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Perceived Barriers to Childhood Immunization among Parents and Caregivers in Yobe State, Nigeria

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Abstract

Introduction: Immunization remains one of the most cost effective and efficient public health interventions used in the control and prevention of Vaccine Preventable Diseases (VPDs), thereby reducing childhood morbidity and mortality. Despite its availability and accessibility due to the investment made by the Nigerian Government and other international organizations, immunization coverage continues to remain below the national coverage in some Northern States in Nigeria. This paper investigates the barriers to immunization in Yobe State, which is among the states with lowest immunization coverage in the country.

Method: A cross -sectional study using mixed method research which comprises of household survey, Focus Group Discussions (FGDs) and Key Informant interviews (KIIs) were carried out in the study. Using a multi- stage sampling technique, Local Government Areas, Wards, and households were selected and a total of 439 respondents were recruited for the quantitative phase of the study and data were obtained using structured questionnaires. Parents and caregivers were purposively selected for FGDs while religious leaders, community leaders and healthcare workers were selected for the Key Informant Interviews. Quantitative data obtained were analyzed using SPSS version 26, while qualitative data were analyzed using Delve software for qualitative data Analysis.

Results: Findings of the study show that barriers such as lack of knowledge and awareness about immunization, fear of side effects, family opposition and religious and cultural beliefs are the reasons why many parents and caregivers are not immunizing their children in the study areas. Other barriers such as lack of health facilities, transportation cost and past negative experience are also identified in the study.

Conclusion: Findings in the study showed the need for innovative strategies for creating awareness and educating parents and caregivers on the importance and benefits of immunization and collaboration between community leaders, religious leaders, and other stakeholders towards addressing the identified barriers to improve immunization uptake and coverage in the study areas.

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1.Introduction

Immunization is one of the lifesavings, cost-effective and essential public health interventions which has helped in reducing child morbidity and mortality all over the world for many decades. It was estimated that immunization saves about 2-3 million children each year, however despite its effectiveness and availability many low- and-middle-income countries continue to

observe and fall short of the World Health Organization target of 90% coverage rate of the three doses DPT in each country (Mahachi, *et al*., 2022) [14].

Nigeria remains among the countries facing a significant challenge of low immunization coverage. It is estimated that out of the 14.5 million children with zero or missed dose globally in 2023, Nigeria holds the largest share of burden of zero dose and unimmunized children of an estimated 2.1 million children (Mohammed, *et al*., 2024) [16]. According to the World Health Organization (WHO) and United Nations Children's Fund (UNICEF), nearly 60% of the 14.5 million children that did not receive any vaccines are concentrated in ten countries which includes, Nigeria, India, Indonesia, and others. it is also estimated that approximately 15% of child deaths are attributed to Vaccine Preventable Diseases (VPD's) which also contributes to 40% of under-five mortality in Nigeria (Abdulwali , *et al*., 2025) [4].

Due to the challenges of low immunization uptake and coverage in Nigeria, routine immunization was declared a public health emergency by the National Primary Healthcare Development Agency (NPHCDA), this development led to the establishment of National Routine Immunization Coordination Centers (NERICC) in all low performing states and LGA's. Governments at all levels also continues to strengthen their health system, expand cold chain capacity, improve data quality, and introduce new vaccines to improve low coverage and reduce morbidity and mortality due to Vaccine Preventable Diseases (VPD's) (Mahachi, *et al*., 2022) [14]**.** Federal and state governments have also collaborated with development partners such as Gavi, the vaccine alliance, and the United States Agency for International Development (USAID) and others which has led to significant progress towards improving coverage. However, despite progress made the current coverage rate is still below the WHO target (Mohammed, *et al*., 2024) [16].

In Nigeria, immunization is provided free of charge through the National Programme on Immunization (NPI). Nevertheless, vaccine-preventable diseases (VPDs) continue to contribute significantly to under-five morbidity and mortality in the country. According to the 2021 Multiple Indicator Cluster Survey (MICS), one in ten children die before the age of five and that 64% of Nigerian children aged 12–23 months did not receive all the required vaccines. The rates of unvaccinated children were much higher in northern Nigeria and compared to the southern parts of the country. Coverage in Northern Nigeria is particularly low due to multiple interlinked factors including poverty, maternal illiteracy, misinformation, religious resistance, and challenges in vaccine logistics and cold chain management. (Eno-Obong , *et al*., 2024) [10].

The North-East geopolitical zone in Nigeria comprises states such as Borno, Yobe, Adamawa, Taraba, Gombe, and Bauchi state. Yobe State, as one of the northeastern states, has been disproportionately affected by insurgency, internal displacement, and widespread poverty which has affected accessibility to health and immunization services across the state. Yobe State has consistently recorded low routine immunization coverage. According to the Nigeria Demographic and Health Survey (NDHS, 2018), only 12.4% of children aged 12–23 months in Yobe State were fully immunized, compared to 49.6% in some South-Western states.

Numerous interventions by governmental and non-governmental bodies have attempted to address this issue. For example, in 2012 the Bill and Melinda Gates Foundation (BMGF) and Aliko Dangote Foundation (ADF) have signed Memorandum of Understanding (MoU) with six northern states (Kano, Yobe, Bauchi, Kaduna, Borno, Sokoto) to strengthen routine immunization and address challenges. The objective of this collaboration is to enhance service delivery, improve vaccine supply and logistics, address human capacity building and community trust and demand for routine immunization and Primary Healthcare services in the states (Eno-Obong , *et al*., 2024) [10].

Despite the huge investment by the donors and partner states, improving vaccination coverage remains a major challenge. The persistently low uptake suggests that these programs may not adequately consider the sociocultural, economic, and perceptual barriers parents face. Studies have shown that factors such as misconceptions about vaccine safety, fear of side effects, religious or traditional beliefs, lack of awareness, and mistrust in health systems contribute to vaccine hesitancy and refusal. Additionally, logistical constraints such as distance to health facilities, poor road infrastructure, and stock-outs of vaccines further impede access.

There is a dearth of comprehensive, context-specific studies that explore these barriers from the perspectives of parents and caregivers in Yobe State. Without this understanding, public health interventions may continue to be misaligned with the realities on the ground. This study aims to bridge that gap by exploring the perceived barriers to childhood immunization among parents in Yobe State. Findings from this study will not only inform local policies but also contribute to national and regional strategies aimed at improving childhood immunization coverage in Nigeria and similar settings.

