

Research Article

# Assessment of the Level of Utilization of Immunization Services Among Nursing Mothers in Some Local Government Areas of Benue State, Nigeria

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## Abstract

The study investigated the level of utilization of immunization services among nursing mothers in some local government areas of Benue state. Descriptive cross sectional research design was adopted and multistage sampling procedure was employed. The questionnaire for the respondents titled assessment of the levels of utilization of immunization services among nursing mothers (ALUISNM). The study population consists of 1,500 nursing mothers in selected LGAs of Benue State. Mean, standard deviation were employed to analyze the data obtained from the respondents, while the null hypothesis was verified using the t-test of ANOVA. It can be deduced that the height of utilization of immunization services amongst the nursing mothers in Benue State is fair. The result that 765 (54.3%) utilized immunization services against 670 (45.7%). The result pointed out that there is high level of utilization of immunization services among women with secondary education (57.6%) followed by those with tertiary education. Based on socio economic status immunization were utilized more by women who are unemployed and self-employed with (56.0%) and (55.3%) respectively. Based on location of immunization services, utilization was more by the urban women (60.0%) than semi urban and rural women. Also based on religion utilization of immunization is higher with those of Islam traditionalist than the Christians. The utilization of immunization services and factors such as socio-economic status [ $F(2,1462) = 1.139, p > 0.05$ ], location [ $F(2,1462) = 2.249, p > 0.05$ ], and religion [ $F(2,1462) = 0.528, p > 0.05$ ] showed no verifiable significance differences. But there was a significant difference with regards to education [ $F(3,1461) = 15.773, p < 0.05$ ]. Conclusively, there was positive level of utilization of immunization services from the study and therefore recommended that issues like location of health facilities, awareness, education etc should be addressed.

## Keywords

Immunization, Nursing Mothers, Utilization, Assessment and Benue State

## 1. Introduction

World Health Organization [1], pointed out that usage of health care facilities and services can be characterized by purpose (1) there is rising agreement that everyone have right

to health care services irrespective of their capacity to cater for the said services; (2) the wide acceptance that certain age bracket or group are generally poor. It can be agreed that some

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low-income earners may not have the capacity to use medical facilities than other individuals, the ability of an individual to take care of his or her health is dependent on the individual's purse power to the ill health. Those within this category might be more dispensable to the usage of the said health care facilities due to their state at that point in time. The predisposition to the usage of these health facilities is not enough as these individuals must have needed will to do so. From the World health organization there must be an enabling condition which is the prerequisite for the usage of such health care facilities. This enabling state ensures that medical facilities are provided to individuals. The conditions set as enabling are family capitals which includes the income, the type or level of health service insurance scheme of the family, the characteristics of the family, certain enabling features of the community in which the family lives can also be factor for use of medical health service. One of such features is the number of health care facilities and human personnel in the targeted domain.

Accessibility to health facility and outreach centre carrying out immunization services is a vital part of utilizing Immunization service in developing countries. An opposite relationship between distance and travel time to medical facilities and its use (health services) has been confirmed as an imperative barricade to utilization of health services such as immunization. The availability of good road network also delays, denies and reduces usage of rural medical health care facilities which could lead to poor distribution of drug, vaccination programs, and supplies of medical facilities. The Absence of suitable transport amenities also reduces access to medical care. This difficulty is more related in inaccessible areas where transportation breaks down especially during raining season. Remote health centres require enough time and sufficient money to travel through and other related expenditures serve as hindrances to obtaining medical care service especially for the underprivileged [2].

International Health Partnerships Committee, [3] opined that the location of hospitals, health centres, and outreach centres too distant away from the population affect the utilization of immunization and other health services, well-spaced hospitals, and clinics of different categories in different locations in a population distribution to serve the community tends to attract higher utilization. They maintained that most potential users do not want to spend much money on transport. They discovered that health facilities in the rural areas were underutilized due to the effect of location. They were located far away from users' residence. Also most of the health facilities were not accessible due to poor road networks and poor transportation system.

