

Perception and Determinants of Caregivers Participation in Immunization in Rivers East Senatorial District, Nigeria

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Abstract

This study investigated the perception and determinants of caregivers' participation in immunization in Rivers East Senatorial District, Nigeria. The study adopted the descriptive research design with a population which consisted of three million, nine hundred and thirteen thousand, six hundred and eighty-three (3,913,683) persons in Rivers East Senatorial District. A sample size of 512 was selected using the multistage sampling procedure. Data was collected using a structured questionnaire with a reliability coefficient of 0.75 while analysis was carried out using percentage and chi-square. The result showed that, majority 488(97.6%) of the respondents had positive perception, high level of participation (99.4%). However, no statistically significant relationship was found between participation and other factors such as perception (X^2 -value = 0.61, $df = 1$, $p > 0.05$), religion (X^2 -value = 0.66, $df = 2$, $p > 0.05$), and age (X^2 -value = 3.58, $df = 4$, $p > 0.05$). It was concluded that caregivers in Rivers East senatorial district had positive perception towards immunization and a high level of participation in immunization. It was recommended that, public health practitioners should embark on community based interventions through proper counseling to clear every negative perception about childhood immunization arising from lack of information which influences its participation.

Keywords: Perception, Immunization, Participation, Rivers East

Introduction

Unresponsiveness to immunization among caregivers is detrimental to the health of children as it places them at a greater risk for contracting the child killer diseases for which the immunization programme was implemented. Participation in immunization has been proven to be one of the most successful and cost effective public health interventions against diseases that affect the wellbeing of children. The report of the World Health Organization (2016) global immunization coverage showed that at least 85% of children received three doses of diphtheria-pertussis-tetanus (DPT) vaccine with the number of children without routine immunization (RI) been 19.4 million globally. The majority (75%) of non-immunized children live in 10 countries, including

Nigeria (WHO, UNICEF World Bank, 2009). Globally, between 2 and 3 million deaths from vaccine-preventable diseases (VPDs) occur annually in children aged less than 5 years, mainly in Africa (Sinha, 2007). Although, Africa has made some progress in immunization services, large numbers of children remain unvaccinated and under-vaccinated. Report by the Federal Republic of Nigeria (2010) showed that, vaccine-preventable diseases such as pneumonia, diarrhea, and measles account for about 40% of all deaths among children less than 5 years of age in Nigeria. Only a quarter of eligible children in Nigeria receive all recommended vaccinations as shown in the Nigeria Demographic and Health Survey of 2013 while the NDHS of 2018 showed that less than a quarter (21%) of eligible children had received all age-appropriate vaccinations, showing a decrease in the immunization rate in Nigeria (National Population Commission, 2018). This is well below the 90% level of coverage recommended by the World Health Organization (WHO, 2014) for the sustained control of vaccine-preventable diseases through immunization.

Immunization is the process of protecting an individual from a disease especially by giving an injection or a vaccine. Vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains agents that stimulate the body's immune system to recognize pathogen as foreign and destroy it (WHO, 2017). These vaccines help to stimulate the body's own immune system to protect the person against subsequent infection or disease. According to Omotara et al. (2012), adequate routine immunization is administered against childhood killer diseases such as: Diphtheria, Chickenpox, Yellow Fever, Tetanus, Measles, Whooping Cough, Poliomyelitis, Tuberculosis, and Cerebrospinal Meningitis. Immunization is crucial in the control and elimination of these life threatening diseases. However, it is worthy of note that these children who are highly dependent require the participation of their caregivers to be immunized thus, the perception of the caregivers towards immunization is very important for them to participate.