1.1. Research Question

What Are the Barriers Parents That Are Facing When Immunizing or Intend to Immunize Their Children in Yobe State, Nigeria?

1.2. General Objectives

The general objective of the study is to investigate the barriers that parents are facing when immunizing or intend to immunize their children in Yobe state, Nigeria

1.3. Specific Objectives

The specific objectives of the research were:

1. To determine the level of knowledge and awareness about childhood immunization among parents in Yobe state, Nigeria.
2. To determine the attitudes and beliefs towards childhood immunization among parents in Yobe state, Nigeria.
3. To investigate how access and service delivery serve as a barrier to childhood immunization among parents in Yobe state, Nigeria.
4. To identify other forms of perceived barriers to childhood immunization among parents in Yobe state, Nigeria.

2. Methods

2.1. Study Design

A cross-sectional study using mixed methods was carried out during the study. This comprises household surveys, Focus Group Discussions (FGD) and Key Informant Interviews (KII). The qualitative interviews conducted in the study were used in explaining the results of the quantitative data collected to get more insight and understand the barriers to immunization identified in the study. A convergent (Concurrent) mixed methods design was used and both quantitative and qualitative data were collected in parallel, at the same period. Integration of the quantitative and qualitative data was carried out during data interpretation. Quantitative data was presented first and qualitative was used to further explain and support the findings of the qualitative results.

2.2. Study Area

Yobe state is one of the six northeastern states in Nigeria. The state has 17 Local Governments Areas (LGA's) sharing borders with states such as Jigawa, Bauchi, Gombe and Borno states. The projected population of Yobe State based on 2006 National Population Census population growth rate is 3, 749, 600 in 2024 (Abdulhamid, *et al*., Correlates of Uptake of Routine Immunization amongst Under-Five Children: Comparison of Nomadic and Non-nomadic Fulani in Yobe State, Nigeria, 2025) [2].Yobe faces numerous challenges including high poverty rates, insecurity from insurgency, limited access to health facilities, and poor immunization coverage. The state's health indices, particularly for maternal and child health, remain among the lowest in Nigeria. These factors make it an appropriate setting for examining perceived barriers to childhood immunization.

The three selected Local Government areas for the study in Yobe state are namely: Damaturu, Potiskum and Yusufari.

Damaturu is the state capital and Administrative Headquarters of Yobe state, Nigeria. According to the 2006 national census, the Local Government Area (LGA) has a population of 87,706 which a projected population of 137,900 in 2022. The LGA is a multi- ethnic and cultural city which constitutes of mostly civil servant, businessmen and women and farmers. Damaturu has the highest number of primary, secondary, and tertiary health and educational institutions in the state. The Yobe State Specialist Hospital, Yobe State Teaching Hospital, Police Ultra- Modern Hospital, Yobe State University, Federal Polytechnic, School of Nursing and Midwifery and many more are all located there.

Potiskum is the second largest local Government area located in Zone "B" Yobe state. It is one of the most populous and fastest growing City in the state with an estimated population of 360,679 in 2026. The Population mostly consists of farmers, businessmen and women and civil servants. The native language in the LGA consisst of Karai- Karai, Ngizim, Bolewa and Hausa- Fulani. The LGA also have Primary health care centers in almost all its wards, the Specialist Hospital Potiskum and other training institutions such as Almuarif College of Health sciences, Federal College of Education and College of Administration, Management and Technology.

Yusufari is one of the seventeen (17) local government areas located in Zone "C" in Yobe state. According to the 2006 population census, the LGA has a population of 111,086 with a projected population of approximately 174,100 in 2022. The population mostly consists of Farmers and hearder, businessmen and women and it is widely known for its Desert and sand dunes. The LGA has a specialist hospital and some Primary health centers in some of its wards.

2.3. Study Population

The study population for the quantitative data collection consists of parents and caregivers of children aged five years or below during the data collection. For the qualitative data, parents and caregivers of children aged five years or below are selected for Focus Group Discussions (FGD) and Traditional leaders, religious leaders, Health workers and community Influencers are selected for Key Informant Interviews (KII).

2.4. Sample Size Calculation

The required sample size for the study was calculated based on single proportion population formula with the assumption of 5% margin error(d), 95% Confidence Interval (Z) and the immunization coverage of 49% based on 2021 MICS & NICS. The total calculated sample size for the study was 384, it was adjusted to 450 considering a 15% non-response rate to accommodate missing values and errors in data entry.

2.5. Sampling Technique

A multi- stage cluster sampling technique was used to select LGA's, wards and respondents in the study area. The following stages were followed in the selection process.

Stage 1: Three LGAs i.e., Damaturu, Potiskum and Yusufari were purposively selected to represent urban, semi-urban, and rural contexts.

Stage 2: Within each selected LGA, two wards were randomly selected. The two selected wards in each local government are Damaturu LGA- Nayinawa and Kalallawa, Potiskum – Danchuwa and Garin Daye, Yusufari- Guya and Kachallari.

Stage 3:Wards were visited and households with eligible parents/caregivers were selected using systematic random sampling.

Stage 4: One eligible respondent was selected, and a questionnaire administered.

Stage 5: Parents/ caregivers are selected purposively for Focus Group Discussion in each of the visited LGA.

Stage 6: Traditional leaders, religious leaders and Health workers were invited for Key Informant Interview (KII) in each of the selected LGA.

2.6. Instruments

Structured questionnaires: The structured questionnaire for the study was adapted from WHO Vaccine Hesitancy Survey Tool. It covers five (5) sections, which include Socio-demographic characteristics, knowledge of immunization, attitudes, and beliefs, access and service accessibility, and perceived barriers.

Focus Group Discussion Guides: A Focus Group Discussion guide was also adapted with questions on

knowledge about immunization, barriers to immunization, accessibility and service delivery, religious and cultural beliefs, and strategies on improving coverage.

Key Informant Interview Guide: Key informant guide questions were developed with questions regarding immunization uptake and coverage rates, barriers to immunization, vaccine availability and accessibility and strategies for improving uptake and coverage in the communities.

2.7. Training and Data Collection

Data for the study were collected by trained research assistants divided into teams. They were recruited and trained on both quantitative and qualitative data collection and analysis prior to the study. Each team has a leader who is responsible for ensuring accurate data is collected by members while all teams are monitored and supervised by two field supervisors, research assistants were also trained as moderators, note-takers, and technicians. Teams also comprises both male and females to ensure gender inclusion and collect data in accordance with the cultural norms of the communities.

