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Effect of Gender Preference for Healthcare Services Providers by Caregivers on Immunization Coverage in Zamfara State, Northern Nigeria

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Abstract

The study examines the effect of gender preference for healthcare services providers by caregivers (parents and guardians) on immunization coverage in Zamfara state, Northern Nigeria. Primary data was collected from 200 caregivers from Kaura Namoda, Bakura and Gusau local government areas of the state using a semi-structured questionnaire administered by the interviewers. The data was analyzed using descriptive statistical tools and Binary Logistic regression models. The variables include preference for male healthcare providers, preference for female healthcare providers, and immunization coverage. The descriptive result shows that about 198 (99%) of the 200 caregivers preferred female healthcare providers, and only 2 (1%) are indifferent which means they have no particular gender preference. Results from Binary Logistic regression reveal a positive relationship between female healthcare providers and a potential increase of childhood immunization coverage and a negative relationship between male healthcare providers and a potential increase of childhood immunization coverage in those communities. In conclusion, to increase immunization coverage in Zamfara State, female healthcare providers should be prioritized over male healthcare providers.

Keywords: *Caregivers, Female Healthcare Providers, Immunization Coverage, Male Healthcare Provide.*

Introduction

The difference between actual and potential coverage of childhood immunization is a worrying situation in the Northern part of Nigeria. This gap is an indication of barriers to immunization services that are known or unknown. According to Ejemai, Saye and Fiammelta [1], they are of the view that one of the factors that negatively affect immunization coverage in northern Nigeria is the large-scale rejection of male healthcare providers in Hausa/Fulani communities. Although available literature has adequately identified other obstacles that contract immunization coverage in the North, which include caregivers' wrong perceptions of the vaccines as slow killer poising, a trap for causing infertility, fear of adverse events following immunizations, and limited information about immunization among others. However, the relationship between the gender of healthcare providers and childhood immunization coverage has not been captured empirically [2]. Zamfara is one of the states in Northern Nigeria and 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]. Going by their traditions, norms, and cultural values among others, their social ways of life do not allow free entry into their homes especially by an adult male who is not

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biologically related to them [3]. This is not the case when it comes female gender irrespective of their ages. In other words, the female gender has little or no restriction on entering their homes even if they do not share a biological relationship [4].

Research Objective

To investigate the preferred healthcare service provider gender by caregiver and its effect on childhood immunization coverage in Zamfara State. Northern Nigeria.

Research Questions

1. What is the most preferred gender of healthcare providers in immunization services by caregivers in Zamfara State, Northern Nigeria?
2. What is the relationship between the gender of healthcare providers and childhood immunization coverage in Zamfara State, Northern Nigeria?

Null Hypotheses

3. There is no preferred gender of healthcare providers in immunization services by caregivers in Zamfara State. Northern Nigeria?
4. There is no relationship between the gender of healthcare providers and childhood immunization coverage in Zamfara State. Northern Nigeria?

Alternate Hypotheses

5. There is a preferred gender of healthcare providers in immunization services by caregivers in Zamfara State. Northern Nigeria?
6. There is a relationship between the gender of healthcare providers and childhood immunization coverage in Zamfara State. Northern Nigeria?

Literature Review

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 multiple indicator cluster survey (MICS) 2021 report indicates that Nigeria's immunization coverage moved from 33% to 57% in the last 5years. 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 [5, 6].

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 (Immunization Agenda IA2030, 2021). 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 [7, 8]. 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 [6,8].

Likewise, Elizabeth B argued that in Osun State, southwest Nigeria, some parents have a good knowledge of the benefits of vaccination but oppose vaccines due to ethnoreligious reasons [9]. Abdulraheem et al, observed that a loss of public confidence in a vaccine due to rumours of real or spurious adverse events could jeopardize well-planned immunization

programs, including public health campaigns leading to potentially disastrous consequences [10].

Abdulraheem et al, also observed that loss of public confidence in a vaccine due to rumours of real or spurious adverse events could jeopardize well-planned immunization programs, including public health campaigns leading to potentially disastrous consequences [10].

In Nigeria, for instance, about two decades ago, there were rumours that the oral polio vaccine (OPV) being used for the global polio eradication initiative (GPEI) could lower the fertility of young girls [6, 10]. This rumour spread across most northern states of Nigeria, resulting in the suspension of polio vaccination campaigns for almost a year [10]. Of all the obstacles captured in the reviewed literature above, the gender preference of healthcare providers by caregivers was not 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 approaches, conducted in three communities from the three senatorial zones of Zamfara state namely Kaura Namoda, Bakura and Gusau. Data was collected from 200 caregivers through a semi-structured interviewers' administered questionnaire and focus group discussion (FGD).

