

Caregivers Preference Source of Information about Childhood Immunization in Zamfara State, Northern Nigeria

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Abstract

The study investigates the relationship between caregivers' preferred mediums of information about immunization and childhood immunization coverage in Zamfara state, Northern Nigeria. Primary data was collected from 200 caregivers from KauraNamoda, Bakura and Gusau local government areas of the state using a semi-structured interviewer administered questionnaires. The data was analyzed using descriptive statistical tools and Binary Logistic regression models. The descriptive result shows that most of the caregivers were between the age of 31 and 50 years (70%) with 96 (48%) having secondary school certificate (high school) has their highest level of education, about 98 (49%) and 23 (12%) preferred information from their traditional and religious leaders respectively, while 20 (10%) preferred information through town criers, 40 (20%) preferred information from the State's Radio stations, 6 (3%) through text messages, 5 (3%) through health workers, 5 (3%) through family and 2 (1%) through television. Results from Binary Logistic regression also reveal a positive relationship between these preferred mediums of information about immunization and a potential increase of childhood immunization coverage with a positive coefficient (0.91) that is statistically significant at 5% with a P-Value of 2.52%. This shows that people from this place have more believed and respect for their traditional institutions which are the custodian of culture in these places so culture is been respected in these areas. Therefore, there is a need for policy makers to have more collaboration with traditional institutions during implementation of immunization programmes. The study also shows that media especially radio (20%) can also play an important role in disseminating of information on immunization in these communities. So, in implementing a holistic program on immunization traditional institution (traditional leaders, religious leaders and town criers) with local radio stations should be targeted for information dissemination in order to improve immunization coverage in the State.

Keywords: Caregivers, Immunization, Immunization Coverage, Medium of Information.

Introduction

Poor communication between health workers and mothers about immunization can significantly contribute to rejection of vaccinations [1]. According to Edwin [2], some of the reasons for Nigeria's persistent low immunization coverage rates include poor

selections of medium of communication to caregivers and mothers' lack of adequate knowledge of the health benefits of immunization for their children, thereby leading to low confidence and lack of trust, especially in the Northern Nigeria. Meanwhile, communication about immunization requires

more than the message itself but the channels through which the message is communicated to caregivers.

Technology today has brought about a long list of mediums of communication such as Mobile phones, Radios and Televisions in both urban and rural areas [3]. In addition to technological devices, the rural areas especially in the northern Nigeria still retain other mediums such as town announcers, traditional leaders (emirs and district heads) and religious leaders for getting reliable, trusted and dependable information [2]. Kaura Namoda, Bakura and Gusaw are among the three communities or senatorial zones of Zamfara state for which this study is conducted in regards to their most preferred source or medium of information about childhood immunization. The majority of tribes in the state are the Hausa, Fulani, and Hausa/Fulani. From the angle of religion, about 99% are followers of Islamic faith [3]. According to Murele et al [5] the people of Zamfara state values their traditions, norms, and cultural values among others. Ejemai, and Fiammelta [6] are of the view that the people living in the rural communities of Zamfara state give high regards to information whether about healthcare, education and elections that comes from traditional and religious leaders than other sources. Considering the fact that technology has brought different means of faster information disseminations, when it comes to communicating plans of immunization programs by health worker to mothers or caregivers in those communities, the following questions arise:

It is no longer a myth that the art of effective communication is one of the determinants or factors that strengthen routine immunization uptake. This is because it is one of the critical factors that influence the attitudes of caregivers to vaccination as well as their interactions with healthcare providers. Ejemai, and Fiammelta [6] is of the view that the reactions of mothers to healthcare

professionals largely depends on the nature of the communication that takes place between caregivers and the providers of care. Consequently, the causes of low vaccine use must be understood and addressed to increase people's demand for immunization services. Tailored strategies are necessary for understanding and overcoming barriers to vaccination, particularly gender-related barriers of caregivers and health workers to accessing immunization services. The MICS 2021 report indicates that Nigeria's immunization coverage moved from 33% to 57% in the last 5 years. 18% of children between 12-23 months did not receive any form of vaccination, with the highest percentage (61%) found in the Northwestern region of the country. Efforts have been made by different researchers to fully understand the factors associated with the poor immunization status of Nigeria and other low-resource countries [7, 8]. It is estimated that each year about 20 million infants do not receive a full course of basic vaccines, and many more miss out on newer vaccines, out of these, over 13 million receive no vaccines through immunization programs [9]. Outbreaks of measles and vaccine-derived polioviruses are stark reminders that strong immunization programs and effective disease surveillance are necessary to sustain high levels of coverage and to eliminate and eradicate diseases. Studies examined the historical and political context of northern Nigeria, where some parents opposed vaccinations of their children due to lack of trust in government interventions [5]. The hesitant parents have exercised fears in Western countries to reduce their predominantly Muslim populations through the administration of contaminated vaccines pushed to "sterilize" their children [5, 10].