Quantitative data were first collected in every community following stage 3 and 4 of the sampling techniques. Written consent forms were signed and collected from the participants after reading the study information sheets. Structured questionnaires were then distributed and answered by the respondents in each households selected.

Focus Group Discussions were conducted by selecting parents and caregivers in the communities using purposive sampling. Both verbal and written consent and attendance were collected and recorded from participants in the FGDs conducted. The trained moderator, note- takers and technician ensured that the FGDs were conducted according to the guidelines of conducting Focus Group Discussion and the designed guides. Debriefings and meetings were also carried out to discuss emerging themes and key observations were identified to improve in subsequent data collection.

Key Informant Interviews were conducted by inviting traditional leader religious leaders, health workers, community influencers and immunization officers. Verbal consents were asked and recorded from all participants of the study. The interviewers and note takers also ensured that the KIIs were conducted in accordance with the guidelines of conducting KII and all data collected is recorded and kept confidential.

2.8. Data Analysis

Quantitative data collected in the study was analyzed using SPSS Version 26. Socio-demographic and Socioeconomic variables and other collected data relating to knowledge, attitudes and beliefs about immunization were analyzed using descriptive statistics such as Frequencies and percentages.

Qualitative data for the study were analyzed using Delve software for qualitative data analysis. The data collected were first transcribed, reviewed by researchers and uploaded to Delve software for analysis. Different responses were coded based on the questions asked and categorized into themes, then collated together to make bigger themes. Similar themes were also merged and collated together by identifying either same issues, idea, or topics. Repeating same process all codes were made into themes and bigger themes.

2.9. Ethical Consideration

This study was approved by the Research and Ethics Committee, Maryam Abatcha American University, Maradi, Niger Republic. Permission to conduct the study was obtained from relevant authorities in the study areas and both verbal and written consents were received from the participants prior to data collection. Respondents were also briefed on the purpose of the study and their right to withdraw their participation at any time without any consequences. All participants were assured that their identity is anonymous and data confidentiality was strictly maintained throughout the study.

3. Results and Discussions

This section presents and discusses on the survey results and the qualitative feedings in both the conducted Focus Group Discussion (FGD's) and Key Informant Interviews (KIIs) in the study. The result of the survey is presented and discussed on before the qualitative findings to complement and explain the findings in more detailed and logical way.

3.1. Background and Respondents' Characteristics

Table 1. below shows the demographic characteristics of participants in the conducted survey of the study. A total of 439 parents and caregivers were interviewed with a 97.5% response rate. Of these 439 parents and caregivers, 30.5% are equal to or above 35years, 27.6% are within the age range of 30-34 years, while 21.2% are within the ages of 20-24 years at the time of the study. Majority of the participants include 87.0%(N=382) females, and 13% males. The results also shows that 96.6%(N=424) of participants are married, 2.7%(N=12) are divorced while 0.7% (N=3) are widowed. The results in table 1 below shows that majority (N=183, 41.7%) of the participants in the study have Islamic education, 29.4% (N=129) have no formal education while 13.7% (N=60) have secondary education. The results of parents and caregivers' occupation shows that majority 52.4%(N=230) are businessmen and women, 23% (N=101) are housewives while 15%(N=66) are farmers. Majority of the participants (N=235, 53.5%) get less than N10,000 Naira as their monthly income in the study areas.

Total of 8 FGD's and 21 KII's were conducted across the selected LGA's and wards in the state as shown in table 2 below. A total of 70 respondents comprising of both males and females participated in the Focus Group Discussions while 21 respondents comprising of male, and females participated in the Key Informant Interviews conducted (KII's).

Table 3 below shows FGD respondents background and characteristics. The results shows that majority 39.4% (N=28) of the parents and caregivers are within the age of greater than or equal 30 years of age. The results also show that 41.7% (N=183) have Islamic education while 24.6(N=17) have no formal education. All respondents are Muslim by religion and majority 37.7% (N=26) have three (3) children less than or equal 5 years of age.

Table 1: Demographic Characteristics of Participants

Variables	Frequency	Percentage %
Age		
15-19 Years	7	1.6
20- 24 Years	93	21.2
25-29 Years	84	19.1
30-34 Years	121	27.6
≥ 35 Years	134	30.5
Gender		
Male	57	13.0
Female	382	87.0
Marital Status		
Married	424	96.6
Divorced	12	2.7
Widowed	3	.7
Educational Level		
No Formal Education	129	29.4
Primary	57	13.0
Secondary	60	13.7
Tertiary	10	2.3
Islamic Education	183	41.7
Occupation		
Farmer	66	15
Handwork/Tailor	33	7.5
Business	230	52.4
Civil Servant	5	1.1
Housewife	101	23.0
Driver	1	.2
Laborer	1	.2
Teacher	2	.5
Monthly Income		
< 10,000 Naira	235	53.5
10,000 – 30,000 Naira	125	28.5
30,000 - 50,000 Naira	39	8.5
>50,000 Naira	40	9.1

Note: (N=439)

Table 2: Qualitative Interviews by Participant type

Type of Participants	Type of Interview	Number of Interviews	Number of Participants	Gender
Mothers	FGD	6	53	Female
Heads of Households	FGD	1	7	Males
Fathers and Mothers	FGD	1	10	Mixed
Community Heads	KII	21	21	Mixed
Ward Development Committee Chairman				
Female Community Influencers				
Religious Leaders				
Healthcare Workers				
Total		29 (8 FGDs, 21 KIIs)	91	

Table 3: FGD respondent Background and Characteristics

		Respondent's background and Characteristics	
	Variables	**Frequency**	**Percentage**
Location	Nayinawa	17	24.6
	Kalallawa	10	14.5
	Danchuwa	11	15.9
	Garin Daye	10	14.5
	Guya	10	14.5
	Kachallari	11	15.9
Age of Respondents	15-19 Years	1	1.4
	20- 24 Years	13	18.3
	29-25 Years	8	11.3
	30-34 Years	19	26.8
	≥ 35 Years	28	39.4
Marital Status	Married	67	97.1
	Divorced	2	2.9

		Respondent's background and Characteristics	
Religion	Islam	69	100
Occupation	Farmer	6	8.7
	Handwork/Tailor	7	10.1
	Business	38	55.1
	Civil Servant	1	1.4
	Housewife	16	23.2
	Teacher	1	1.4
Educational Level	No Formal Education	17	24.6
	Primary	11	15.9
	Secondary	5	7.2
	Tertiary	2	2.9
	Islamic Education	34	49.3
Number of Children	1	15	21.7
	2	22	31.9
	3	26	37.7
	>3	6	8.7

