

Assessment of Knowledge and Perception of Routine Immunization in Argungu Local Government Area of Kebbi State, Nigeria

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Abstract

Immunization remains the most cost-effective public health tool used globally for the prevention of infectious diseases, disability, death, and inequity. The study assessed the knowledge and perception of routine immunization in Argungu LGA of Kebbi State, Nigeria. The objectives were to identify the socio-economic characteristics of respondents and to examine their knowledge and perception on routine immunization in the LGA in question. Data required was the socio-economic characteristics of the respondents, as well as their knowledge and perception on routine immunization. The data were obtained from women in the area, National Population Commission (NPC) and Kebbi State Ministry of Land and Survey. Analysis was performed using simple descriptive statistics and Chi-square test. The results reveal that 41% of the respondents were between 25-34 years, 69% practice Islam, 76% were married, 62% were in a polygamous family setting, 44% had 2-5 children and 67% had their children in government hospitals. Furthermore, the results reveal that the respondents are quite knowledgeable on routine immunization which has transcended to positive perception towards routine immunization programs. In view of the findings, the study recommended that government at all levels and non-governmental organizations should continue to organize enlightenment programs to sensitize the public, with a view to reaching women who are not knowledgeable on routine immunization in the study area.

Introduction

Immunization remains the most cost-effective public health tool used globally for the prevention of infectious diseases, disability, and death (Andre et al., 2008). The Routine Immunization (RI) program offers a primary prevention strategy in the global fight and management of Vaccine Preventable Diseases (VPDs), especially in reducing infant mortality.

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For instance, polio is near eradication today as a direct result of immunization (Nnebue et al., 2018). Deaths from measles declined by 79% globally and by 86% in sub-Saharan Africa between 2000 and 2015; and as at March 2017, all but 15 countries have eliminated maternal and neonatal tetanus (UNICEF, 2018a). Evidence has also shown that vaccination currently saves between 2 and 3 million lives every year (WHO, 2016a).

Routine Immunization (RI) is the sustainable, reliable and timely interaction between the vaccine, those who deliver it and those who receive it to ensure every person is fully immunized against vaccine-preventable diseases. A successful routine immunization system requires the synchronization of multiple programme components to provide a child the opportunity to be successfully vaccinated (Nnebue et al., 2018). Nigeria also recognizes RI as the most cost effective intervention in child survival and has called for the need for stronger emphasis on strengthening RI at sub-national levels to progressively reduce child mortality deaths in the country (Federal Ministry of Health [FMOH], 2010).

Kebbi State is one of the most high risk states in Nigeria with persistent circulation of wild poliovirus that poses a serious challenge to polio eradication in the country (Abdulraheem et al., 2011). Fortunately, no new cases of wild poliovirus have been reported since July 2015 (UNICEF, 2018b). However, Kebbi has recorded eight cases in 2015 and a high proportion of eligible children continue to be missed in every Immunization Plus Days (9.7% in March 2016), especially in the Local Government Areas of Gwandu, Jega, Ngaski, Arewa Dandi, Suru, Birnin Kebbi, and Argungu. 'Child absent' remains the main reason for missed children, accounting for 83% of the total number of missed children in Kebbi State. The proportion of non-compliance as a reason for missed children has increased over the last two rounds from 5% in February to 8% in March 2016. Approximately 15% of the total number of refusals remains unresolved in the State (UNICEF, 2018b). It is in view of the foregoing that this study is set to assess the Routine Immunization Programme in Argungu LGA of Kebbi State, Nigeria.

The state is one of the 11 high-risk states for polio transmission and has recently enacted a Primary Health Care Under One Roof (PHCUOR) law and established the state primary health care agency with a primary mandate to improve primary health care services. A total of 1094 health facilities provide routine immunization (RI) services to a targeted population of 326,118 infants; delivering all vaccines based on the national immunization schedule. The Nigeria Demographic Health Survey (NDHS) 2013 reported routine immunization coverage of 43.7% for the third dose of Diphtheria-Pertussis-Tetanus (DPT) vaccine (now replaced by the pentavalent vaccine) and 44.4% for Oral Polio Vaccine (OPV3) in Kebbi State. Data quality and gaps in the information management has been a challenge affecting the routinely reported administrative data. Although the sum effect of these efforts is that the supply side problems have largely been addressed and health facilities no longer experience vaccine stock outs. But these recent improvements in the supply side of vaccination services has not resulted in commensurate increase in service uptake, particularly in Northern Nigeria with Argungu LGA in Kebbi State not exempted. Demand-side interventions such as defaulter tracking, newborn identification and referral, are not applied systematically and at scale. A high proportion of children remain left out – that is, received no vaccine at all, or continue to drop out – in other words, fail to complete their immunization schedule. With improved service availability, there is now a need to focus on increasing demand for vaccine given that several years of unreliable service may have eroded confidence in the system, while more than a decade of door-to-door

