NATIONAL PROGRAMME ON IMMUNIZATION (NPI) IMPLEMENTATION STRATEGIES AS DETERMINANTS OF IMMUNIZATION COVERAGE IN RURAL AND URBAN AREAS OF IMO STATE

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ABSTRACT

The study examined the National Programme on Immunization (NPI) implementation strategies as determinants of immunization coverage in rural and urban areas of Imo state. Two thousand one hundred respondents were selected for the study in rural and urban areas of the state. The instrument used for the study was a structured questionnaire and focus group discussion designed to test the three hypotheses, a reliability of 0.79 was obtained from he pre-test. The descriptive survey design was utilized in this study while the multiple regression was used to analyze the data collected at 0.05 alpha level. The findings revealed that immunization was adequately covered in both rural and urban areas of Imo state and every mother in Imo Sate knows the importance immunization programme. Based on the findings, recommendation was given that government should make more sanitization programme on the importance of immunization.

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Introduction

The past century has witnessed one of mankind's most challenging and enthralling undertakings as it struggled to conquer the threats posed by infectious diseases. Immunization is one of the premium triumph over man's environment which has been burdened with hostile bacteria and viruses that has long been a source of anguish, despair, suffering and death. The need to reach every child early in life can be overemphasized more so when three seconds a child dies somewhere in the third world from diseases that can be prevented through immunization (Gozlan, 2001).

Immunization coverage refers to percentages of infants surviving to age two (2) who have been fully immunized with BCG, a third dose of Diphtheria- Pertussis Tetanus (DPT) vaccine, a third dose of Oral Polio Vaccine (OPV) and measles vaccine. An accurate measurement of immunization coverage is an essential step in determining expected reduction in morbidity and mortality rate from vaccine preventable diseases. (World immunization News. 1986).

Globally, immunization coverage differs considerably. According to Seinglass and Fields (2000), nearly 8% of the world's children are vaccinated with the "traditional" vaccine, but not in the Areas of high risk such as Africa, where 50% were not immunized against most of the childhood diseases. They further averred that in some countries, half of the children who begin their immunization series drop out before completion of the doses due to problems in supply, demand, satisfaction and quality of service.

WHO and UNICEF estimates of routine immunization coverage, based on third dose of DPT vaccine, have increased from 75% to 78% between 2000 and 2003. However, this global estimate masks important regional and country level variations. According to Steinglass and Field (2005), in WHO's regions of the America, Europe and Western pacific (including China), DTPS coverage has increased at close to 90% while figures from the southern Asia region (including India) suggest a small increase of approximately 6% (from 69% to 73%). They further stated that Africa region has shown a modest but steady progress from 54% to 61% representing an 11% increase during these years. Of the 46 countries in WHO/AFRO, 35 have shown increase in coverage since 2000, with a men gain of eleven (11% points according to official country reports). In 1990, the World Summit for children set a goal for the year 2000 of maintaining a high level of immunization coverage against diphtheria, pertusis, Tetanus, Miseasles,

241

Poliomyelitis, and tuberculosis among children and against tetanus among women of childbearing age. For children, the target was to maintain immunization rates of at least 90% of those less than one year of age.

But this goal has not been met especially in the developing countries including Nigeria. In 1990, more than one third of he countries in the world exceeded ninety percent (90%) coverage with three doses given to infants, and about 13% of other countries were unable to reach a level if 50% coverage, including Nigeria. In 1994, the percentage coverage for the six killer diseases in Nigeria were 53% for Becile Calmete Gnerin (BCG); 42% for diphtheria, pertusis, and tetanus (DPT) 42% for poliomyelitis, and 42% for measles (WHO, 2002).

According to the World Health report (2004), the percentage coverage for children immunized by age 12 months in 2003 in Nigeria were BCG-43%, DPI-24%, OPV-42% and measles-38%. In 1999, the coverage rate for the six immunizable diseases declined considerably-13% for BCG, 19% for DPI; 23% for OPV; 26% for measles and 30% for TT2+ (Awosika, 2006). This decline culminated in the review of the expanded programme on immunization as a parastatal in 2002 to reflect National commitment and ownership (Awosika, 2006). The National

Programme on immunization focuses on prevention of selected childhood diseases and, through support to national immunization programmes, aims to achieve 90% immunization coverage of children born each year. Its goals are to eradicate poliomyelitis from the world by the year 2000, to reduce measles death and incidence, to eliminate national tetanus as a public problem and to introduce hepatitis is vaccines in all countries.

