcase_Brochure_2018_05_11_FINAL%20VERSION_ISBN_WEB_0
8. Zangeneh TT, Baracco G, Al-Tawfiq JA. Impact of Conjugate Pneumococcal

Vaccines on the Changing Epidemiology of Pneumococcal Infections. *Expert Rev Vaccines* 2011; 10: 345-53

9. Tobin-Briggs NC, Tobin-West CI. Community Volunteer-Driven Intervention and Barriers to Childhood Immunization Coverage in Rural Communities of Rivers State, Nigeria. *International Journal of Medical Science and Dental Research* 2022; 5 (5): 99-114.

10. World Health Organization. Children: reducing mortality 2013. Retrieved from: <http://www.who.int/mediacentre/factsheets/fs178/en/>

11. Babalola S, Adewuyi A. Factors Influencing Immunization Uptake in Nigeria: A Theory-based Research in Six States. Abuja; PATHS 2005.

12. Rahji FR, Ndikom CM. Factors Influencing Compliance with Immunization Regimen among Mothers in

Ibadan, Nigeria. *IOSR Journal of Nursing and Health Science* 2013; 2 (2): 1-9.

13. Babalola S. Maternal reasons for non-immunisation and partial immunisation in Northern Nigeria. *Journal of Paediatrics and Child Health* 2011; 47: 276-281

Tables

Table 1: Socio-demographic characteristics of mothers with children between 1-2 years in Ogbaku community

Variable	Category	Frequency =151	Percentage (%)
Age	16-25 years	57	37.74
	26-35 years	69	45.69
	36-45years	25	16.57
	46 years and above	0	0.00
Marital status	Single	24	15.89
	Married	99	65.56
	Divorced/separated	21	13.91
	Widowed	7	4.64
Educational level	No formal education	0	0.00
	Primary education	15	9.95
	Secondary education	52	34.43
	Tertiary education	84	55.62
No of children	One	33	21.85
	Two	51	33.77
	Three	26	17.21
	Four and above	41	27.15
Type of family	Nuclear	124	80.1
	Extended	27	17.88
Place of delivery	Health centre	87	57.62
	Maternity home	45	29.80
	TBA	19	12.58
Accessed ANC	Yes	124	82.11
	No	27	17.88

Table 2: Immunisation status of children 1-2 years of age

Immunization status Of children 1-2years	Options	Frequency 151	= Percentage %
	Full immunised children based on age	35	23.18
	Partial immunised	57	37.75
	Not immunised	59	39.07

Table 3: Constraints to full immunisation coverage among mothers in Ogbaku community

Constraints	Options	Frequency 116	= Percentage %
Discouraging attitude of health workers	Yes	95	81.89
	No	21	18.10
Long waiting time before immunization	Yes	65	56.03
	No	51	43.97
Cost of vaccination	Yes	43	37.06
	No	73	62.93
Re-schedule of vaccine due to lack of vaccine	Yes	31	26.72
	No	85	73.28
Distance of health facilities for immunization service	Yes	29	19.21
	No	87	80.13
Inadequate supply of vaccines	Yes	99	85.34
	No	17	14.66
Lack of fund	Yes	41	35.34
	No	75	64.66
No need for immunization because With or without immunization a child can be sick	Yes	65	56.03
	No	51	43.97
Immunization causes fever, I don't accept for it my child	Yes	59	50.86
	No	57	49.14
Inadequate information on immunisation	Yes	45	38.79
	No	71	61.21
Immunisation is not healthy for the baby (myths)	Yes	91	78.45
	No	25	21.55

Inadequate supply of vaccines	Yes	72	62.06
	No	44	37.93

Table 4: Relationship between socio- demographic characteristics of mothers and their immunisation status in Ogbaku community

Variable	Immunisation status			Total	X ²	p- value
	Fully immunized 35	Partially immunized 57	Not immunized 59			
Age						
16-25 years	10	19	28	57		
26-35 years	12	32	25	69		
36-45years	13	6	6	25	9.308	0.61
Marital status						
Single	11	9	4	24		
Married	11	38	50	99	2.84	0.828
Divorced/separated	10	8	3	21		
Widowed	3	2	2	7		
Educational level						
Primary education	4	8	3	15		
Secondary education	5	28	19	52	41.31	0.000*
Tertiary education	26	21	37	84		
No of children						
One	20	11	2	33		
Two	10	23	18	51		
Three	3	16	7	26	18.72	0.000*
Four and more	2	7	32	41		
Type of family						
Nuclear	18	49	57	124		
Extended	17	8	2	27	3.19	0.351
Place of delivery						
Health centre	23	34	30	87		
Maternity home	6	16	23	45		
Traditional birth attendant	6	7	6	19	19.03	0.000*
Accessed ANC						
NO	15	52	57	124		
YES	20	5	2	27	14.00	0.000*

P is significant at p<0.05