polio vaccination campaigns has made people complacent about seeking immunization services.

It is widely recognized that many factors affect vaccine coverage and equity. Using the lens of an ecological model, one can describe factors that determine vaccine delivery (supply) and uptake (demand) at policy, community, interpersonal and individual levels. At the policy level, national, state and local government policies and practice around governance, funding, staffing and equipping different levels of the health system have significant impact on immunization service availability and access. In view of these teething troubles, this study tried to assess the knowledge and perception of routine immunization in Argungu LGA of Kebbi State.

The Study Area

Argungu Local Government Area (LGA) is located between Latitudes 12° 50' N to 12° 30' N and Longitudes 04° 10' E to 04° 40' E, as shown in Fig.1. The area belongs to the tropical dry and wet climate with a mean annual temperature of 25.5°C. April is the warmest month with 28.7°C and December is the coolest month with 23°C. During the dry season, when the whole country is under the influence of the Northeast Trade wind, starting from November through the month of March, the areas are completely dry. In fact, starting from December through February, the area is under the influence of a severely strong dry wind (harmattan).

The population as at 2006 comprised of 372,272 people who occupied 79,451 households, and is currently estimated to be 518,077 people and 110,564 households based on a growth rate of 3.05% as indicated by the National Population Commission (NPC, 2006) for the area. Thus, the current population density is about 110.46 persons per km². The major source of livelihood in this area is agriculture.

Materials and Methods

The data required for the study include: socio-demographic characteristics of respondents as well as their knowledge and perception on routine immunization in the study area. The data were obtained from women and National Population Commission (NPC) Kebbi State, between November, 2019 to March, 2020.