A caregiver is one who takes care of a child, it can be the parent or even a guardian who is responsible for the care of a child. Caregivers differ in their perception about immunization. Perception (from the Latin *perceptio*, meaning gathering or receiving) is the organization, identification, and interpretation of sensory information in order to represent and understand the presented information (Schacter, 2011). It is the way in which a thing is regarded, understood, or interpreted. Relating it to immunization, it can be referred to as the way care givers regard, interpret or understand immunization. According to Anyabolu (2016), caregivers might likely refuse to bring their children to health facilities if they have a negative perception about the side effects of vaccination. Negative perception was reported by Oluwadare (2009) who revealed that, there was a wide spread perception that polio vaccine prevents all diseases; this lead to judge immunization ineffective when a child has any other diseases such as Malaria. However, Kennedy et al. (2011) stated that, an aspect of immunization with controversial perceptions was regarding the safety of vaccine components. This perception might be because of some of the immediate side effects observed in children who are immunized.

It is also worthy of note that the perception of caregivers alongside other factors could determine the participation of care givers in immunization. Determinants as used in this study are factor that could influence an action. Concerning caregivers participation in immunization, such factor could be their knowledge about immunization, level of education, religion, age and even socio-

economic status. Socio-economic status which is indicative of a caregivers' financial capabilities, in a way can determine their participation because, in some cases, they will need to pay transportation, buy card, and medications needed to calm down the fever or pains arising from the vaccination. The report from the Nigeria Demographic and Health Survey (2018) showed that, children from households in the highest wealth quintile were more likely to receive all basic vaccinations than those from households in the lowest wealth quintile (59% and 15%, respectively). Adegboyega and Abioye (2017) substantiated that, vaccines are usually procured by the Federal Government with the support of donor organizations such as the Global Alliance for Vaccines and Immunization (GAVI). Though these vaccines are supplied free to the states' primary health care development agencies, indirect costs of immunization due to logistics and illegal charges by health workers at the health facility level, limit vaccine availability to users and daunt the participation of the caregivers. However, the socio-economic status notwithstanding, if the care givers are knowledgeable about immunization, they may likely make extra effort to ensure they participate.

Religion has a very strong force determining the participation of individuals in healthcare. Ojikutu (2012) found that, caregivers' religion had influence on their participation immunization. Similarly, Oluwadare (2009) found that, religion was a significant determinant of caregivers' participation in immunization in Nigeria where Christians had 24.2% and Muslims had 8.8% coverage of immunization even though overall knowledge on immunization was good. This is because, some individuals hold a strong commitment to their religion and are not ready to engage in certain things even what has been proven to be true, provided it is against their religious belief. Thus, the religious controversies regarding health care, has been a major factor influencing their participation, including the immunization of their wards or children. Some may even be well educated but still, live under the influence of their religion.

On the other hand, the age of the caregiver cannot be excluded in examining the determinant factors for participation in immunization. The study of Adegboye et al. (2013) showed that, participation in immunization increased with increase in caregivers age; children of older mothers had higher chance of being immunized than those of younger mothers. In the same vein, Abdulkarim, (2012) stated that, caregivers differ in their level of participation in the immunization of their children against childhood killer diseases based on their age with the older ones participating more than the younger care givers. The teenage mothers are often considered as under-age girls, and more often than not give birth to their children out of wedlock, because of this anti-social behaviour and the way some adults look at them with disapproval, many of such under-age single mothers may feel shy to present their children at hospitals and health centres for immunization. This is even worse if the health care facility for the immunization is not accessible.

Evidence suggests that more caregivers in Rivers State are declining to participate in the immunization programme due to perceived safety and effectiveness of the vaccines. This could be concretized by previous report which showed a lower rate of caregivers' participation in immunization in Nigeria, with Rivers State been among the first three categories of States having the lowest vaccination coverage among children. From the aforementioned, the researchers were prompted to carry out this study from their field experiences during visit to non-compliant

families to find out why they refused their children been immunized but were chased out with a cutlass by the head of household. This scenario gave much concern to the researchers to investigate the perception of caregivers towards immunization and the factors that determine their participation in immunization. Hence, this study sought to investigate the perception and determinants of caregivers' participation in immunization in Rivers East Senatorial District.