This study was anchored on the theory of health belief model formulated by [4] This model attempts to categorize and to critically assess the factors accountable for human actions as it relates to specific individual health. It is one of the most comprehensive constructs. Lewin's theory is strongly designed towards the individual personal perception

of the world and how they motivate his or her behaviour. The health belief model emphasizes on motivation and historical perspectives of the individual based on his or her prior experiences. The current dynamics confronting the individual are emphasized as well as all the factors that motivate the behaviour. Choosing whether to access immunization services or other method of health care service depends on the information received concerning the health service, the knowledge about efficiency and success of the vaccines, the accessibility of the service provided, the cost of treatment, the perception of the diseases itself and perhaps most importantly the knowledge of the effect of treatment. The awareness of individual and members of the social group about the importance of immunization services determine their utilization of services.

### 1.1. Statement of the Problem

The reasons for the reductions in cases of infant mortality, paralysis, night blindness, and other health challenges is due to the wide spread use of vaccines especially in the rural settlements. Though there is high level of success recorded by immunization routines in relation to public health deliveries but more need to be done to cover settlements yet to be reached. Reports from international health agencies like WHO states that there are over 22 million infant mortality globally due to lack of vaccination for vaccine preventable diseases [5], which included the area of study. It is on this premise that this research is anchored titled: Assessment of the levels of Utilization of Immunization Services among Nursing Mothers in some local government council of Benue State.

### 1.2. Aim and Objectives of the Study

The study evaluates the levels of utilization of immunization services among nursing mothers in some local government areas of Benue State. This was achieved through:

- 1) Finding the level of utilization of immunization services by nursing mothers in selected LGAs of Benue State.
- 2) Determining the level of utilization of immunization services amongst nursing mothers in Benue State based on socio demographic attributes of level of education, types religious, location source of information, and socioeconomic rank.

### 1.3. Research Questions

The research questions used to guide this study are as follows.

- 1) What is the level of utilization of immunization services by nursing mothers in Benue State?
- 2) What is the level of utilization of immunization services among nursing mothers in Benue State based on socio-demographic attributes based on level of education, type of religious, location source of information, and socioeconomic rank?

## 1.4. Hypotheses

The significance level of 0.05 was used to test the hypotheses of this study.

There is no significant difference between in level of utilization of immunization services based on socio-demographic features such as level of education, age, religious affiliation, source of information, and socioeconomic position among nursing mothers in Benue State.

## 1.5. Scope of the Study

This study focused on the utilization of immunization services among nursing mothers in Benue State Nigeria. The population of the study is nursing mothers utilizing immunization services, and the generalization may be restricted to all nursing mothers, independent variables such as; educational level, religion, source of information, and socioeconomic status of nursing mothers were studied in relation to immunization of child under five years. Multi-stage sampling procedure was adopted for the study to select the study participants.

# 2. Methodology

## 2.1. Research Design/Study Area

The study used the descriptive cross-sectional design. Benue State derive its name from Benue River, its capital city is Makurdi. It was created on the 3<sup>rd</sup> February, 1976. The total population of the State from the National population census [6] is 4,647,253 in the 2006 census.

## 2.2. Study Area Population

The population of the study comprises of breast feeding mothers in some LGAs in Benue State. The woman of age between 16-40 years and the estimated total population was 935,801.00 [7].

## 2.3. Sample and Sampling Method

One thousand five hundred (1500) nursing mothers between the ages of 16-40 years was the attending immunization services with children zero to five years was used as the sample size for this study. Taro Yamene method for large population was used to estimate the sample size. A multistage sampling procedure involving two stages was adopted to select the sample for the study. Agatu, Apa, LGA from Benue south senatorial District, Kwer west, Tarka LGA from Benue Central Senatorial District and Kwande and Kastina Ala from Benue North East Senatorial District were the selected LGAs

for the study.

## 2.4. Data Collection Instrument

Self-structured questionnaire titled Assessment of levels of utilization of immunization services among nursing mothers (ALUISNM) was used as instrument for data collection, which was designed to assess the level of utilization of immunization services among nursing mothers with children 0-59 months. The questionnaire consisted of four sections namely: section A-B, section A apportioned the information on demographic features of the respondents which includes age, type of religious, level of education and residential zone. Section B contained questionnaire item on utilization of immunization services and socio demographic characteristics of nursing mothers and utilization of immunization services. The respondents were required to respond to section A of the questionnaire by ticking (✓) the appropriate responses that best represent their opinions. While section B comprised of open ended questionnaire items of YES OR NO on utilization of immunization services among nursing mothers in Benue State.