3.2. Participants Knowledge of Immunization

The results of the participants' knowledge of immunization are presented in table 4 below. The results shows that majority 95.1%(N=421) heard about childhood immunization and the main sources of information about immunization are Health workers (46.9%, N=300) community leaders (19.6%, N=125) and from family and friends (13.9%, N=89). This result is consistent with the findings by (Dudu & G. Onokerhoraye, 2018) [9] which reported that an extremely high proportion of participants (96.4%) have heard of immunization. They reported that such results are not surprising as most people are expose to immunization messages by the State Ministry of Health through campaigns as encouraged by the Expanded Programme on Immunization (EPI). Similarly, (Abdulwali , *et al*., 2025) [4] in their study reported that participants demonstrated above-average level of knowledge about routine immunization as about 65.3% of respondents can accurately identify the purpose of immunization in the study. they attributed the high level of knowledge to the collaborative efforts by Nigerian government and international organizations such as World Health Organization (WHO), and UNICEF which have worked together in implementing extensive public health campaigns aimed at raising awareness about immunization in many communities.

The results in table 4 below shows that majority (55.1%, N=242) of the parents and caregivers have knowledge of diseases immunization prevents as most of them list diseases such as measles, typhoid, whooping cough as diseases that they knew vaccine prevents. Others, 18.7% (N=82) listed diseases such as hepatitis, tuberculosis, and measles. Most of the parents and caregivers 74.7%(N=328) also knew the age at which a child receives first vaccine. This finding is consistent with (Raji, *et al*., 2019) [20] which reported that most respondents knew that immunization prevents children from life- threatening diseases, however their findings on the age at which a child receives his first vaccine is inconsistent with this study. In their study, they reported that only one-fifth of the participants in the study knew when a child receives his first dose of vaccine. Less than one-fourth of the study participants also knew immunization schedule.

Lack of knowledge and awareness of when a child's vaccination commences or receives first dose may cause delay in initiation leading to serious concern. Lack of knowledge of routine immunization also leads to reduced access to services, low immunization coverage and child dropout (Raji, *et al*., 2019) [20]t. Below are some responses regarding knowledge of immunization by parents and caregivers in the conducted Focus Group Discussions (FGDs).

"Vaccines prevent children from diseases such as measles, polio, whooping cough and others (P1, Garin Daye)"
"It protects children from diseases such as yellow fever, polio and others, and when immunization is given to children, almost all childhood diseases can be prevented" (P1, Kachallari).

Above responses from parents show that they knew the importance and benefits of immunization and the diseases that can be prevented through immunizing children. This shows that the parents and caregivers are aware of immunization and how beneficial it is to their children's health.

Table 4 below shows parents and caregivers responses on whether children who are not vaccinated were at risk of diseases, and the effectiveness of vaccines in preventing diseases. The results shows that majority 75.9%(N=333) of the parents and caregivers believe that children who were not vaccinated are at risk of disease while 18.2% (N=8) believe they are not. The results on parents and caregivers believe on the effectiveness of vaccine in preventing diseases shows that majority 86.6% (N=380) believe that vaccines are effective in preventing diseases while 10.3%(N=45) don't think it is effective in preventing diseases. This result is inconsistent with the findings by (Bolarinwa, *et al*., 2025) [8] which reported that parents and caregivers refused to immunize their children because they view immunization as unfamiliar and believe it is unnecessary due their personal experience. Parents and caregivers believe that they were not immunized in their childhood, and nothing happened, therefore nothing will also happen to their unimmunized children (Bolarinwa, *et al*., 2025) [8]. Male partners also discourage their wives

from taking their children for immunization because they don't believe vaccines are effective in preventing diseases. They tell them if vaccines are effective, why are thousands of people are lying in health facilities ill and vaccines did not cure them. Below are some responses from parents and caregivers on the risk of non- immunization and effectiveness of vaccines in preventing diseases.

"Immunization is very important to children because there is a clear difference between children who are immunized and those that are not. Even by the action of the child and how he/she respondents to diseases such as measles and others, these kinds of diseases don't affect the child if he/she is immunized (P1, Garin Daye).

"Children who are immunized and those who are not are totally different in terms of their health and strength" (P5, Guya).

Table 4: *Knowledge of Immunization*

Variable	Frequency	Percentage%
Heard of childhood Immunization before?		
Yes	421	95.1
No	18	4.9
Source of Information about immunization		
Radio	70	11.0
Tv	23	3.6
Health Workers	300	46.9
Community Leader	125	19.6
Friend/Family	89	13.9
Religious Leader	32	5.0
List of Diseases that you know vaccine prevent		
Measles, fever, typhoid, and whooping cough	242	55.1
Polio, measles, and meningitis	63	14.4
Hepatitis, tuberculosis, and measles	82	18.7
Cholera, malaria, and measles	23	5.2
Chickenpox, Diphtheria and Tetanus	5	1.1
Don't know	24	5.5
Age child receives first vaccine		
At birth- 6 days	328	74.7
1-3 weeks	33	7.5
1-3 months	20	4.6
4- 5 months	4	.9
6- 11 months	6	1.4
1-3 years	19	4.3
4-5 years	4	.9
Don't know	25	5.7
Risk of diseases by children not vaccinated		
Yes	333	75.9
No	80	18.2
Not Sure	26	5.9
Effectiveness of Vaccine in preventing disease		
Yes	380	86.6
No	45	10.3
Not Sure	14	3.2

Note: (N=439)

3.3. Immunization Attitudes and Beliefs

The results of the participants attitudes and beliefs towards immunization is presented in table 5 below. The results shows that majority 90.2%(N=396) believe that vaccines are safe, 6.6% (N=29) believe that vaccines are not safe while 3.2% (N=14) are not sure. This finding is inconsistent with (Eno-Obong , *et al*., 2024) [10] which reported that participants expressed concern that vaccines contribute to onset of illness, can lead to infertility, and even results to child's death. Similarly, (Olaniyan, *et al*., 2022) [19] reported that parents and caregivers believe that immunization causes fatal diseases and was developed by developing countries to make children sterile and reduce population. Below are responses from parents and caregiver on different believe about immunization in the communities.