Research Questions

The study provided answers to the following research questions:

1. What is the perception of immunization among caregivers' in Rivers East Senatorial District?
2. What is the level of participation of caregivers in the immunization of their children in Rivers East Senatorial District?
3. What is the relationship between educational status and level of participation of caregivers in the immunization of their children in Rivers East Senatorial District?
4. What is the relationship between age and level of participation of caregivers in the immunization of their children in Rivers East Senatorial District?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between perception about immunization and participation of caregivers in the immunization of their children in Rivers East Senatorial District.
2. There is no significant relationship between educational status and participation of caregivers in the immunization of their children in Rivers East Senatorial District.
3. There is no significant relationship between age and participation of caregivers in the immunization of their children in Rivers East Senatorial District.

Methodology

The study adopted the descriptive research design with a population which consisted of 3,913,683 persons in Rivers East Senatorial District. A sample size of 512 was selected using the multistage sampling procedure which involved three stages. At the first stage, simple random sampling technique was used to select four Local Government Areas which included: Ikwerre, Emohua, Omuma and Etche LGAs. At the second stage, the proportionate stratified sampling technique was used to determine how many respondents to be selected from each of the chosen LGAs as shown in the table below and at the third stage, simple random sampling technique was used to select the determined number of respondents from each of the LGAs. Data was collected using a structured questionnaire with a reliability coefficient of 0.75 while analysis was carried out using percentage and chi-square.

Results

The results of the study were presented below:

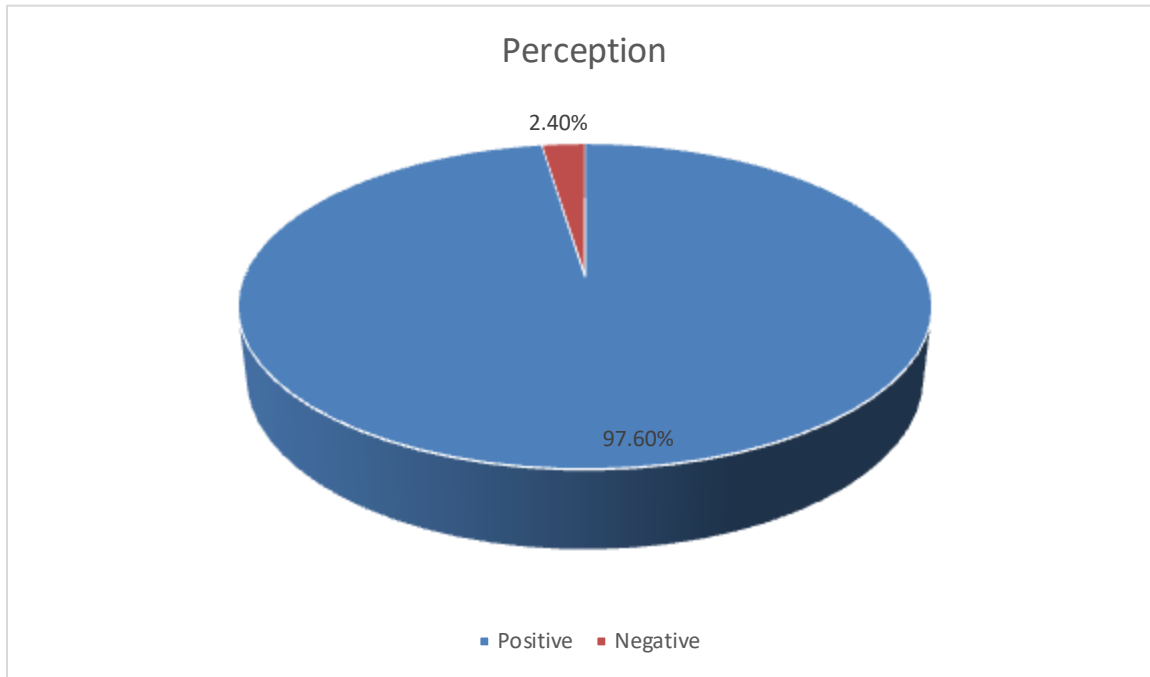


Fig 1: Pie chart showing percentage distribution of the perception about immunization among caregivers

Fig 1 showed the pie chart of caregivers' perception about immunization. The result showed that, majority 488(97.6%) of the respondents had positive perception while 12(2.4%) had negative perception. Thus, caregivers in Rivers State had positive perception towards immunization.