Adedire [11] argued that in Osun State, southwest Nigeria, some parents have a good knowledge of the benefits of vaccination but oppose vaccines due to ethno-religious

reasons. Abdulraheem et al [12] observed that a loss of public confidence in a vaccine due to rumors of real or spurious adverse events could jeopardize well-planned immunization programs, including public health campaigns leading to potentially disastrous consequences. Abdulraheem et al [12] also observed that loss of public confidence in a vaccine due to rumors of real or spurious adverse events could jeopardize well-planned immunization program, including public health campaigns leading to potentially disastrous consequences. In Nigeria, for instance, about two decades ago, there were rumors that the oral polio vaccine (OPV) being used for the global polio eradication initiative (GPEI) could lower the fertility of young girls [5, 12]. This rumor spread across most northern states of Nigeria, resulting in the suspension of polio vaccination campaigns for almost a year [12]. Of all the obstacles captured in the reviewed literature above, neither the list nor the most preferred medium of information by caregivers about immunization considered a challenge and that is the gap this study seeks to cover.

Materials and Methods

The study was a community based cross-sectional utilizing both quantitative and qualitative data collection approach, conducted in three communities from the three senatorial zone of Zamfara state namely Kaura Namoda, Bakura and Gusau. Data was collected from 200 caregivers through a semi-structured interviewers' administered questionnaire and FGD.

Binary Logistic regression model and descriptive statistical tools was used for data analysis. The first research question was analyzed using descriptive statistics while Binary Logistic regression model was applied for the second research question.

Traditionally, when primary data is used where the dependent variable is in the form of YES or NO, Logit regression model is the right statistical tool for hypotheses test [13]. Binary Logistic Regression models how binary response variable Y depends on a set of k explanatory variables, $X = (x_1, x_2 \dots x_k)$. $\text{Logit}(\pi) = \log(\pi_1 - \pi) = \beta_0 + \beta x_1 \dots \beta_{kk}$ which models the log odds of probability of "success" as a function of explanatory variables. Random component: The distribution of Y is assumed to be Binomial(n, π), where π is a probability of "success". Systematic component: X 's are explanatory variables (can be continuous, discrete, or both) and are linear in the parameters, e.g., $\beta_0 + \beta x_1 \dots + \beta_0 + \dots \beta_{kk}$.

Results and Discussions

The first part of this section presents descriptive statistics of respondents (Caregivers) in terms of socio-demographic findings (age distribution and level of education). The second part shows the frequencies and percentages of the most preferred mediums of information about childhood immunization services by caregivers in descriptive forms. The third part, provides the output summary of Binary Logistic regression.

Table 1. Age Distribution of Parents

| Age | Frequency | Percentage |
|-------|-----------|------------|
| 11-20 | 0 | 0 |
| 21-30 | 28 | 14 |
| 31-40 | 72 | 36 |
| 41-50 | 68 | 34 |
| 51-60 | 16 | 8 |
| 61-70 | 16 | 8 |

| | | |
|-------|------------|------------|
| 71-80 | 0 | 0 |
| | 200 | 100 |

Source: Computed by the Author Using Excel

Table 1 shows the age distribution of caregivers. The table revealed that none of the caregivers is less than 20 years. We have 28 (14%) of the caregivers between the age of 21

and 30 years but most of them are between the age of 31 and 50 years (70%). Only 32 (16%) were above 50 years.