These challenges were reinforced in the declaration on the survival, protection and development of children which was endorsed at the world summit for children held at the United Nations in September 1990 (World Summit for children, 1990). How well these goals have been achieved remains the focus of this study.

According to Awosika (2006), the expanded programmes on immunization (now known as National programme on immunization) in Nigeria was invented in 1979; the programme was re-lunched in 1984 due to poor coverage. She further posited that the federal ministry of health and all its partner agencies collaborated in 1988 to conduct the first mass campaign and this resulted to 60% coverage in 1989. With the introduction of universal childhood immunization (UCI) in 1990, significant progress was recorded with 81.5% coverage for all Antigens. The success

recorded in 1990 was short lived, as there was subsequent decline in immunization coverage to less than 30% in 1996.

UNICEF (2000) attributed this decline to lack of awareness and ignorance as these were adjusted to be major contributors to the low percentage coverage recorded in Nigeria, Awosika (2006), posited that merely putting an important preventive service (as immunization) in place without ancillary machinery for information dissemination to the beneficiaries could only mean limited success at controlling these diseases. She also attributed the decline in immunization coverage to less than thirty percent (30%) to low political will, inadequate funding for health sector, poor community involvement, poor logistics support, inadequate social mobilization, inadequate planning, Training and staff shortage. Furthermore, the structural constraints that beleaguered the immunization programme set severe limits on the performance and level of success attained in realization of high immunization coverage.

To achieve a high coverage, it is necessary to put in place comprehensive strategies that will ensure the smooth running and effective immunization implementation including adequate vaccine supply system, cold chain procurement and improvement of routine immunization, social mobilization and training, Adequate storage and distribution of materials, personnel, technical and logistics support. It is on this premise that this study examined National programme on immunization (NPI) implementation strategies as determinants of immunization coverage in rural and urban area of Imo state.

Statement of the Problems

A starting point for addressing vaccine preventable diseases, a problem in communities and health care system is to assess activities currently being performed, current levels of vaccination coverage, and information regarding vaccine preventable disease rate (CDC, 1999). Based on this, the 1999 routine EPI data showed DPT's coverage down to 19% and BCG coverage a mere 13% in Nigeria.

This step decline has been confirmed by survey data from the Nigeria Demographic and Health Survey (NDHS) and the Multiple Indicators Cluster Survey (MICS), (Hodges, 2001).

The information on World Health report 2000, which was based on data from 1990 and 1999 NDHS showed that immunization coverage among children aged 12-23 month declined for every vaccine. Most striking of all, the proportion of children with complete vaccination (BCG, DPTS, OPVS and

measles) fell by almost half, from 30% in 1990 to 17% in 1999 and 11% in 2002. More than on third of children in the same age group had no immunization at all (38% in 1999).

According o MICS, only 13% of children aged 12-23 months were fully immunized and 46% had no immunization at all.

Similarly, what is obtained in Imo state is not far from the above findings by NDHS and MICS. The coverage rate for the six childhood diseases in Imo state is 38% for BCG; 15% for OPV; 19% for DPT; 22% for measles; an 20% for TT2+ (Awosika, 2006). This fell short of the coverage rate that was recommended by WHO on 2004 (this is ninety percent (90%) coverage for each of he antigens). Based on the foregoing result, it is therefore imperative to examine the NDI implementation strategies such as availability of vaccines supply systems, location of outreach site, logistics, social mobilization and communication, availability of cold chain, involvement of community leaders, maternal education, record keeping, provision of health services infrastructure and provision of health workers and see how they can help to solve the protracted problem of low percentage coverage witnessed presently in rural and urban areas of Imo state.

Research Hypotheses

The following null hypotheses were tested in the study:

1. Availability of vaccines supply system as an NDI implementation strategy will not be a significant determinant of immunization coverage in rural and urban areas of Imo state.

2. Social mobilization and communication as NDI implementation strategy will not be a significant determinant of immunization coverage in rural and urban areas of Imo state.

3. Maternal education as an NDI implementation strategy will not be a significant determinant of immunization coverage in rural and urban areas of Imo state.

Methodology

The descriptive survey research design was used for this study. The population for the study comprised all married women (age 18-45) who were also mothers of children between 12 months and 23 months residing in urban and rural areas of Imo State. A total of two thousands one hundred (2,100) respondents were sampled for this study. The researcher adopted the multi-stage sampling technique and this was considered appropriately because there were three stages

involved in the selection of the local government areas (LGA) to be studied from the three (3) senatorial zones comprising Owerri (11 LGAs) Okigwe (9 LGAs) and Orlu (7 LGAs).