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

Binary Logistic Regression models how binary response variable *Y* depends on a set of k explanatory variables, $X = (x_1, x_2 \ldots x_k)$. Logit($\pi$)= $\log(\pi_1 - \pi) = \beta_0 + \beta x_1 \ldots \beta_{kk})$ 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.,$\beta_0 + \beta x_1 \ldots + \beta_0 + \cdots \beta_{kk}$.

Results and Discussions

The first part of this section presents descriptive statistics of respondents (Caregivers) in terms of gender distribution, age, and level of education. The second part shows the frequencies and percentages of gender preferences of healthcare providers by the caregivers as well as in descriptive form. It is also a section that answers the first research question, objective, and hypothesis. The third part of this section provides the output summary of Binary Logistic regression which also answers the second research question, objective, and hypothesis.

Table 1. Age Distribution

	Caregivers		**Decision makers**	
Age	**F**	**%**	**F**	**%**
11-20	24	12	0	0
21-30	104	52	28	14
31-40	72	36	72	36
41-50	0	0	68	34
51-60	0	0	16	8
61-70	0	0	16	8

71-80	0	0	0	0
	200	**100**	**200**	**100**

Source: Computed by the Author Using Excel

Table 1 shows the age distribution of caregivers and that of decision-makers among them with either accept or reject immunization for their children. Of the caregivers, about 24 are between the ages of 11 and 20, about 104 are between the ages of 21 and 30 and 72 are between the age of 31 and 40. This implies that all the caregivers are not more than 40 years of age in those communities. As for the decision makers (husbands or family heads) about 28 are between the ages of 21 and 30, about 72 and between the ages of 31 and 40, about 68 are between the ages of 41 and 50 while 16 are between the ages of 51 and 60 and 61 and 70 respectively.

Table 2. Caregiver Level of Education

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

Source: Computed by the Author Using Excel

Table 2 shows that about 44 of the caregivers have Tertiary education which implies that they also have Secondary and Primary School certificates. About 96 have Secondary education, which also implies that they have Primary education certificates. Only 8 out of the 200 have attended Primary education. It also shows that about 52 have Islamiya or Quranic education as well. By implication, caregivers cannot be regarded or described as having educational backwardness.

Table 3. Gender Distribution (Healthcare Providers and Caregivers)

	Healthcare P		**Caregivers**	
Gender	F	%	F	%
MALE	38	63	6	3
FEMALE	22	37	194	97
	60	100	200	100

Source: Computed by the Author Using Excel

Table 3 shows the number of male and female healthcare providers and caregivers who participated in the study. Out of the sixty (60) healthcare providers, 38 (63%) are male while 22 (37%) are female. On the other hand, out of the two hundred (200) caregivers, about 3% are male while 97% are female. The statistics imply that the male gender are more than their female counterparts among healthcare providers while among the caregivers, the female gender are more than their male counterparts. This is also depicted in figure 1 and Figure 2.