Table 2. Caregiver Level of Education

| Education | Frequency | Percentage |
|-----------------|------------|------------|
| Non-formal | 0 | 0 |
| Primary | 8 | 4 |
| Quranic/Islamic | 52 | 26 |
| Secondary | 96 | 48 |
| Tertiary | 44 | 22 |
| | 200 | 100 |

Source: Computed by the Author Using Excel

Table 2 shows that all the caregiver had formal education, out of which 8 (4%) had primary school has their highest level of education, while 52 (26%) had Quranic school has their highest level of education and 96 (48%) had secondary school has their highest level of education. 44 (22%) of the caregiver had tertiary school has their highest level of education

Preferred Medium of Information about Childhood Immunization by Caregivers

Table 3 and Figure 1 show the outcomes of the most preferred medium of information about childhood immunization by the caregivers in all of the communities (KauranNamoda, Bakura, and Gusau) of Zamfara state.

Table 3. Preferred Medium of Information about Childhood Immunization by Caregivers

| Medium of Information | Frequency | Percentage |
|-----------------------|-----------|------------|
| Radio | 40 | 20% |
| Television | 3 | 1.5% |
| Text Messages | 6 | 3% |
| Family | 5 | 2.5% |
| Health Workers | 5 | 2.5% |
| Town Announcers | 20 | 10% |
| Traditional Leaders | 98 | 49% |
| Religious Leaders | 23 | 12% |
| Total | 200 | 100% |

Source: Computed by the Author Using Excel

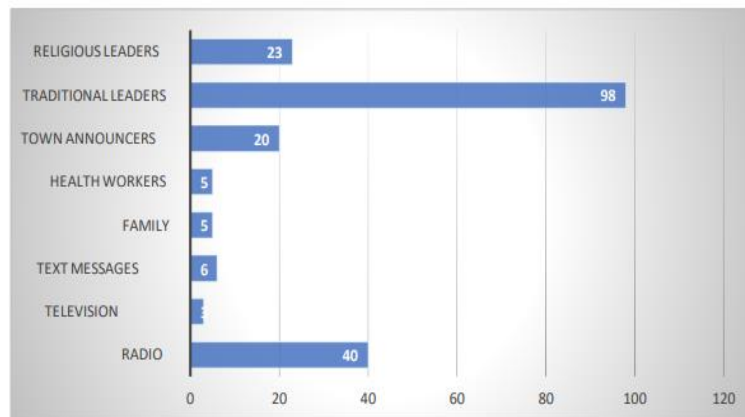


Figure 1. Preferred Medium of Information about Childhood Immunization by Caregivers

Source: Computed by the Author Using Excel

Table 3 and figure 1 shows that the 98 (49%) of the caregivers preferred traditional leaders as source of information about childhood immunization services, while 40 (20%) preferred radio as medium of information and 23 (12%) preferred as the medium of information. 20 (10%) preferred information about childhood immunization through town criers, 6 (3%) through test messages, 5 (3%) through health workers, 5

(3%) through family and 2 (1%) through television.

Results from Logistic Regression

This section provides the summary of Logistic regressions results for the hypothesis which stated that ‘there is no relationship between the medium of information and childhood immunization coverage in Zamfara State, Northern Nigeria.

Table 4: Medium of Information and Immunization and Coverage

| Dependent Var: Childhood Immunization (<i>Allchdim</i>) | | | | | | | |
|---|--------|-----------|-------|-----------|------|--------|--|
| Variable | Coef | P-Value | Slope | Predicted | P(E) | t-Sig | |
| Const | 2.1972 | 0.0219*** | -- | 0.1 | 0.9 | 0.0011 | |
| Infochim | 0.9101 | 0.0252** | 0.35 | 0.9 | 0.1 | 0.0001 | |

Source: Computed Using Gretl, V14

The results in table 4 shows a positive relationship between medium of information about immunization (*infochim*) and childhood immunization. In other words, *infochim* has a positive coefficient (0.91) that is statistically significant at 5% (**) with a P-Value of 2.52% which is greater than 1% but lower than 5%. This indicates that there is a positive relationship between *Infochim* and Childhood Immunization. Therefore, the null hypothesis is rejected. The result (0.35) indicates that for every 1% increase of engaging traditional leaders, state’s Radio stations and religious leaders as medium for disseminating

information about immunization services, will lead to a 35% increase of coverage likelihoods of the targeted population. The error probability P(E) of the results if committed will not be more than 10% (0.1) out of 100% accuracy as suggested by the results.