Table 5: Immunization attitudes and beliefs (N=439)

Variables	Frequency	Percentage%
Believe vaccine are safe		
Yes	396	90.2
No	29	6.6
Not Sure	14	3.2
Concern heard about vaccination in community		
Yes	73	16.6
No	366	83.4
If yes, please state concern		
Causes Fever	32	43.8
Very Painful	9	12.3
Causes Disability	7	9.6
Leads to Infertility	20	27.4
Fear of side effects	4	5.5
Causes disease	1	1.4
Immunization decision maker in Household		
Father	199	45.3
Mother	65	14.8
Both Parents	164	37.4
Grand Parents	11	2.5
Believe that immunization is against religious or Cultural Belief		
Yes	104	23.7
No	288	65.6
Not Sure	47	10.7

Note: (N=439)

"Some people did not belief in immunization because they are afraid that it is said to cause infertility among female children" (P7, Nayinawa)
"Some people in this town are afraid or have doubts about immunization because it can lead to complication. Others that don't immunized their children because they think it is not important to them and I don't protect children from any disease (P2, Danchuwa).

The results on the concerns heard by participants for community member about immunization is also presented in table 5 below. The results shows that 83.4% (N=366) never heard any concern about immunization while 16.6%(N=73) have heard concerns about immunization in the communities. Of these 16.6%, majority 43.8% (N=32), stated that immunization causes fever, 27.4%(N=20) believe it causes infertility, 12.4% (N=9) said it is painful while 9.6% (N=7) believe it causes disability. This is consistent with findings by (Dudu & G. Onokerhoraye, 2018) [9] which reported that 67.4% participants in the study picked fear of side effects as a possible barrier for effective immunization in the study. (Babylon, *et al*., 2025) [7] reported that participants raised concern about fear of side effects such as fever and swelling as a barrier to immunization in the study. This is also like the study conducted by (Eno-Obong , *et al*., 2024) [10] which reported that fear of side effects such as fever and malaise after receiving vaccines influence parents and caregivers' decision to continue immunizing their children. Below are some responses from parents and caregiver on the FGD's conducted.

"The reason why some parents don't like immunizing their children is because of the pain after the immunization. Some children develop fever and continue crying all the night" (P10, Guya).
"Most mothers and care givers don't like immunizing their children because of the fever and pain after which prevents them from having good sleep in the night" (P6, Kachallari).

The results on immunization decision maker among parents and caregivers in the communities are presented in table 5 below. The results shows that majority 45.3% (N=199) of the respondents stated the father of the child as the main decision maker of immunization. Some respondents 37.4% (N=164) stated that both parents decide on their child's immunization while 14.8%(N=65) said the mother is the one making the decision. Family opposition was reported as a barrier to immunization in many studies. Some studies reported that the husbands and elders such as the grandparents are refusing to allow the mother to immunize their children due to their beliefs and other reasons. A study conducted by (Abdulhamid, *et al*., 2025) [2] reported that lack of permission by husbands to go for vaccination as barrier to uptake of routine immunization in the study. Similarly, (Abdulwali , *et al*., 2025) [4] cited lack of family support (15%), and lack of permission from husbands (39.3%) as a barrier to immunization among parents and caregivers. Study conducted by (Eno-Obong , *et al*., 2024) [10] also reported spousal permission to access health services as a barrier to immunization. Some husbands and family members discourage and restricts mothers from taking their children for immunization due to mistrust, limited knowledge of immunization, religious beliefs, and fear of side effects. Below are some responses from mother in the FGDs conducted.

"Our husband does not allow us to immunize our children because he does not believe in it, and it is the tradition of their house not to allow their children be immunized. We will have a serious with him when we immunize the child without his permission" (P6, Kachallari).
"Some of our husbands and family do not support us because of the crying of our babies after immunizing them" (P8, Garin Daye).

Parents and caregivers in the study were also asked on the belief that immunization is against their religious and cultural

beliefs. The results shows that majority 65.6% (N=288) of the respondents said it is not against any while 23.7% (N=104) said it is against their religion and culture with 10.7% of respondents stated that they are not sure. The belief that immunization is against religious or cultural belief is reported in some studies as a barrier to immunization. (Abad, *et al*., 2021) [1] reported that religious reasons as one of the reasons why parents and caregiver refuse immunization in the study. some participants cited that their religion prohibits seeking for medication before ailments and that God is responsible for health and wellbeing of everybody and no need to vaccinated children against any diseases. (Eno-Obong , *et al*., 2024) [10] also reported that some community members in the study believe that immunization is forbidden in their religion and seeking care in health facilities is contrary to the teachings of their religion. Below are some responses from Parents and caregivers in the FGD with regards to traditional and religious beliefs on immunization.

"To be frank my religion prohibits immunization, the reason is because in Islam we believe that every disease has its cure. In Islam, we believe that each tree is a cure for specific disease, and it is also believed that once there is an outbreak, seek for help from Allah alone. We believe prayer is a cure for everything even disease before they occur" (P, Nayinawa).

"To tell you the truth, our grandparents told us never to belief or accept anything from the western World. They will always harm you and whatever they will tell you, don't belief them" (P, Nayinawa).

Table 6 below presents the findings on access and service delivery in the study areas. The results show that majority 80.4% (N=353) of the respondents have a healthcare facility near their home while 19.6% (N=86) don't have a functional health facility in the communities. The results also show that most 60.1% (N=264) of the respondents stated that they reach a facility less than 10 minutes, 18.2% (N=80) in 30 minutes to 1 hour while 12.5% (N=55) in 11-20 minutes in the communities. This is consistent with findings reported by (Akwataghibe, *et al*., 2019) [6] which stated majority of the respondents in the survey live within a very short distance to the health facilities in their communities. However, respondents in hard-to-reach areas with no health facilities complained of difficult terrains which are inaccessible during rainy seasons. This is also inconsistent with the findings by (Dudu & G. Onokerhoraye, 2018) [9] which reported distance to health facilities as an obstacle for immunization uptake as parents and caregivers had to walk several kilometers to access immunization services. Parents required funds to pay for transportation which can be very difficult and may results to inability to get child Immunized. Below are responses of parents and caregiver with regards to lack of facility and transportation challenges.

Table 6: Access and Service Delivery (N=439)

Variables	Frequency	Percentage%
Availability of Health facility Near home		
Yes	353	80.4
No	86	19.6
Distance to the Nearest facility		
<10 Minutes	264	60.1
11-20 Minutes	55	12.5
21-30 Minutes	40	9.1
30 Minutes – 1 hour	80	18.2
Payment for Immunization Services		
Yes	23	5.2
No	416	94.8
Ever Missed immunization Appointment for your child		
Yes	137	31.2
No	302	68.8
Reason for missing Immunization		
Forgot the date	66	28.1
Facility was closed	14	5.9
No vaccines available	20	8.5
Child was sick	34	14.5
I was busy	45	19.1
No transport	24	10.2
Fear of Concern	19	8.1
Travelled	8	3.4
Family Opposition	2	.8
Long Queue	1	.8
Mother sick	1	.8
Not Important	1	.8

(N=439)

"We need government to build a clinic in the community because it is difficult for us to be travelling to other clinic every time for immunization and other services' (P, Garin Daye).