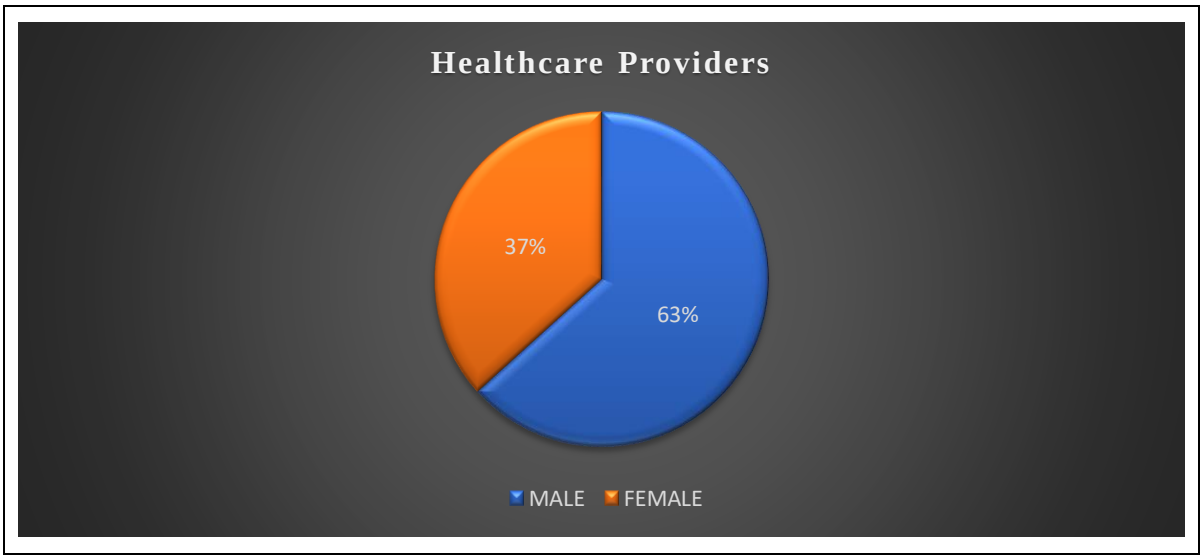

Figure 1. Gender Distribution of Healthcare Providers

Source: Computed by the Author Using Excel

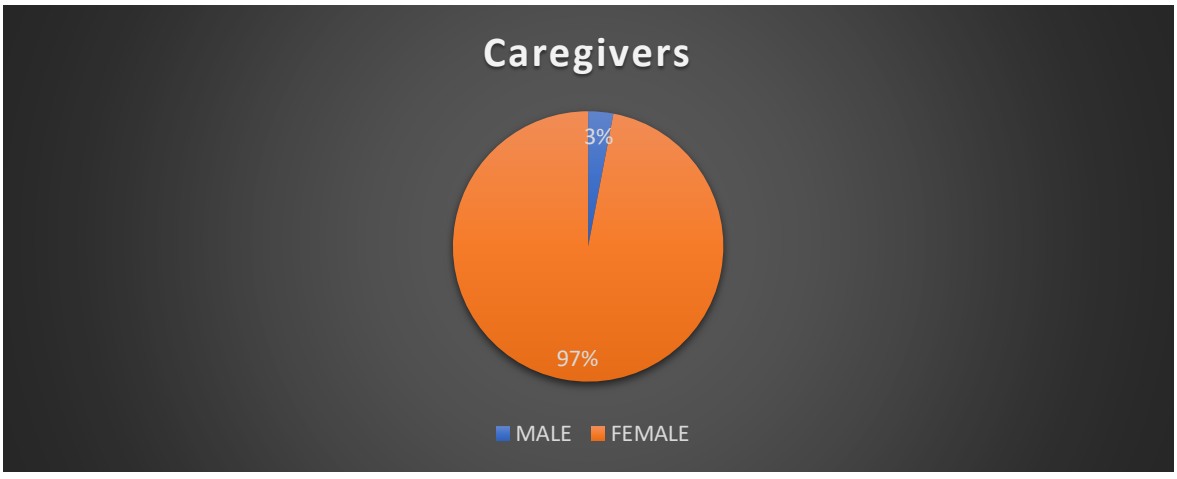

Figure 2. Gender Distribution of Caregivers

Source: Computed by the Author Using Excel

Gender Preference

Table 4 and Figure 3 show the outcomes of gender preference of healthcare providers by the caregivers in all the communities (Kaura Namoda, Bakura, and Gusau) of Zamfara state.

Table 4. Gender Preference of Healthcare Providers by Caregivers

Gender Preference	**Frequency**	**Percentage**
Male	0	0
Female	198	99%
Indifference	2	1%
TOTAL	**200**	**100%**

Source: Computed by the Author Using Excel

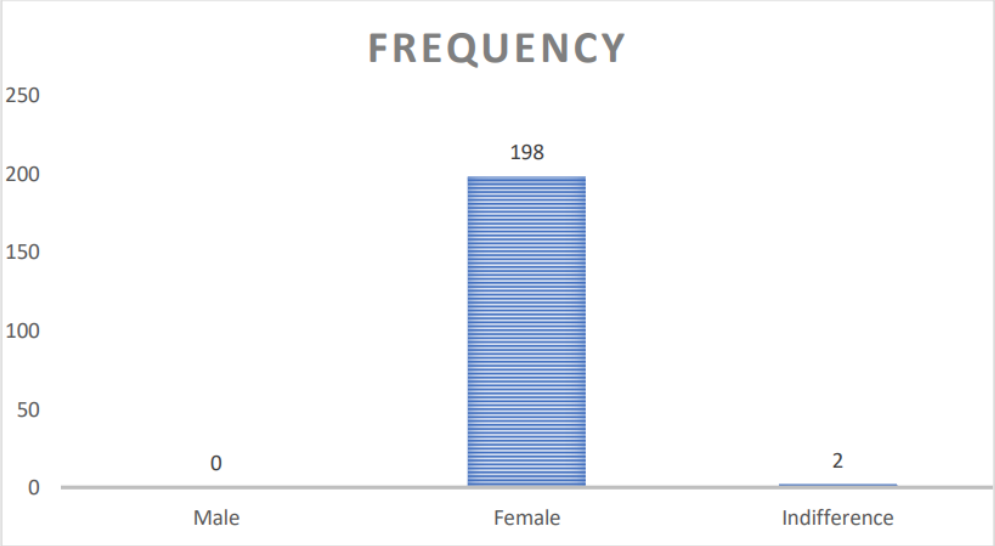

Figure 3. Gender Preference of Healthcare Providers by Caregivers

Source: Computed by the Author Using Excel

Table 4 and Figure 3 shows that about 198 (99%) of the 200 caregivers preferred female healthcare providers, and only 2 (1%) are indifferent which means they have no particular gender preference. Based on the results presented above, it can be concluded that the most preferred gender between male and female healthcare providers is female.