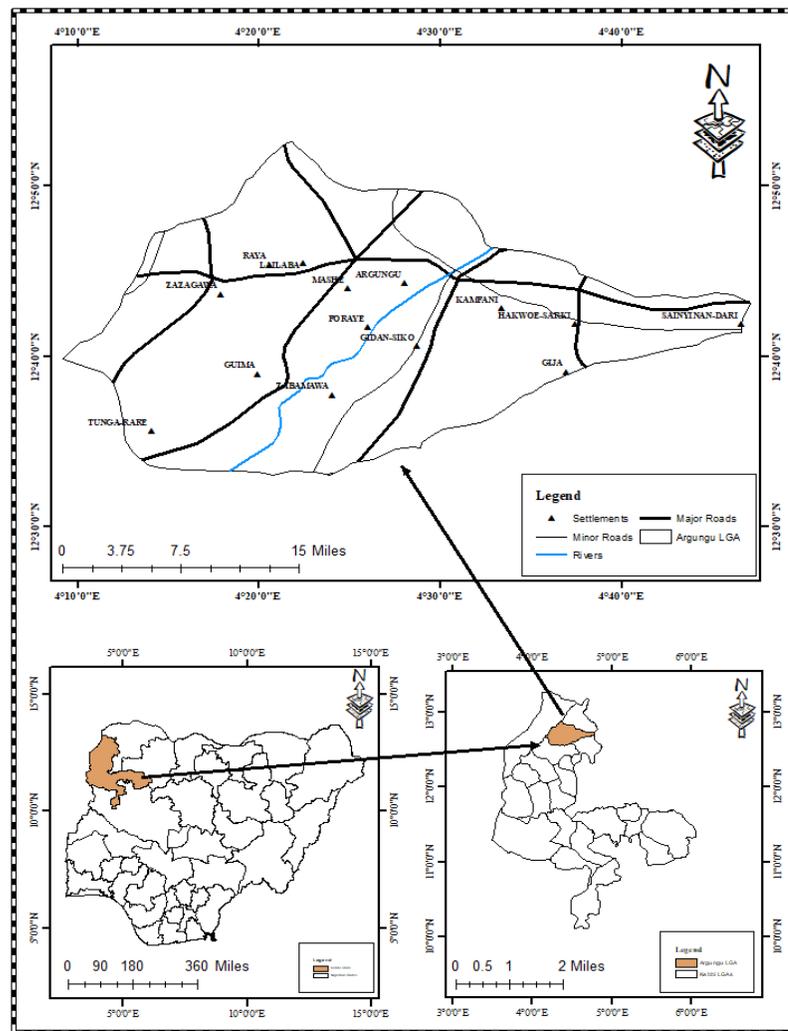


Figure 1: Map of Argungu Local Government Area
 Source: Administrative Map of Argungu (2009)

The main instrument used for the collection of data for the study was questionnaire. The questionnaire was divided into sections consisting of open and close ended questions. The first section included questions on the socioeconomic characteristics of women in the study area, followed by the knowledge and perception of routine immunization.

In order to obtain the study population, the 2006 population figure for female in the area was projected to 2019 which gave 150,623 women. The sample size was determined using the Yamane(1967) formula, which gave 398. Purposive sampling technique was adopted. That is, only those women in attendance at the hospital (and willing) were administered questionnaire. This is because not many of the respondents were willing to answer the questions. Data obtained was analyzed using simple descriptive statistics and Chi-square test in the Statistical Package for Social Sciences (SPSS).

Ethical Considerations

A written permission to carry out this research was obtained from the office of the Medical Director, Argungu General Hospital; the main municipal and research hospital within the study area, verbal consent was also received from the office of the Local Government Chairman. The purpose of the study was read to participants by the primary researcher in Hausa, giving the mothers a fair understanding of the questionnaire and the chance to freely choose to participate in the study. The research was conducted with much consideration in ensuring subject's anonymity and dignity hence participants were allowed not to respond to questions they were not comfortable with.

Results and Discussion

Socio-Demographic Characteristics of Respondents

This section presents the findings derived from the demographic and socio-economic characteristics of the respondents. These include age, religion, marital status, family setting, number of children, and child place of birth, level of education, occupation and income. The age of respondents was analyzed and the results displayed in Figure 2. It is obvious from Figure 2 that most (41%) of the respondents were between the age of 25-34 years while a few (12%) were 45 years and above. This implies that majority of the respondents are mothers of reproductive age and have insight on the study. The findings are in agreement with that of Bello and Daniel (2017) in Bauchi, who stated that most of the respondents were between the ages of 25-34 years.

Data on the marital status of the respondents was acquired and analyzed, and the result is presented in Figure 3. It is obvious from Figure 3 that 76% of the respondents were married, compared to only 3% who were single in the study area. This result was expected because the study area is located in the northern part of Nigeria, where early marriage is encouraged and getting pregnant outside marriage is almost considered sacrilege and unthinkable. The result is further substantiated by the result of Taiwo *et al.* (2015) in Kaduna, who found that most of the married women bringing their children for immunization are married.