"*We have a clinic some kilometers away. We pay for transport fee of N500 for going there and coming back. If you do not have transport fee, then you need to trek and reach there as soon as possible" (P1, Garin Daye).*

The result on whether parents and caregivers are paying for immunization services in their communities show that majority 94.8% (N=416) said it is free and they do not pay while 5.2% (N=23) said they pay for the services. This is consistent with (Abdulwali , *et al*., 2025) [4] which 75.5% of participants in the study acknowledge that immunization services are provided for free in the communities. However, (Akwataghibe, *et al*., 2019) [6] reported that Unavailability of vaccines in some facilities contribute to indirect cost of immunization in which respondents contribute money for transporting vaccines to overcome logistics challenges. Respondents in the study also complain of money paid for vaccination cards, needles and syringes and exercise books.

The findings on whether the participants have ever missed their children immunization appointments and the reasons are presented in table 6 below. The results shows that Majority 68.8% (N=302) never missed their child immunization appointments while 31.2%(N=137) have missed their child's immunization appointments before. Of those that missed, 28.1% (66) stated that the forgot the appointment date while 19.1% (45) said they are busy. This finding is consistent with (Eno-Obong , *et al*., 2024) [10] which reported that parents and caregivers reported forgetting immunization dates because health worker verbally informed them of their upcoming appointments dates without giving them immunization cards. As a results, many parents and caregiver missed their children's appointments and refuse to go back because they are afraid of possible scolding from the health workers. (Dudu & G. Onokerhoraye, 2018) [9] also reported inconvenience scheduling of immunization as one of the barriers to effective immunization uptake and coverage. They reported that parents and caregivers are struggling to survive through economic situation and committed to other ventures than to visit the clinic a wait for the children immunization and in most cases it may not be available.

Other reasons mentioned by parents and caregivers in the study are child was sick (14.5%, N=34) and lack of transportation (10.2%, N=24). This is consistent with findings by (Lake, Boulanger, Wasswa, Merbratu, & Fenta, 2016) [13] which reported child sick as the reason why parents defaulted their children's immunization in the study. In some cases, mothers may not be able to take their children for immunization because the child is sick, however, it will be an advantage to take the child to a health facility so that she/he can be treated and be vaccinated. (Malande, *et al*., 2019) [15] reported transportation as a barrier to immunization uptake and coverage in the study area. They reported that parents and caregivers must cover long distances before reaching immunization centers as they lack health facilities and had to use their own money to transport themselves to the facility. As a result, many parents and caregivers missed their children immunization due to these difficulties. Below are some responses of participants in the FGDs on challenges of transportation.

"We pay for transport fee of N500 for going there and coming back. If you do not have transport fee, then you need to trek and reach there as soon as possible" (P1, Garin Daye)

"People coming from villages have transport challenges, sometimes they walk to reach the clinic and return home with tricycle. Some of them will walk and walk back to their villages" (P, Kalallawa).

Other reasons for missing appointment include unavailability of vaccines (8.5%, N=20) and fear of side effects (8.1, N=19). (Obiekweihe, Iberi, Attah, Babaniyi, & Mebrim, 2026) [17] reported that caregivers complain of vaccine shortages and fear of side effects such as fever, swelling and prolonged crying of children as the reasons why many mother are refusing to complete their children immunization in the study. Occasional vaccine shortages sometimes lead to spending long time in the clinic while other children are left at home, this discourages mothers and affects attendance of immunization.

Table 7 below presents the findings on some of the reasons why children are not vaccinated in the communities by parents and caregivers in the study. The results shows that 35.9% (N=295) of the participants stated lack of awareness as the major reason why some parents and caregivers are not immunizing their children. Lack of awareness and insufficient knowledge about immunization is among the barriers to immunization and one of the factors that contributed towards vaccine hesitancy in different parts of Nigeria. Lack of knowledge on the importance and the role of vaccination in the prevention of life- threatening diseases is reported as barrier to immunization in the study conducted by (Raji, *et al*., 2019) [20]. Parents and caregivers' understanding of the objectives of immunization, importance and benefits of immunization and the knowledge on when to begin immunization, and the number of sessions needed to complete immunization are some of the factors that enables parents and caregivers to immunize their children (Lake, Boulanger, Wasswa, Merbratu, & Fenta, 2016) [13]. (Abhadionmhen, Lana, & Imarenezor, 2026) [5] reported that the inadequate health literacy most especially among marginalized population led to misconception there by resulting to difficulties for individuals to make informed health decisions. The insufficient knowledge among parents and caregivers led to negative attitudes which discourages them from seeking health services. Below are responses of parents and caregivers regarding lack of knowledge and awareness among people in the communities.

Table 7: Perceived Barriers

Variables	Frequency	Percentage %
Reasons why children are not Vaccinated in the Community		
Lack of Awareness	295	35.9
Fear of side effects	219	26.7
Religious beliefs	35	4.3
No vaccine at facility	8	1
Long distance to clinic	26	3.2
Family Opposition	40	4.9
Cultural beliefs	63	7.7
Security concerns	21	2.6
Past negative experience	110	13.4
Lack of Incentive and motivation	1	.1
Lack of transportation	1	.1
Maltreatment by health workers	1	.1
Strategy to Improve immunization coverage		
Educate and Create Awareness	367	83.6
Provide incentive, motivate, and empower mothers	48	10.9
Provide Health Facility	16	3.6
Post more Health workers to facility	6	1.4
Provide vaccine and Transport	2	.5

(N=439)

"Knowledge and education are very important as most of these people that refuse to receive vaccine are illiterate. They are saying why give vaccine for free while other drugs used for treating people are not free" (P, Kallalawa).
"There should be continuous awareness and education of people. Government should continue educating people on the importance and benefits of immunization to children" (P10, Danchuwa).