Using proportional random sampling technique fifty-five percent (55%) of the local government areas in each senatorial zone were selected through fish bowl method. The selected LGAs from each senatorial zone were further stratified into rural and urban areas with location, and infrastructural development (presence or absence of modern medical facilities, electricity, health centres and dispensaries) serving as strata.

The purposive sampling technique was finally used to select the respondents for the study. The women that possessed the peculiar characteristics outlined in the study (that is, women of productive age 18-45 years who were also mothers of children between 12 and 23 months residing in the LGAs under study) were selected. This technique was considered appropriate because the respondents needed to satisfy some required specific elements based on the judgments of the researcher. The respondents were drawn from local government areas out of twenty-seven in Imo state in the following order:

SENATORIAL ZONE		LGA'S CHOSEN	URBAN	RURAL
Owerri	1	Ahiazu – Mbise	70	72
	2	Ngor-Okpala	70	60
	3	Owerri- West	70	60
	4	Ikeduru	65	65
	5	Owerri-Municipal	90	79
	6	Obowo	80	79
Orlu	1	Orlu	90	79
	2	Oguta	70	64
	3	Njaba	60	56
	4	Mbano	65	60
	5	Ohaji/Egbema	60	62
Okigwe	1	Okigwe	90	79
	2	Ideato-South	71	65
	3	Oru-West	75	64
	4	Onuimo	75	70
Total			1091	1009
Grand total			2100	

The research instruments for this study were questionnaire and focus group discussion. For the quantitative aspect of the research, structured questionnaire was used. The questionnaire was designed according to the variables selected for the study

For the qualitative aspect of this research, focus group discussion was adopted. This was carried out to obtain base line information on what NPI manager and primary health care coordinators of the local government areas selected for this study thought were strategies to be adopted for immunization coverage.

The instruments (questionnaire, focus group discussion guide and immunization register) were validated by experts in the department of Human Kinetics and Health Education, Nnamdi Azikiwe University, Awka and other prominent scholars in the area of preventive health. The validation of the instruments were subjected to a test retest using thirty (30) respondents from Emekuku in Owerri North Local Government Area of Imo state outside. The data collected were subjected to analysis using Cronbich Alpha coefficient r and reliability of 0.79 was obtained. The multiple regression analysis was used to test the hypothesis at 0.05 alpha level of significance.

Ho$_1$: Availability of vaccine supply system as an NPI implementation strategy will not be a significant determinant of immunization coverage in rural and urban areas of Imo state.

Table 1: **Relative Contribution Of Availability Of Vaccine Supply System To Immunization Coverage**

B	SEB	Beta	t-ratio	Sign of t	Remark
6.014E-02	0.018	0.071	3.346	0.001	Significant

Significant at $p < 0.05$

The table 1 revealed the b-values which indicates the amount of contribution of availability of vaccine supply system to immunization coverage while the standardized regression weight (Beta) of availability of vaccine supply system, shows the value of magnitude of its contribution to determine immunization coverage which is 0.071.

The t = 3.346 and this is statistically significant at a = 0.001. Since 001, is less than 0.05, the result was considered to be significant, consequently, the null hypothesis 1 was rejected in

favour of an alternative hypothesis that availability of vaccine supply system will significantly determine immunization coverage in rural and urban areas of Imo state was rejected.

Ho_2: Social mobilization and communication as NPI implementation strategy will not be a significant determinant of immunization coverage in rural and urban areas of Imo state.

Table 2: **Relative Contribution Of Social Mobilization Communication To Immunization Coverage**

B	SEB	Beta	t-ratio	Sign of t	Remark
0.193	0.026	0.170	7.321	0.000	Significant

Significant at p<0.05

The table 2 shows that B-value of social mobilization and communication stood at 0.193 which is the level of contribution of the independent variable to immunization coverage.

The standardized regression weight (Beta) value of social mobilization and communication is 0.170 which reflects the relationship between the independent variables and immunization coverage.

The $t = 7.321$ and it is statistically significant at $a = 0.000$. Since $0.000<0.05$, the null hypothesis 2 is rejected in favour of an alternative hypothesis that social mobilization and communication as NPI implementation strategy will significantly determine immunization coverage in rural and urban areas of Imo state.

Ho_3: Material education as an NPI implementation strategy will not be a significant determinant of immunization coverage in rural and urban areas of Imo state.