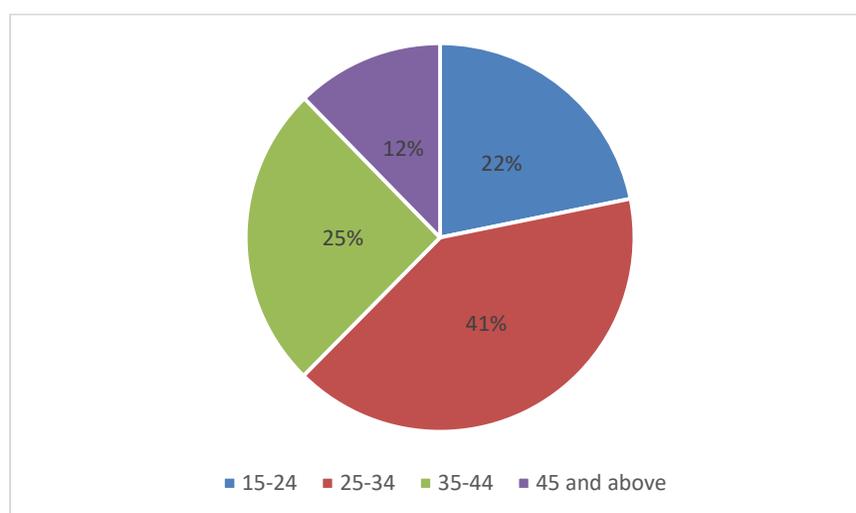


Figure 2: Age Distribution of the Respondents

Data on family setting, number of children, years as married mother and child place of birth were collected and analyzed. The result, presented in Table 1, shows that 62% of the respondents are into polygamous family setting, as against 38% who are into monogamous family setting. This is because the study is situated in a region that support and or encourage polygamy. This finding is similar to the result of Bello and Daniel (2017) in Kaduna, who stated that most of the mothers that came for child immunization were into polygamous family setting. This is further reflected in the number of children, where most (44%) have between 2-5 children, while a few (17%) had only one (1) child.

Table 1 indicates that 67% of the women gave birth at a government hospital/maternity home while 5% gave birth at other places. This could be because public hospitals are readily available, cheap, have the facilities and personnel to safely aid child delivery. This result is similar to that of Matthew (2014), who stated that most of the mothers prefer giving birth in public hospitals or maternity homes. It is obvious in Table 1 that most (43%) of the women have been mothers for about 1-5 years, while few (29%) have been married mothers for about 6-10years. This means the respondents are knowledgeable on the possible barriers to routine immunization.

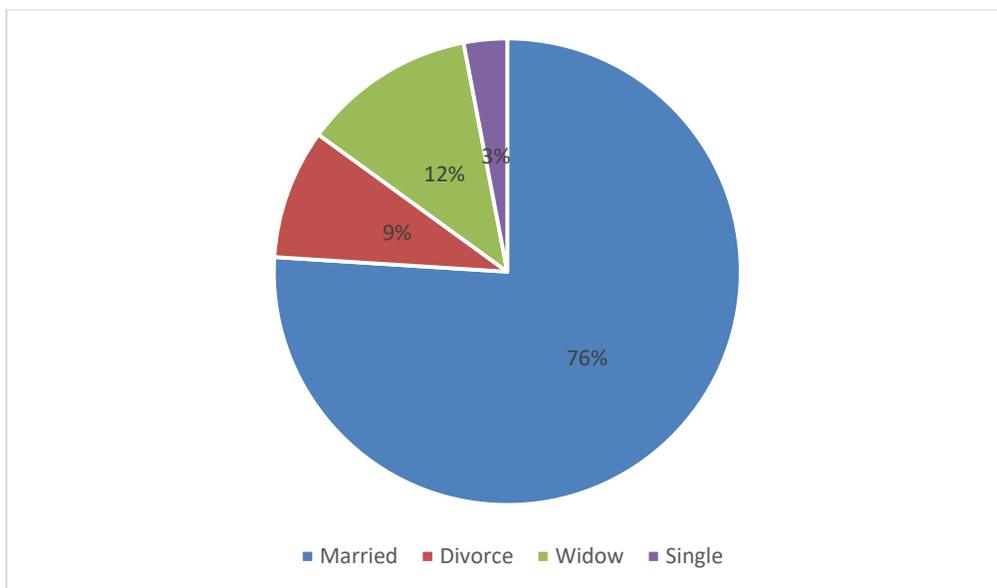


Figure 3: Marital Status of the Respondents

Table 1: Other characteristics of the Respondents

Family Setting	Frequency	Percentage (%)
Polygamous	234	62
Monogamous	146	38
Child's Place of Birth		
Government Hospital/Maternity Home	252	67
At Home	50	13
Private Hospitals/Clinic	61	16
Religious Centers	10	3
Others	5	1
Years as Married Mother		
1-5 years	162	43
6-10	110	29

The educational level of the women was collected and analyzed as shown in Figure 4. Most of the respondents (32%), had tertiary level education, despite the fact that a few, accounting for only 10% had primary education. This can be attributed to the two major institutions of higher learning found in Kebbi state - Federal University, Birnin Kebbi and Kebbi State University of Science and Technology, Alieru that are in close proximity to the study area. The result agrees with the findings of Bello and Daniel (2017), who stated that most of the women who brought their children for immunization in Bauchi State had tertiary education.