## 2.5. Reliability of the Instrument

In the quest to institute the consistency of the instrument, the test re-test method was employed. Copies of the questionnaire were administered to 15 nursing mothers whose children were within the ages 0-59 months during normal immunization exercise at comprehensive Health Centre Taraku in Gwer East local government area in Benue central senatorial district. The Instrument was retrieved from the respondents at a spot and re-administered on the same respondents after four weeks. It was subjected to statistical analysis of Cronbach Alpha. A reliability coefficient of 0.67 was achieved by the instrument. Data collected was analyzed using Statistical Product for Service Solution version 18.0 was employed for the data collected analysis of mean and percentage score while descriptive statistical tools while Analysis of Variance (ANOVA), t-test, z-test were employed to test for the hypotheses at 0.05 significance level. The calculated values higher than the table values were rejected in the hypotheses.

# 3. Results and Discussions

## 3.1. Presentation of Data

The result of the questionnaire on the level of utilization of immunization services among nursing mothers in Benue State is presented in tables 1 and 2.

Research Question 1: What is the level of utilization of immunization among nursing mothers in Benue State?

**Table 1.** Utilization of immunization among nursing mothers in Benue State.

SN	Items	Yes F (%)	No F (%)
1	Immunized with BCG at birth	170 (11.6)	1295 (88.4)
2	Immunized with Hepatitis B vaccine at birth	104 (7.1)	1361 (92.9)
3	Immunized with Oral polio vaccine immediately after birth	310 (21.2)	1155 (78.8)
4	Immunized with pentavalent vaccine at 6 weeks of birth	935 (63.8)	531 (36.2)
5	Oral polio vaccine 1 at 6 weeks of birth	1150 (78.5)	315 (21.5)
6	Pentavalent vaccine 2 at 10 weeks of birth	1001 (68.3)	464 (31.7)
7	Pneumococcal conjugate vaccine 2 at 10 weeks of birth	998 (68.1)	467 (31.9)
8	Second dose of oral polio vaccine at 10 weeks of birth	908 (62.0)	557 (38.0)
9	Third dose of pentavalent vaccine at 14 weeks after birth	834 (56.9)	631 (43.1)
10	Pneumococcal conjugate vaccine 3 at 14 weeks after birth	797 (54.4)	668 (45.6)
11	Third doses of oral polio vaccine at 14 weeks after birth	803 (54.8)	662 (45.2)
12	Immunized against measles at the age of nine months	1305 (89.1)	160 (10.9)
13	Immunized with yellow fever vaccine at the age of nine months	1300 (88.7)	165 (11.3)
14	Followed immunization schedule to immunize child completely	510 (34.8)	955 (65.2)
	Total	795 (54.3)	670 (45.7)

Table 1 presents the degree of utilization of immunization services among nursing mothers in Benue State. The findings reveals that overall 765 (54.3%) utilized immunization services while 670 (45.7%). Therefore, the level of utilization of immunization among nursing mothers in Benue State was 54.3% which is fair.

Research Question 2: What is the level of utilization of immunization services among nursing mothers in Benue State based on socio-demographic attributes (educational level, socio-economic qualification, location and type of religion)?

**Table 2.** Level of utilization of immunization services amongst nursing mothers in Benue State due to socio-demographic attributes.