Table 1: Level of participation of caregivers in the immunization of their children

SN		Yes F(%)	No F(%)	Decision
1	Ensured that child was given BCG at birth	500(100)	0(0.0)	High
2	Child given Hepatitis B vaccine within the first 24 hours of birth	500(100)	0(0.0)	High
3	Ensured child was given the second dosage after the 4 th week	490(98.0)	10(2.0)	High
4	Child was immunized against polio after the 6 th week	500(100)	0(0.0)	High
5	Ensured child was given the second dosage of polio on the 8 th week	10(2.0)	490(98.0)	High
6	Ensured child was immunized with Penta vaccine on the 6 th week	500(100)	0(0.0)	High
7	Ensured child was immunized with measles and rubella vaccine at 9-12 th months	490(98.0)	10(2.0)	High
8	Ensured that child was immunized completely	500(100)	0(0.0)	High
	Overall	497(99.4)	3(0.6)	High

Table 1 showed the level of participation of caregivers in the immunization of their children. The result showed that overall, the respondents had high level of participation (99.4%). All the respondents ensured that their children were immunized completely, given BCG at birth, given Hepatitis B vaccine within the first 24 hours of birth, and immunized with Penta vaccine on the 6th week. Thus, caregivers in Rivers State had a high level of participation in immunization of their children.

Table 2: Chi-square test showing relationship between perception about immunization and participation of caregivers in the immunization of their children

Perception	Participation		Total	df	X ² -value	p-value	Decision
	High F(%)	Low F(%)					
Positive	478(98.0)	10(2.0)	488(100)	1	0.25	0.61*	Not rejected
Negative	12(100)	0(0.0)	12(100)				
Total	490(98.0)	10(2.0)	500(100)				

*Not significant, $p > 0.05$

Table 2 showed the Chi-square test of relationship between perception about immunization and participation of caregivers in the immunization of their children. The result showed that there was no significant relationship (X^2 -value = 0.61, $df = 1$, $p > 0.05$). Thus, the null hypothesis which stated that there is no significant relationship between perception about immunization and participation of caregivers in the immunization of their children in Rivers State was not rejected.

Table 3: Chi-square test showing relationship between educational status and participation of caregivers in the immunization of their children

Educational status	Participation		Total	Df	X ² -value	p-value	Decision
	High	Low					
	F(%)	F(%)					
None	39(100)	0(0.0)	39(100)	3	1.64	0.65*	Not rejected
Primary	73(97.3)	2(2.7)	75(100)				
Secondary	196(98.5)	3(1.5)	199(100)				
Tertiary	182(97.3)	5(2.7)	187(100)				
Total	490(98.0)	10(2.0)	500(100)				

***Not significant**

Table 3 showed the Chi-square test of relationship between educational status and participation of caregivers in the immunization of their children. The result showed that there was no significant relationship (X²-value = 1.64, df = 3, p>0.05). Thus, the null hypothesis which stated that there is no significant relationship between educational status and participation of caregivers in the immunization of their children in Rivers State was not rejected.

Table 4: Chi-square test showing relationship between age and participation of caregivers in the immunization of their children

Age	Participation		Total	df	X ² -value	p-value	Decision
	High	Low					
	F(%)	F(%)					
20-24yrs	37(100)	0(0.0)	37(100)	4	3.58	0.46*	Not rejected
25-29yrs	106(97.2)	3(2.8)	109(100)				
30-34yrs	89(98.9)	1(1.1)	90(100)				
35-39yrs	66(95.7)	3(4.3)	69(100)				
≥40yrs	192(98.5)	3(1.5)	195(100)				
Total	490(98.0)	10(2.0)	500(100)				

***Not significant, p>0.05**

Table 4 showed the Chi-square test of relationship between age and participation of caregivers in the immunization of their children. The result showed that there was no significant relationship (X²-value = 3.58, df = 4, p>0.05). Thus, the null hypothesis which stated that there is no significant relationship between age and participation of caregivers in the immunization of their children in Rivers State was not rejected.