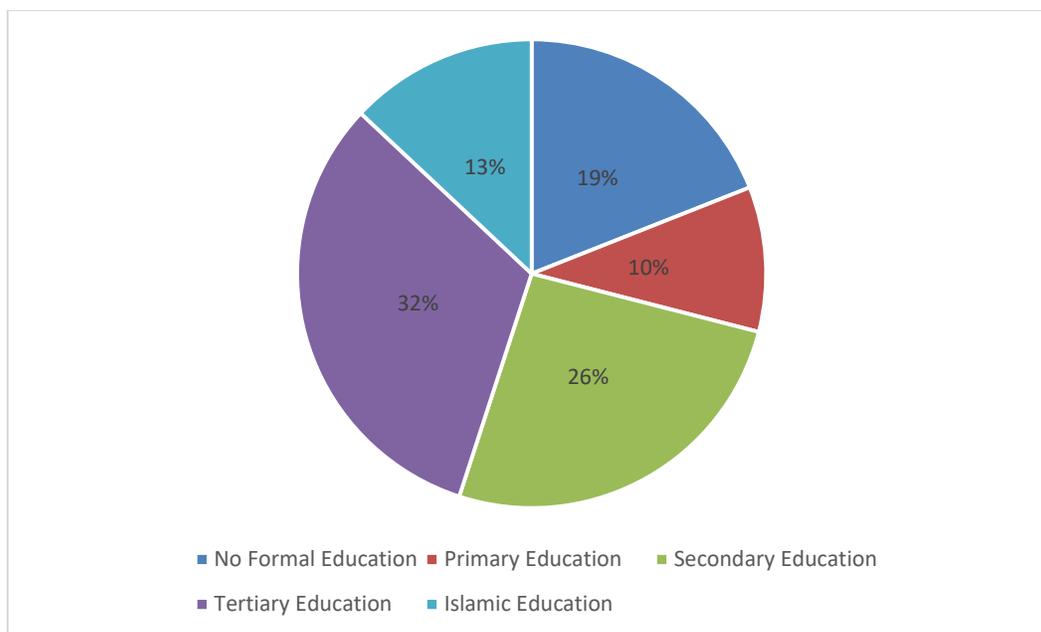


Figure 4: Educational Level of the Respondents

The information on the occupation of women was analysed using descriptive statistics and the result is presented in Table 2. From the table, it is evident that most of the respondents, accounting for 45%, were full-time housewives, while a few, accounting for just 2%, were into other professions. This is typical of a northern Nigerian settlement, where due to cultural belief, women were full-time house wives. The consequences of this, is that most of the women would have ample time to go for antenatal before child birth and immunization after delivery. These results disagree with the findings of Ogochukwu, Akabueze, Ezeome, Aniebue and Oranu (2017) who stated that most women who took their children for immunization were civil servants.

Table 2: Occupational Distribution of Respondents

Occupation	Frequency	Percentage (%)
Full-time House Wife	171	45
Business	61	16
Civil Service	48	13
Artisan	94	24
Others	6	2
Total	380	100

The monthly income distribution data of the respondents were acquired and analyzed. The result is presented in Table 3. It shows that most of the respondents (41%) earn below N10, 000 monthly, while few (5%) earn N40, 100 and above monthly. This could be attributed to the fact that most of the respondents were full-time house wives as shown in Table 2, which implies that a majority of them depended on the money given to them by their spouses, friends and relatives. The income also directly or indirectly contributed to how far a mother could go to immunize her child.

Table 3: Monthly Income Distribution of the Respondents

Income	Frequency	Percentage (%)
Below N10,000	157	41
N10,000 – N20,000	89	23
N20,100 – N30,000	49	13
N30,100 – N40,000	68	18
N40,100 and above	17	5
Total	380	100

Knowledge of Respondents on Routine Immunization

The respondent's knowledge of routine immunization was investigated and the result is presented in Table 4. It is evident from the table that most of the respondents (94%) have heard of routine immunization before, while a few, accounting for just 6% of the respondents, have not heard of routine immunization before. This can be attributed to the fact that majority of the respondents have tertiary education (Figure 3) and also fancy giving birth at government hospitals where immunization sensitization is carried out upon child delivery. Table 4 also revealed that most the respondents are knowledgeable enough when it comes to vaccine preventable childhood diseases as more than half of the respondents know poliomyelitis, measles, tuberculosis, yellow fever and tetanus are vaccine preventable diseases. This result is similar to the findings of Agboola *et al.* 2015) in south west Nigeria, who stated that most of the respondents were knowledgeable of vaccine preventable childhood diseases.

