



SOCIO-POLITICAL DETERMINANTS OF SUSTAINABILITY OF IMMUNIZATION COVERAGE IN RESOURCE-CONSTRAINED TERTIARY HEALTH INSTITUTIONS IN BENUE STATE, NIGERIA

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Abstract:

Background: Sustainability and healthy preservation of human species is feasible via the instrument of childhood immunization. In Nigeria, this cost-effective strategy (immunization) is targeted at the vulnerable groups who are mostly pregnant women and children under five years of age. **Aim:** This study assessed childhood immunization coverage and the determinants of its full coverage among children between the ages of 0-12 months in tertiary health centres in Makurdi, according to National Programme of Immunization (NPI) schedule. **Materials and Methods:** The study used a mix-methodology relating the sustainable development theory and sound deductive reasoning with a cross-sectional study design via the instrument of a structured questionnaire. The determinants of full coverage of childhood immunization were

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considered in relation to parents/guardians, children, tertiary health facilities and other factors like man-made/ natural disasters, religious and political factors from secondary data. **Results:** The results of the study generally revealed optimum coverage (95-100%) of childhood immunization according to NPI schedule. Shortage of vaccines at the health facilities, child illness and “no reasons” were revealed determinants of full immunization coverage after analysis. **Conclusion and Recommendations:** The health of the future generation will be more secured if the Government and parents/guardians join hands in ensuring effective and timely immunizations of her/their children through appropriate legislation, provision of potent vaccines and tackling of the prevailing security challenges.

Keywords: immunization coverage determinants, vaccine prevented diseases, childhood, infants, sustainability

1. Introduction

The sustainability and preservation of life of any biological specie from generations largely depends on how well its younger generation is taken care of. For the human species, one of the viable ways of its conservancy is the prevention of the very young (children) from basic killer diseases (mostly infectious) via immunization.¹ The targeted preventable childhood diseases according to Expanded Programme on Immunization (EPI) are diphtheria, polio, tuberculosis, measles, pertusis and tetanus.² Fortunately, most of these basic infectious killer diseases in childhood affecting mostly ages between 0-5 years are vaccine preventable.^{2, 3, 4} This primary prevention is largely initiated and completed within the first year of life. The hallmark of disease prevention is health promotion by means of education and immunization which is the initiation of immunity through administration of vaccine.⁵ The art and science of immunization supported by a favourable socio-political environment is therefore central to the survival of these children and preservation of future generations.¹ The sustenance of generations continually produces the human resource that is essential to the socio-economic development of any nation. This therefore means that any step taken for childhood immunization should be sustainable in nature in order to achieve this goal.

In resource-constrained countries where healthcare facilities are not liberally accessible and potent vaccines are sometimes unavailable, studies have shown that more than 10 million children in those countries (including Nigeria) die every year for lack of effective immunization.⁶ In developing countries, not all children in resource constrained remote communities have access to immunization which is known to be cost effective in reducing the burden of vaccine preventable diseases.^{2,3,6,7} EPI however, have contributed greatly in the actualization of the Millennium Development Goals and by extension the Sustainable Development Goals as it regards reduction of child morbidity and mortality.⁸ ⁹ Despite the remarkable progress made by EPI and other related programs, the coverage

of immunization services has remained low in the face of poor health system infrastructure and other related attributes especially in Africa and other resource constrained countries of the world.^{2, 10-14} This suboptimal coverage of childhood immunization is worst when most of these children live in difficult-to-reach remote rural resource-constraint locations and communities.¹¹ It is therefore indispensable that an in-depth study of the determinants/factors associated with child immunization coverage which is the thrust of this research work be studied in our environment in order to improve on immunization efficiency.

2. Materials and Methods

2.1 Study area

The study areas were the two tertiary health institutions in Makurdi, Benue State, which were: Under Five Immunization Units/Clinics of Federal Medical Centre (FMC), Makurdi and of Benue State University Teaching Hospital (BSUTH), Makurdi. Makurdi is the capital of Benue State located in North-Central, Nigeria.