Discussion of Findings

The result in Fig 1 showed that, majority 488(97.6%) of the respondents had positive perception while 12(2.4%) had negative perception. Thus, caregivers in Rivers State had positive perception towards immunization. This finding is not surprising because the campaign to eradicate the ten (10) childhood killer diseases by the World Health Organization (WHO) through the National Programme on Immunization (NPI) heightened the dissemination of information on childhood immunization making it almost a daily affair on television stations, radio jingles and posters in hospitals and health centers and the subsequent influence on the perception of the caregivers. The findings of this study corroborate that of Birhanu et al. (2016) where more of the respondents were found to have positive perception towards immunization. The finding of this study is also in line with that Ramadan et al. (2016) where majority of the respondents were found to have positive perception towards immunization. The similarity in the study design used in the previous and present study could explain for the similarities found between them. Although the result showed some level of negative perception, there is the need for continuous efforts in sensitization of caregivers about immunization in the communities to stave the outbreak of preventable diseases in the country.

The result showed that overall, the respondents had high level of participation (99.4%). This finding is expected as in recent time the State Government made concerted effort in providing immunization consumable and in promoting maternal and child health in the study area, this might be implicated for the high level of participation found in the study. The finding of this study is similar to that of Tagbo et al. (2012) which showed that majority of the respondents immunized their children. The findings of this study corroborates that of Vonasek et al. (2015) which showed that majority of the respondents' children received age-appropriate and on-time childhood immunizations. Also, the finding of this study is in keeping with that of Bofarray (2008) who found that more than half of the mothers studied completely immunized their children. The finding of this study is similar to that of Chen (2008) who noted that, recently over two million deaths are delayed through immunization each year worldwide because mothers take their children for immunization. However, the finding of this study differs from that of Adedokun (2017) who found that 96.3% of the children were not completely immunized. In contrast, the finding of this study differs from that of Mugada et al. (2017) which showed that children were partially immunized. The difference in the sample size and study area might be implicated for the variations found between the present study and the previous ones.

The result showed that there was no significant relationship between perception about immunization and participation of caregivers in the immunization of their children (X^2 -value = 0.61, df = 1, $p > 0.05$). This finding is not surprising because the campaign to eradicate the ten (10) childhood killer diseases by the World Health Organization (WHO) through the National Programme on Immunization (NPI) heightened the dissemination of information on childhood immunization making it almost a daily affair on television stations, radio jingles and posters in hospitals and health centers and the subsequent influence on the perception towards immunization among the caregivers which in turn has influenced the participation of the caregivers. The findings of this study is at variance with that of Tagbo et al (2012) where it was found that mothers perception towards immunization influenced their participation and there is a

relatedness between perception and participation in immunization among caregivers. The similarity in sample size and target population might be implicated for the similarities found in the present study and previous ones.

The result showed that there was no significant relationship between educational status and participation of caregivers in the immunization of their children (X^2 -value = 1.64, df = 3, $p > 0.05$). The finding of this study is surprising because education which helps to enlighten people in vast health issues is supposed to have been related to participation in immunization. The findings of this study is also not in agreement with that of Birhanu (2016) where it was reported that there was a relationship between immunization and education status. This variation found might be due to the difference in the sample size and study locations.

Conclusion

Based on the findings of the study, it was concluded that caregivers in Rivers East senatorial district had positive perception towards immunization and a high level of participation which was determined by the age of the caregivers.

Recommendations

Based on the findings of the study, the following recommendations were put forward:

1. Though the perception found in this study was positive, very few were also found to have negative perception hence, health professionals should sustain their effort to promote the childhood immunization through the different mass media, this will help to conquer the very few with negative perception.
2. Public health practitioners should embark on community based interventions through proper counseling to clear every negative perception about childhood immunization arising from lack of information which influences its participation.
3. The Federal Ministry of Health should establish a Childhood Immunization Section Support Groups, so that on discharge from hospitals or clinics, caregivers would be referred to them for proper orientation on the need for childhood immunization.

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