Parents and caregivers stated fear of side effects (26.7, N=219) as one of the reasons why people in the communities are not immunizing their children. This is consistent with findings by (Babylon, *et al*., 2025) [7] which reported that participants are raising concerns over fear of side effects caused by vaccine reaction such as fever and swelling. They reported that lack of communication from healthcare providers to parents and caregivers on possible and potential side effects led to such concern. (Etim, *et al*., 2025) [11] reported that fear of side effects among participants discourage and play a role in parent and caregiver's decision to continue immunization. Due to the fever, swelling and pain experience in previous immunization, many husband refuse to allow their wives go for further appointment due to fear of side effects. Similarly, (Olaniyan, *et al*., 2022) [19] reported that participants in the study cited fear of side effects such as swelling of injection site and fever which raises concern about child's health and thereby discouraging some parents and caregiver to complete the immunization schedule. Below are responses from parents and caregivers on side effects as a barrier to immunization in the communities.

"*Some people do not believe in immunization because of the side effects such as fever, pain, and frequent crying of the child "(P6, Guya).*
"Some fathers allow their children to be immunized, however the wife refuses to do so citing fears of fever and pain which leads the baby to cry all over the night" (P, Kachallari)

Parents and caregivers also stated past negative experience (13.4%, N=110) as the reason why many parents do not immunize their children in the communities. (Dudu & G. Onokerhoraye, 2018) [9] reported that unpleasant previous such as swelling of injection site and fever is among the barriers to immunization found in the study areas. (Ogundele, Fehintola, Salami, Usidebhofoh, & Abaekere, 2023) [18] reported that 37.9% of the children in the study experience Adverse Event following Immunization (AEFI's), these includes fever (88%), pain and swelling (76%) are the most common AEFI's experience while irritability and crying comprised of (20.5%) of the AEFI's. Other rare and more serious vaccine reactions such as seizures are less frequent with only 1.4% reported by the mothers in the study. Parents and caregivers whose children experience and suffered from AEFI's may discontinue immunization if they were not properly counseled by healthcare providers regarding these side effects. Below are some responses in the conducted FGD regarding personal experience of AEFI's.

"When one of my daughters was immunized, I had issues with the place where she is immunized. The place got infected, it was later operated and treated in the clinic" (P9, Kalallawa).

Cultural and religious belief is reported as one of the reasons why many parents and caregivers do not immunize their children. This finding is like (Babylon, *et al*., 2025) [7] which reported that cultural beliefs and resistance which includes the belief that diseases is part of natural growth, preference of traditional medicine and other misinformation and myths about immunization are barrier to immunization identify in the study. Religious beliefs and norms such as the believe that immunization is prohibited in religion and seeking care from health facility is contrary to religious teaching was reported as a barrier to immunization by (Eno-Obong , *et al*., 2024) [10].
Family opposition (4.9%, N=40) was identified as one of reasons why parents and caregivers do not immunize their children. This finding is consistent with (Iliyasu, *et al*., 2025) [12] which reported that maternal autonomy was constrained by spousal or elders' approval. Mother had to seek for permission from their husbands and family members before they can seek for health services such as immunization. (Abdulhamid, *et al*., 2025) [2] reported lack of permission from husbands to go for immunization as a barrier to immunization uptake in the study area. They reported that

husbands in the study prevent their wives from taking their children to the clinic for immunization due to their traditional or religious beliefs. Similarly, (Babylon, *et al*., 2025) [7] reported that older generations discourage parents from taking their children to immunization due to the belief that illness is natural part of growth or destiny, and immunization of their children is unnecessary. Mothers and caregivers mostly encounter opposition from their husbands, parents, and their in-laws, as a result, children were unlikely to be immunized regardless of their mothers' personal views. Below are some responses from the FGDs conducted regarding family opposition to immunization.

"Some fathers do not allow their children to be immunized because they do not consider it important as he is also not immunized when he was a child" (P, Kachallari).
"Some of our husbands and family do not support us because of the crying of our babies of immunizing them" (P8, Garin Daye).

Parents and caregivers were asked to suggest the ways to improve immunization uptake and coverage in the communities. The majority 83.6% (N=367) of the parents and caregivers suggested that awareness and education among parents and caregivers should be increased in the communities where parents and caregivers refuse to immunize their children. This will help in making parents and caregivers become aware on the importance and benefits of immunization to their children.
The study conducted by (Babylon, *et al*., 2025) [7] indicated that community awareness and education are one of the key enablers of childhood immunization in the communities. Organizing awareness and education campaigns including advocacy, outreach programs, interactive sessions, and one-on-one counseling by health workers together with traditional leaders and health workers can play a critical role in improving immunization uptake and coverage. These strategies will help dispel myths, misconception and misinformation about immunization and motivate parents and caregivers to immunize their children especially since all respected elders and community leaders are involved in the process and have support immunization.
Traditional and religious leaders, health workers, and Ward Development committee member in the conducted KIIs have explained the efforts they are making to educate and raising awareness among parents and caregivers in the community, but more needs to be done to improve immunization uptake and coverage in the communities. Below are some of the responses in the conducted KIIs regarding the efforts of the traditional leaders, religious leaders, and health workers in their communities to improve immunization coverage.

"We are continuously working towards educating people on the importance and benefits of immunizing children. This intervention is working and improving the immunization coverage" (Religious leader, Kachallari).
"As a religious leader, we met every end of the month in the dispensary and discussed on how we enlighten people and let people understand the benefits and importance of immunization. As a result, people are understanding and receiving immunization even more than ever" (Religious leader, Kalallawa).
"We have also formed a team in our town who work very hard in identifying defaulters, so also the team from Primary Healthcare also reported to us when there are defaulters. However, we keep educating those who refuse immunization and continue to enlighten them on the importance and benefits of immunization "(Community leader, Kalallawa).

The above responses show that the community leaders, religious leaders, and health workers are doing their best in educating and raising awareness in the communities, however, more efforts need to be made to improve immunization uptake and coverage.
Parents and caregivers also suggested that there should be incentives to motivate mothers and caregivers to immunize their children at the clinics. (Abad, *et al*., 2021) [1] reported that participants suggested that cash and non-cash incentives could motivate parents and caregivers to take their children for immunization. They suggested that providing non-cash incentives such as soap, utensils, indomie noodles, biscuits and clothes for children can encourage mothers to be taking their children for immunization. Providing medications such as paracetamol to children after vaccination can also help relieve fever and pain after vaccination. Similarly, (Eno-Obong , *et al*., 2024) [10] reported that community influencers use incentives such as mosquito nets to persuade mothers to immunization their children as it serves as a motivation factor for improving immunization uptake in the communities. Below are responses of Parents, caregivers, community, and religious leaders on the importance of incentives towards improving immunization uptake and coverage.