Table 3: **Relative Contribution On Material Education On Immunization Coverage**

B	SEB	Beta	t-ratio	Sign of t	Remark
0.189	0.031	0.128	0.059	0.000	Significant

Significant at p<0.05

The table 3 revealed the B-value of material education is 0.189 which shows the level of its contribution to immunization coverage. Its standardized regression weight is 0.128, indicating he level of relationship between the independent variables and immunization coverage.

The t=6.059 which is statistically significant at a -0.000.

Since 0.000<0.05, the null hypothesis 3 is rejected in favour of an alternative hypothesis which states that material education as an NPI implementation strategy will significantly determine immunization coverage in rural and urban areas of Imo state.

Discussion

Information extrapolated from the data on table 1, showed availability of vaccine supply system as NPI implementation strategy to be a significant determinant of immunization coverage in rural and urban area of Imo state. The result has shown that availability of vaccine supply system is relevant to determine immunization coverage in Imo state. This result supported the findings of WHO (1999), Basici (2003). and Awosika (2006),

According to Awosika (2006), Vaccine being essential ingredient to immunization must be readily available if coverage of beneficiaries is to increase. The findings of the study also corroborates WHO (2002) who asserted that the potential of vaccination to protect millions of mothers and children each year cannot be fulfilled unless potent vaccine is available when and where it is needed. Consequently, the result revealed that any effort to increase community demand for service and improve quality of service at the Health facility level, rural or urban areas will have more positive effort on coverage if uninterrupted vaccine supply be government can be guaranteed. The result showed social mobilization and communication as NPI implementation strategy to be a significant determinant of immunization coverage in rural and urban areas of Imo state.

Social mobilization and communication are important strategies aimed at increasing demands for immunization services and also the need for community ownership. This finding agreed with that of Jamison, Mosley, Measham and Bobadilla (2001), Awosika (2006), and Yobannes (2007).

According to Yobannes (2002), the benefits of social mobilization and communication includes quality and active service devilry, well-planned community activity, acceptance of service, sustenance of demand, raise in EPI coverage support by all possible allies/partners and reduction in dropout rates.

Awosika (2006) also supported the finding when she explained that using community based structures like town criers, IEC materials produced in local languages for effective communication can have significant effect on the coverage level of all antigens.

Consequently, this result showed social mobilization and communication strategy that is of great importance if immunization coverage to increase in various communities in Imo state.

This result contradicts the findings of Bicego and Boerma (1993) and Cleland, Jerome and Ginneken (1988) when they stated that immunization might not be related to material education and mother's knowledge about the vaccines and availability of services are sufficient to reach all children.

On the other hand, the findings is in line with the study carried out in Kamu and Esamai (2001) in Nairobi. The study revealed that the level of mothers Education was significantly associated with immunization coverage and also observe that 57% was recorded for those with primary education 82% was recorded for those with secondary education while 100% of those with tertiary education had their children fully immunized. Also studies carried out by Fauveau, Bogdan, Jyostnamoy Abdul Majid and Andre (1991) showed that material education is decisive to immunization status of the child.

The Nigeria Demographic and Health (NDHS) (1999) found that the percentage (%) of children without any immunization varied fro 60% among children born to mother with no formal education to 24% for those whose mother had only primary education

The relationship between education and immunization is also clearly reflected in the extreme zonal variation in immunization coverage.

According to NDHS (1999), in the northwest were 82% of women have had no formal education, 6% of their children have also had no immunization. Somerfield and Piani (1997) also supported the finding when they observed that women with higher education status have higher coverage rates than those without education.

From the foregoing, it is clear that maternal education as an NPI implementation strategy will not be a significantly determine immunization coverage in the rural and urban areas of Imo state.

Recommendation

The following recommendations were made on the basis of the finding in this study.

1.   The government should in a matter of urgency make vaccines available so that it can cover the rural and urban area of the state.

2.   Since social mobilization and communication was found to be a veritable implementation strategy in determining immunization coverage, there is urgent need to produce in local

249

languages to package of information education communication materials related to immunization through partners working in all local government of Imo state.

3. Regular health education session should conduct for nursing mothers in health centers within the communities and IEC materials utilized and made visible in health centers throughout the local government areas in Imo state.

Conclusion

This study examined the important aspect of immunization programme and therefore identified some implementation strategies that can help in determining immunization coverage in rural and urban areas of Imo state. Based on the results obtained the following conclusion were made;

Immunization coverage in Imo state has stagnate, and the identified reason for those among others were perception by the provider that the job of immunization the population has been completed. Other reason identified were inadequate investment in the fundamentals (such as training, logistics and communication) reductions in outreach, rigid models of health reform and disengagement.

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