This section provides an answer to the question of whether or not there is a relationship between the Gender of healthcare providers and Childhood immunization coverage in the selected communities of Zamfara State, Nigeria. It also answers the second objective and hypothesis respectively.

Table 5. Gender of Healthcare Provider and Childhood Vaccination

Dependent Var: Childhood Immunization (*Allchdim*)						
Variable	Coef	P-Value	Slope	Predicted	P(E)	t-Sig
Const	2.1601	0.0211***	--	0.1	0.9	0.0011
Perform	0.9813	0.0252**	0.35	0.9	0.1	0.0001
Permmwim	-0.9901	0.0351**	-0.71	0.9	0.1	0.0001

Source: Computed Using Gretl, V14.

Inferential Results

Table 5 shows that there is a relationship between the gender of healthcare providers and Childhood immunization coverage. However, going by one relationship in terms of gender (Male or Female) of healthcare providers, there is a positive relationship between female healthcare providers and the potential increase in Childhood immunization coverage. On the other hand, there is a negative relationship between male healthcare providers and the potential increase of Childhood immunization coverage in those communities.

Going by the numeric values in Table 5, the coefficient of preference for female healthcare providers (Permfwim) to administer vaccines is positive (0.98) and it is statistically significant at 5% (**) with a P-Value of 2.52% which is greater than 1% but lower than 5%. On the other hand, the coefficient of preference for male healthcare providers (Permmwim) to administer vaccine is negative (-0.99) and it is statistically significant at 5 %(**) with a P-Value of 3.51.

Furthermore, the slope of the equation for the variable Permfwim (0.35) implies that every new selection of one female healthcare provider will lead to a 35% likelihood of increasing coverage. On the other hand, the negative slope (-0.71) associated with Permmwim implies that every additional selection of one male healthcare provider will lead to about 71% rejection of immunization projects in those communities.

The results by implications suggest that in all future immunization projects in such communities, the female gender should be given more emphasis on the task of interacting with and administering immunization vaccines. The large-scale rejection of male healthcare providers to administer immunization vaccines in all communities is not by happenstance or spontaneous. When it comes to gender selection of healthcare providers, females should not be less than 98%.

Discussions

Out of the sixty (60) healthcare providers involved in immunization services in the health facilities, 38 (63%) are male while 22 (37%) are female. The statistics imply that the male gender is more than their female counterparts among healthcare providers. This is in agreement with the study of Dauda M. M [8] on immunization coverage in Sokoto State, Northern Nigeria where he also found male healthcare providers in immunization services to be 68% and female healthcare providers involved in immunization services to be 32%.

The descriptive result shows that 198 (99%) of the 200 caregivers preferred female healthcare providers in immunization services, while only 2 (1%) were indifferent on who provides immunization services in the health facilities, which means they have no particular gender preference. Results from Binary Logistic regression reveal a positive relationship between female healthcare providers and a potential increase of Childhood +immunization coverage and a negative relationship between male healthcare providers and a potential increase of Childhood immunization coverage in those communities. The research shows that there is a relationship between the gender of healthcare providers and Childhood vaccination. On one relationship, there is a positive relationship between Female healthcare providers and Childhood vaccination as well as a negative relationship between Male healthcare providers and Childhood Vaccination. This is in line with most of the studies carried out in the northern part of Nigeria where there is cultural restriction between the interaction of men and woman who are not related. This could have affected the utilization of health facilities which have predominantly male staff by women who are mostly the caregivers to

children in the household. The study of Dauda M. M [8] on immunization coverage in Sokoto shows the same result. The by Antai, D. [5] on rural-urban inequities in childhood immunization in Nigeria also shows the preference for female healthcare providers by the community in immunization services.

Conclusion

The study concluded that Caregivers preferred female healthcare providers to provide immunization services for their children than male healthcare providers. This may be enrooted in the cultural and religious beliefs among the people of these communities where the interaction of women with men who are not related by blood or marriage is disallowed.

Recommendations

1. In providing immunization services in the state, policymakers should prioritize female healthcare providers for increased immunization coverage.
2. We also recommend that policymakers should recruit and train more female healthcare providers to increase the number of female healthcare providers in immunization services
3. Male healthcare providers can be involved in handling logistics during immunization services, but vaccination should be done by female healthcare providers

Conflict of Interest

This is an independent work that is neither supported nor influenced by any associated institutions and is a part of a 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.

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