Table 4: Knowledge on Routine Immunization

Variables	Frequency	Percentage (%)
Knowledge of Routine Immunization		
Yes	358	94
No	22	6
Vaccine preventable childhood Disease		
Poliomyelitis	320	84
Measles	218	57
Tuberculosis	218	57
Yellow Fever	209	55
Tetanus	197	52
Hepatitis	165	17
Diphtheria	136	36
Pertussis	129	34
Acceptance of Routine Immunization		
Yes	323	85
No	57	15

Table 4 also revealed that majority (85%) of the respondents agreed that their children should be given the routine immunization, whereas a few (15%) refused their children to partake in routine immunization.

Test of Hypothesis

Ho: There is no significant relationship between mother's level of knowledge of routine immunization and acceptance of the vaccines. A cross tabulation using Chi-square analysis was carried out to determine the relationship between knowledge of routine immunization and acceptance of routine immunization. The result is presented in Appendix I. Since the calculated chi-square value of 10.390 is greater than the critical value of 3.841, and the P-value 0.001 is less than the significant level of 0.05 (Appendix I), the null hypothesis is rejected, meaning that there is a significant relationship between respondent's level of knowledge about routine immunization and acceptance of immunization vaccines, which implies that their acceptance of routine immunization was influenced by their knowledge about it.

The knowledge of the mother go a very long way in facilitating routine immunization for her child, as most women would likely not let their children partake in something they do not really know or are not sure about.

Perception of respondents towards routine immunization

Table 5 shows that most of the respondents (58%), perceive that routine immunization is used to protect children from certain diseases, whereas a few (8%) perceived it as a means of diverting public funds. The table also revealed that 94% of the women were of the opinion that routine immunization has no side effects, while 2% opined that it leads to infertility in children. Based on the aforementioned results, it is obvious that the respondents had positive perception of routine immunization. This can be attributed to the level of education and knowledge on routine immunization that the women have. The level of education of a woman goes a long way in determining how much she knows about immunization and on whether she would allow her child partake in it or not. This statement is further substantiated by the findings of Bello and Daniel (2017) in Bauchi State, who stated that the level of education of a mother is the all-encompassing factor influencing childhood immunization in the study.

Table 5: Perception of Respondents towards Routine Immunization

Reason for Routine Immunization	Frequency	Percentage
Means off diverting public funds	32	8
Part of modernization unnecessary for child's survival	52	14
A waste of time and resources	37	10
Fulfilling the wish of government and health care workers	39	10
Protecting children from certain diseases	220	58
Side effects of Routine Immunization		
Causes fever	15	4
Causes Infertility	8	2
No side effects	357	94

Conclusion

Based on the findings of the study, it is observed that the respondents are quite knowledgeable on routine immunization, which has transcended to positive perception towards routine immunization programme.

Recommendation

Based on the findings of this study, the following recommendations are made:

1. The Government should adopt and enforce compulsory antenatal session for pregnant women where they will be educated and enlightened about the merits of routine immunization.
2. The government, traditional and religious leaders of the area should be employed to educate the men on the importance of routine immunization. This will make them direct their women to take their children for routine immunization.
3. Government and NGOs should create community information center, for the purpose of public enlightenment about routine immunization.

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Appendix I

Respondents level of knowledge about routine immunization and the Acceptance of routine immunization

Knowledge and acceptance of Routine Immunization		Acceptance of Routine Immunization		Total
		Yes	No	
Knowledge of routine immunization	Yes	313	45	358
	No	10	12	22
	Total	323	57	380

Chi-square (X^2) = 10.390; Critical value = 3.841; Degree of freedom (df) = 1; P value = 0.001; Level of significance = 0.05