2.2 Design

The study utilised a mix-methodology involving a hospital based cross-sectional design and review of secondary data from published literature.

2.3 Study population

The study population was mothers/guardians of infants attending immunization clinics in the two tertiary hospitals in Makurdi.

The mothers/guardians who brought their children (infants) that met the inclusion criteria of age limit (0-12 months) were recruited consecutively for a period of two months. The mothers/guardians also stood as informants.

2.4 Instruments of data collection

Data was collected using an interviewer administered structured questionnaire. The questionnaire was in two parts. Part one revealed information concerning the mother or guardian of the child brought for immunization and related socio-demographics while part two revealed information on the reasons for immunization default. The questionnaire also captured the current and past immunizations the child had received. Existing secondary related data were retrieved from peer-reviewed published journals and periodicals.

2.5 Data analysis

The collected data was analysed with the use of Statistical Package for Social Sciences Windows version 18.0 (SPSS, Inc., Chicago, Illinois) and the retrieved secondary data

used were appraised and logical deductive reasoning were made to achieve the aim of the study.

2.6 Ethical considerations

Ethical clearance was obtained from the Research and Ethic Committee of Benue State University Teaching Hospital, Makurdi. An informed consent was obtained from each parents/guardians.

3. Definition of terms

3.1 Childhood

This is a period in the life of a person before adulthood.¹⁵ This word in its loose meaning includes neonates, infants, toddlers, pre-school age, school age, adolescents/teenagers. In this work however, childhood (children) will be considered as a period of infancy (0-12 months) where all the immunizations being studied are given.

3.2 Immunization

Immunization according to WHO is a process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. While vaccines are small doses of germs/organisms that are either killed or extremely weakened by some chemical processes.⁵

3.3 Full immunization

This is defined in this study as receiving all the required immunization vaccines for age¹⁶ i.e. a dose of Bacille Calmette Guerin (BCG), three doses of Oral Polio Vaccine (OPV), three doses of Diphtheria, Pertussis and Tetanus (DPT) and one dose of measles by a child between ages 0-24 months according to the National Program on Immunization. However, this study considers all required immunization received within the first year of life as full immunization.

3.4 Partial immunization

According to this study, are children who had some, but not all of the required immunizations for their respective ages.¹⁶

4. Theoretical framework

This study adopted the Sustainable Development Theory for analysis. Using this theory, descriptive/deductive reasoning approaches and conclusions were drawn having critically reviewed relevant issues in existing related secondary data and primary data generated by this study. The concept 'sustainable development' by the Brundtland Commission is development that meets the needs of the present without compromising

the ability of future generations to meet their own needs.¹⁷ The sustainable development theory is most fitting in the developing world for successful and sustained optimal childhood immunization coverage. This is because the resources (human, material and money) are relatively scarce and often misappropriated.¹⁸ Immunization principles and processes are cost effective, carefully laid down and handed over to the next generation to ensure that the practices (immunization value chain) are not allowed to extinct.^{2, 3, 7} When this happens, the next generation is sure of continuing with these practices with a positive multiplier effect.

5. Results

A total of 91 infants were recruited for this study which revealed that an overall immunization coverage for the various immunizations for ages was from 90-100%.

Table 1: Bio-social demographics of mothers/guardians of infants

Bio-social demographics of mothers/guardians of infants	Frequency (n=91)	Percentage (%)
Age (years)		
20- 24	10	11.0
25- 29	48	52.7
30- 34	26	28.6
35 and above	7	7.7
Religion		
Christianity	90	98.9
Islam	1	1.1
Ethnic nationality		
Tiv	46	50.5
Idoma	19	20.9
Igede	6	6.6
Igala	3	3.3
Igbo	7	7.7
Hausa	1	1.1
Others	9	9.9
Educational level		
Non formal	0	0
Primary	0	0
Secondary	26	28.6
Tertiary	65	71.4
Marital status		
Single	3	3.3
Married	86	94.5
Divorced	2	2.2
Occupation		
Applicants	12	13.2
Students	20	22.0
Health workers	5	5.5