Discussion

The study investigates the relationship between caregivers’ most preferred medium of information about childhood immunization and childhood immunization coverage in Zamfara State, Northern Nigeria. The descriptive statistical results shows that 98

(49%) of the caregivers preferred traditional leaders as source of information about childhood immunization services, while 40 (20%) preferred radio as medium of information and 23 (12%) preferred as the medium of information. 20 (10%) preferred information about childhood immunization through town criers, 6 (3%) through test messages, 5 (3%) through health workers, 5 (3%) through family and 2 (1%) through television, this implies that caregivers most preferred source of information about immunization are traditional leaders, State's Radio station (media) and religious leaders. Binary Logistic regression revealed a positive and significant relationship between the most preferred mediums of information about immunization and potential larger coverage in regards to childhood immunization. It indicates that for every 1% increase of information dissemination through the preferred media these will lead to a 35% coverage likelihood of successful immunization service. This increase in coverage agrees with the research of Endurance A. et al in his study of current trends of Immunization in Nigeria: Prospect and Challenges. Galadima A N et al [14] in his systemic review of immunization uptake by parents in Africa shows that (parents) caregiver preferred medium of information on immunization services is traditional and religious leaders.

These caregivers who's source of information is from the traditional leaders in the community shows poor knowledge of immunization benefits, and therefore, with no strict adherence to vaccination schedules. This promoted the incomplete immunization of some of the children in the community. This situation may be attributed to the source of information because most traditional/religious leaders do not have comprehensive knowledge on immunization services benefits. This finding supports similar ones from Dauda M. M [15] on socio-demographic factors

associated with childhood vaccination Status in Sokoto Nigeria, Galadima A N et al [14] in Zamfara Nigeria and Kitamura et al. [16] in Lao People's Democratic Republic of Congo.

This study is in contrast with the study of Samuel E. D et al [17] in Ghana where he found the media (television, radio etc) to be the most preferred way of communicating information to the caregiver about immunization. The study of Jude N Tuma [18] on caregiver attitudes and beliefs associated with compliance to childhood immunization in Bamenda, Cameroon also found media to be the most preferred medium of information on childhood immunization.

This study shows the trust, reliability and confidence these communities have on their traditional and religious leaders and information move faster through this medium

As rightly stated by Ejemai, and Fiammelta [7] that it is not about the message but the messenger and it is not about the information but where the information comes from, he argued that the medium of passing the information about immunization is one of the principal determinants of caregivers' attitudes towards accepting or rejecting the vaccines in large scale. Also narrated that to improve childhood immunisation uptake in African countries with poor coverage rates we need to increase the medium of information.

Meanwhile, if there is the need for increasing coverage of childhood immunization services in the Northern Nigeria, all stakeholders involve are encourage to facilitate additional medium of information to the targeted population group(s).

Conclusion

Immunization is a shared responsibility involving community, healthcare service providers, policy makers, and caregivers who are active participants in the process. Effective communication at different levels and consideration of factors especially at the receiver end is essential to strengthen routine

immunization uptake. Finding from the study shows that 98 (49%) of the caregivers preferred source of information about childhood immunization services is from their traditional leaders. This is followed by radio information 44 (22%) and religious leaders 23 (12%). This implies that the communities in Zamfara state, Northern Nigeria uphold traditional and religious institutions as a reliable and trusted source of information. In order to increase childhood immunization coverage in the Northern Nigeria, it is important that the policy makers have more collaboration with the traditional and religious institutions especially in the area of dissemination of information to the caregivers. Radio message should also be emphasized, although these messages should be prepared by healthcare service provider who has comprehensive knowledge about childhood immunization

Recommendations

1. Despite increase growing numbers of technically advanced medium of information. In Zamfara state, Northern Nigeria the most preferred medium to be exploited in passing information regarding

immunization should be through the traditional and religious leaders such as Emirs, community heads, district heads, Imams among others depending on the leadership structure and size of the community.

2. There should be more collaboration with states radio stations in passing information about immunization services, because it is easy and more accessible in most of the communities in Zamfara state, Northern Nigeria.

Conflict of Interest

This is an independent work that is neither supported nor influenced by any associated institutions and is a part of PhD thesis project. The authors have no financial involvement with any organizations with the subject matter or materials discussed in the manuscript apart from those disclosed. The authors declare that they have no competing interests.

Acknowledgment

The authors are immensely grateful to all the participants for their active participation and contribution in completing this study.

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