Socio-demographic factors	Level of Utilization of immunization		Total
	High F (%)	Low F (%)	F (%)
Educational status			
Primary	208 (50.5)	204 (49.5)	412 (100)
Secondary	472 (57.6)	348 (42.4)	820 (100)
Tertiary	115 (57.5)	85 (42.5)	200 (100)
None	0 (0.0)	33 (100)	33 (100)
Total	795 (54.3)	670 (45.7)	1465 (100)
Socio-economic status			
Employed	191 (50.9)	184 (49.1)	375 (100)
Unemployed	84 (56.0)	66 (44.0)	150 (100)
Self-employed	520 (55.3)	420 (44.7)	940 (100)
Total	795 (54.3)	670 (45.7)	1465 (100)
Location			

Socio-demographic factors	Level of Utilization of immunization		Total
	High F (%)	Low F (%)	F (%)
Urban	138 (60.0)	92 (40.0)	230 (100)
Rural	399 (52.2)	366 (47.8)	765 (100)
Semi-urban	258 (54.9)	212 (45.1)	470 (100)
Total	795 (54.3)	670 (45.7)	1465 (100)
Religion			
Christianity	606 (54.6)	503 (45.4)	1109 (100)
Islam	164 (52.2)	150 (47.8)	314 (100)
Others	25 (59.5)	17 (40.5)	42 (100)
Total	795 (54.3)	670 (45.7)	1465 (100)

Table 2 reveals the utilization of immunization amongst nursing mothers in Benue State base hinge on socio-demographic characteristics. The outcome confirms that high level of utilization of immunization services was more amongst those with secondary education (57.6%) while tertiary education (57.5%) and primary education (50.5%) followed. Based on socio-economic level, immunization services were utilized more among those who were unemployed (56.0%), then by those who were self-employed (55.3%) and fully employed (50.9%). The estimation from the location, reveals that immunization services were utilized more by

those at the urban areas (60.0%) Also, based on religion those of other religion (59.5%) utilized the immunization services than the Christians (54.6%) and Muslims (52.2%).

### 3.2. Hypotheses

Hypothesis 1: There is no significant difference in the height of utilization of immunization services and socio-demographic attribute (educational level, socio-economic rank, location and type of religion) of nursing mother(s) in Benue State.

**Table 3.** Analysis of Variance(s) (ANOVA) showing difference(s) in the level of utilization of immunization service(s) and socio-demographic characteristic(s) of nursing mothers in Benue.

Source(s) of variance	Sum of squares	Df	Mean sum of squares	F-value	p-value	Decision
Education						
Between group	11.406	3	3.802	15.773	.000	Reject
Within group	352.177	1461	.241			
Total	363.584	1464				
Socio-economic status						
Between group	.566	2	.283	1.139	.320	Accept
Within group	363.018	1462	.248			
Total	363.584	1464				
Location						
Between Groups	1.115	2	.558	2.249	.106	Accept
Within Groups	362.469	1462	.248			
Total	363.584	1464				
Religion						



Source(s) of variance	Sum of squares	Df	Mean sum of squares	F-value	p-value	Decision
Between Groups	.262	2	.131	.528	.590	Accept
Within Groups	363.321	1462	.249			
Total	363.584	1464				

Table 3 displays the ANOVA estimation of the significant difference(s) in the level of utilization of immunization service(s) and socio-demographic features of nursing mothers in Benue State. The outcome reveals that there was not any significant difference(s) in the utilization of immunization service(s) and element(s) such as socio-economic level [ $F(2,1462) = 1.139, p > 0.05$ ], location(s) [ $F(2,1462) = 2.249, p > 0.05$ ], and type of religion [ $F(2,1462) = 0.528, p > 0.05$ ]. Education [ $F(3,1461) = 15.773, p < 0.05$ ] had a high significant difference(s) with the level of usage of immunization service(s). The findings suggest that the null hypothesis which posits that there is not any significant difference(s) in the height of usage of immunization services(s) and socio-demographic features of nursing mothers in Benue State, Nigeria is not totally accepted.