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House wives	18	19.8
Trading	15	16.5
Others	21	23.0
Monthly income (Naira)		
<5,000	16	17.6
5,000-9,999	29	31.8
10,000-19,999	22	24.2
20,000 and above	24	26.4
Access to antenatal services		
Yes	90	98.9
No	1	1.1
Place of delivery		
Home	9	9.9
Primary care centre	3	3.3
Private hospital	44	48.3
Mission based hospital	35	38.5

Source: Researcher's Field Work, 2015.

Table 2: Mother's/guardian's reasons for default of their children's immunizations

Reasons for default	Frequency (n=91)	Percentage (%)
Shortage of vaccines at the health facility	2	28.57
Child's illness	1	14.29
Children travelled to areas immunization could not be accessed	3	42.86
No reason for default advanced	1	14.28
Total	7	100

Source: Researcher's Field Work, 2015.

5.1 Man-made/Natural disasters, Religious and Socio-political factors influencing the coverage of immunization

Physical violence and conflicts resulting from family disharmony, communal crises and poverty has a potential of adversely affecting childhood immunization coverage. Also, wars and natural disaster leading to involuntary displacement of families and communities are known to be strong determinants of sustained childhood immunization coverage.¹⁹ In Nigeria today, increasing and disturbing violence ranging from terrorism in the North-East, fear of kidnapping and agitations from Niger-Delta and South-East, and communal clashes in the South-West and North-Central parts of the country are likely to disrupt the seemingly sustained status of childhood immunization in the affected places.^{20, 21} These disaster situations scattered over the country happens to be a major determinant in the recent surge of internally displaced persons who live in IDP camps thereby overstressing the capacity of already 'malfunctioning' health facilities and services including childhood immunization.

Though children do not have religion statutorily, religious dynamics of the parents/guardians is another factor that is likely to and have determined full childhood

immunization especially when it's obscured in the negative influence of their religious leaders.^{22, 23} Religious and political leaders in northern states in Nigeria in 2003 comprising Kano, Zamfara, and Kaduna States made frantic efforts to halt immunization campaign by discouraging parents from immunizing their children.²³ This was because they had misconception that it was a plan by outsiders (enemies of Islam) to reduce the Muslim population through falsification of vaccine. Also, they thought it was another strategy to transmit HIV virus, which would reduce the population of Muslims.²² This led to decrease in immunization uptake in Northern Nigeria in that year (2003). However today, political and religious leaders at all levels in the northern part of the country are more disposed to the campaigns for childhood national immunization schedules organised by National Programme on Immunization or other related corporate organizations. It is therefore hoped that against all odds, childhood immunization in this part of the country will be sustained if this campaign is also sustained.

Studies have established that involvement and active participation of policy and decision makers, community and community leaders, scholars, religious leaders, community groups, stakeholders of immunization, media, influential individuals and families deliberately and generally increases the coverage of childhood immunization.²² ²⁴ Political crises, corruption and bureaucratic disposition of all the three tiers of government (federal, state and local) and the federal and state ministries of health regarding policy formulations and related legislation obstructs free flow of logistics and necessary resources for immunization campaigns. This posture of the government institutions adversely affects the entire health system which is the domain of childhood immunization.^{22, 25-27}

Other contributing factors working against the sustainability of immunization programmes include insecurity from communal clashes, herdsmen attacks on farmers, regular annual floods, terrorism and religious extremism which have led to a surge in the internally displaced population making the affected children more remote from the benefits of immunization.^{20, 21} The situation is worrisome in Benue State and other violent prone States in Nigeria where scores of families and their children are continually killed or displaced. Educational backwardness, bad governance and lack of political will could be the responsible factors leading to low social support, inadequate funding and poor community mobilization and participation also contributes to low coverage of childhood immunizations.^{16, 28-30}

6. Discussion

This study revealed immunization coverage of 90-100% for the various ages. Reasons for this high coverage could be that majority of the mothers/guardians were between the ages of 25-29 years which agrees with the findings of Fatiregun et al in southern Nigeria.²⁹ Another reason is that, most of the mothers/guardians were Christians who traditionally are more at liberty to seek medical attention for their children than their Muslim

counterparts. Many studies, including the index study have reported high immunization coverage to be associated with mothers with high educational and socio-economic background as well as whether the mothers actually utilized antenatal care services.^{7, 16, 28, 29} (see Table 1). Other studies have however reported knowledge of the mothers/guardians on immunization and having fewer than three children as significant associations.^{7, 29} Furthermore, full immunization coverage is observed in urban areas where many health facilities are situated.² This perhaps gives them an undue advantage for their children to be immunized and this may also be another reason for the observed encouraging immunization coverage revealed from this study.

It is worthy of note that among the 91 mothers/guardians recruited, only a few mothers 7(7.7%) were able to give reasons why their children did not completely receive their immunizations for age. Out of the seven (7) mothers that commented, 2(28.57%) said there was always shortage of vaccines when they visited the health facilities. One (14.29%) said the child was not well while 3(42.86%) mothers said their children never received immunization because they travelled to a place where they could not access immunization services. Only 1(14.28%) mother said there was no reason for not taking the child for immunizations. This seems to be a problem in this country and others countries as reported by Gul et al.³¹ that 40% of children in Karachi missed their immunizations for similar reasons that the health facilities were very far away and were not easily accessible. The parents/guardians' reasons for travelling could be deduced from the fact that most of the them were young people with a mean age of 28.48 years who were mostly students, applicants, house wives and traders with travelling potentials in order to boost their monthly income which was reported to be meagre from 5,000 to about 10,000 Naira. Other studies also collaborated the fact that children were observed to have missed their immunizations because of the cost to travel long distance to access the health facilities for immunization.^{16, 31} Potency and shortage of vaccines at point-of-care in health facilities have become a major challenge in childhood immunization coverage not only in Nigeria but was also found to have contributed to 24% of the reasons why children were not immunized in Karachi Pakistan.³¹ The situation in Nigeria may be the result of epileptic power supply and/or high cost of fuel making the maintenance of cold chain difficult and unsustainable. When this happens, the potency of the vaccines becomes doubtful. In this index study, children's ill health accounted for 14.29% which was also noted to be of concern in a community in Niger-Delta Nigeria and another Teaching Hospital in Western Uttar Pradesh while accounting for 12% in Karachi Pakistan.^{32, 33} These results were similar maybe because of similar settings where the studies were carried out. Furthermore, other reasons for defaulting immunizations in childhood as reported by many researchers which were not revealed or researched in this study were side effects of the vaccines and low mothers' knowledge of vaccine preventable diseases and their busy schedules.^{33, 34}

7. Conclusion

Findings of this study suggest that immunization coverage amongst infants according to NPI schedule in tertiary health centres in Makurdi was optimum ranging from 95-100%. Despite the very high uptake amongst this age group, the study further identified determinants militating against its full coverage. These determinants include shortage of vaccines at the tertiary health facilities, child's illness and children travelling to areas immunization could not be accessed. "No reason" for default of immunization was also an important reason for not achieving full immunization coverage.

7.1 Recommendations

The Government of Nigeria should strengthen existing policies on health to ensure sustained availability of potent and sufficient vaccines for childhood immunization. Legislation by the National and State Assemblies should be made to make it an offence for the parents/guardians if their wards do not receive their due immunizations. The security situation of the country needs to be tackled as it contributes to the rising number displaced persons further reducing immunization coverage.

Conflict of Interest Statement

The authors declare no conflicts of interests.

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