### 3.3. Discussion of Findings

*Research question 1: What is the level of utilization of immunization amongst nursing mothers in Benue state?*

The result of the study indicated that good proportion of nursing mothers utilized immunization service (54.3%) showing that the level of utilization was significantly fair among nursing mothers. The outcome of this research agrees with that by of Fauzia and Mazin [8] that 41.3% of mothers make effective use of immunization to save the lives of their children. This is because most nursing mothers knows usefulness of immunizing the infants and the family which in turn prolong life and improve wellbeing. Despite the fact that most of them do not know the name of the disease they immunizing their children against do not preclude the use of the service. This study is also in credence with works of Chris-Otubor et al., [9] that some other mother(s) (60%) always take their children on time for the initial immunization (BCG) which is symptomatic to utilization. This is worthy of note that Melaka et al., [11] in their study confirmed that 2/3<sup>rd</sup> (73%) of mothers attending prenatal care services in order to seek for safe delivery and healthy child care were in the control group of their study. It is pertinent that utilization of immunization service was based on the source of information about the importance of vaccination they received. This is to affirm that in spite of the barriers that precluded the use of immunization mothers never relent to seek for salvation of their children in terms of immunizing them against childhood killers' diseases such as measles, chicken pox, tuberculosis, yellow fever, poliomyelitis, tetanus, influenza, diphtheria, cerebrospinal meningitis

among others. Deyese et al., [10] buttressed that most par-takers seeks for vaccination(s) card in order to meet up the immunization despite been affected by their working hours. There utilization of immunization service is paramount among nursing mothers because of the significant benefits to improve the family's well-being. Studies of Melaka et al., [11] do not agreed with this study that 35.3% of the control group had poor access to health care service and 33.2% of the treatment group preferred delivery at the health facility. The difference amid the outcomes of the previous studies and the present study were due to variation in research design, area of study, sample size, among others.

*Research Question 2: What is the level of utilization of immunization service(s) amongst nursing mother(s) on Benue State based on educational level, socioeconomic height, location and type of religion?*

Hypothesis 1: there is no established significant difference(s) in the level of utilization of immunization based on education status, socioeconomic status, location and type of religion amongst nursing mothers in Benue State. Ability to ge the vaccination service(s) was shown to be a highlights a notable increase in the utilization of immunization services, this was supported by studies conducted by other researchers [12]. This could be as result of the point that premeditated place of immunization centers made it more convenient for nursing mothers to immunize their children as they will wont spent considerable time or resources to reach the immunization center. Poor compliance due to location and distance of immunization service(s) especially the local areas that very far to reach and longtime of waiting on cue. Similar reports were gotten from other studies conducted by Central Bureau of Health Intelligence 2000—2001, World Health Report 2003 and International Health partnership Committee in 2010 [2]. It can be agreed that been unaware of the schedule of appointment for immunization could be a factor that hinders the effectiveness of immunization services. His study pointed out that Socio-economic rank of nursing mothers and their career also affect utilization of immunization services, this concurs with the research conducted by World Bank in World Development Report 2001 and Nigeria National Demographic Health Survey 2008 [7]. The reported stated the difficulties nursing mothers encounter in taking their children for immunization. Other reports has it that nursing mothers with better socio-economic prowess readily brought their wards for immunization as against the people of lower socio-economic class [13, 14]. Consequently, maternal education as previ-

ously recognized, as imperative aspect in the uptake of immunization as was revealed in this work [15]. Influence of religion on the utilization of immunization work as they are required to make money every day to ensure daily living. Highly educated and enlightened mother(s) had more information and consciousness about immunization than less educated mothers and are well equipped to acquire more knowledge about vaccination. Choices related to immunization were normally made by mother(s) or other female member(s) of the family they are primary caregivers and the people who spend much time with the children. This is consistent with studies conducted by Bingham *et al.*, [12]. Services were conducted by several researchers. Report showed that people of Islam faith are more rigid in their perception about immunization [16, 17]. These studies revealed that similar issues arises in the past, but due to increasing knowledge through health education and awareness campaign regarding the importance of immunization, there have being dramatic change in the perception of people towards immunization especially the Muslim community. Due to the implementation of the report of previous researcher no resistant was reported in this study.

## 4. Conclusion

In line with the summary of this report it is pertinent to note that there is a positive level of utilization of vaccination services amongst breast feeding mothers of Benue State and such awareness campaign, symposium, health talks, rural health walk and other methods should be employed to improve on the already existing success recorded thus far.

## Abbreviations

ANOVA	Analysis of Variance
BCG	Baccillus Calmette-Guerin
WHO	World Health Organisation

## Conflicts of Interest

The authors declare no conflicts of interest.

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