"Giving incentives to mothers and caregivers either in form of cash or an item which will make mothers always willing to come over and immunizing their children including those that don't before" (P10, Guya).
"We need adequate supply of drugs for fever, diarrhea and others which will be given to mothers after immunization for relief from fever and pain" (P8, Kachallari).
"Helping and empowering mothers and caregivers in different communities will greatly help in improving immunization coverage in this LGA. This can be done by giving gifts of items such as soap, food items and others" (Community leader, Guya).

Above responses shows that providing parents and caregiver with incentives can greatly help in improving immunization uptake and coverage and address the issue of defaulters in the communities.

Conclusion

The study investigates perceived barriers to immunization among parents and caregivers in Yobe State, Nigeria. Findings in the study shows that barriers such as lack of knowledge and awareness about immunization, fear of side effects, family opposition and religious and cultural beliefs are identified as barriers to immunization uptake in the study areas. Other barriers such as lack of health facility, transportation cost and past negative experience are also identified in the study. Addressing these identified barriers requires collective efforts and collaboration by stakeholders such as policy makers, community leaders, healthcare providers and other developmental partners. These will help in addressing some of these identified barriers and improve immunization uptake and coverage thereby protecting children from vaccine preventable diseases in the communities.

Strengths and Limitations

One of the strengths of this study is that a mixed method approach comprising of both quantitative and qualitative methods was used in the research process. This approach brings a wide range of participants including parents, caregivers, community leaders, religious leaders, and health workers from different study areas and with different perceptions about barriers to immunization and strategies for improving uptake in different parts of Yobe state, Nigeria. The study however did not cover all the Local Government Areas in Yobe state, as only few LGAs and wards were selected for the study. Despite this limitation, the study adds to the body of knowledge on barrier to immunization in Yobe state, Nigeria and provides useful information for stakeholders and policy makers in developing strategies towards improving immunization coverage and uptake in Yobe state, Nigeria.

Consent

Informed consents were obtained from participants in the Focus Group Discussions, Key Informant Interviews and those who answered the structured questionnaires in the study. Participants were briefed on the study and informed about the rights to withdraw their participation at any time during the study. They were also assured of confidentiality of their identities and data collected will only be used for research purposes.

Ethical Approval

The research was approved by research and ethical committee Maryam Abatcha American University of Niger and approval for data collection was received from community leaders in the study areas before proceeding for collecting data.

Competing Interest

All authors declare that no competing interest exist.

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References

1. Abad N, Uba BV, Patel P, Barau DN, Ugochukwu O, Aliyu N, *et al*. A rapid qualitative assessment of barriers associated with demand and uptake of health facility-based childhood immunizations and recommendations to improve immunization service delivery in Sokoto State, Northwest Nigeria, 2017. The Pan African Medical Journal. 2021:1-6.
2. Abdulhamid D, Ibrahim UM, Kofi B, Audu S, Wade MM, Danzomo, *et al*. Correlates of Uptake of Routine Immunization amongst Under-Five Children: Comparison of Nomadic and Non-nomadic Fulani in Yobe State, Nigeria. Nigerian Medical Journal. 2025:44-59.
3. Abdulhamid D, Ibrahim UM, Kofi B, Audu S, Wade MM, Danzomo AA, *et al*. Correlates of Uptake of Routine Immunization amongst Under-Five Children: Comparison of Nomadic and Non-nomadic Fulani in Yobe State, Nigeria. Nigerian Medical Journal. 2025:44-59.
4. Abdulwali S, Alzoubi MM, Garba A, Saidu AY, Usman US, Saulawa IM, *et al*. Determinants of routine immunization coverage among under-five children in Jigawa state, Nigeria. BMC Public Health. 2025:1-11.
5. Abhadionmhen AO, Lana OE, Imarenezor EP. A systematic review of Barriers Associated with Immunization Activities Among Under-5 children in Nigeria. Research Square. 2026:1-52.
6. Akwataghibe NN, Ogunsola3 EA, Broerse JE, Popoola OA, Agbo AI, Dieleman MA. Exploring Factors Influencing Immunization Utilization in Nigeria—A Mixed Methods Study. Frontiers in Public Health. 2019:1-13.
7. Babylon P, Aliyu AS, Aiyagbonrhule P, Sadiq A, Solomon ME, Yamusa CA. Assessment of Enablers and Barriers to Childhood Immunisation in Gassol Local Government Area of Taraba State, Nigeria. Journal of Advances in Medical and Pharmaceutical Sciences. 2025:14-21.
8. Bolarinwa OA, Salaudeen GA, Lar L, Alhaffar M, Abdelmagid N, McGowan CR, *et al*. Barriers and enablers to childhood immunization in high zero-dose burden communities in Kano and Lagos states, Nigeria. Vaccine. 2025;64:1-8.
9. Dudu JE, G. Onokerhoraye A. Barriers to Effective Immunization in Urban Slums of Warri and Environs, Delta State Nigeria. International Journal of Humanities and Social Science Invention (IJHSSI). 2018:18-28.
10. Eno-Obong E, Odiachi A, Dougherty L, Alabi M, Adetunji A, Adedimeji A. Barriers to Childhood Immunization in North-Eastern and North- Western Nigeria. medRxiv, 1-15. 2024.
11. Etim EOE, Odiachi A, Dougherty L, Alabi M, Adetunji A, Adedimeji A. Understanding caregivers' and community influencers' perspectives on the barriers to childhood immunisation in Northern Nigerian States with public-private partnerships in routine immunisation programme. BMC Public Health. 2025:1-10.
12. Iliyasu Z, Burke RM, Paige LM, Mande AT, Amzat J, Uchendu OC. Hidden in plain sight: Gendered barriers to childhood immunization in Nigeria. VeriXiv. 2025:1-12.
13. Lake MW, Boulanger L, Wasswa P, Merbratu M, Fenta A. Factors for Low Routine Immunization Performance; A Community Based Cross Sectional Study in Dessie Town, South Wollo Zone, Ethiopia, 2014 Mastewal Worku Lake1, *, Lucy Boulanger2, Peter Wasswa3. Advances in Applied Sciences. 2016:7-17.
14. Mahachi K, Kessels J, Mitula P, Ekeman E, Rosewell A, Baptiste AE, *et al*. Zero- or missed-dose children in Nigeria: Contributing factors and interventions to overcome immunization service delivery challenges. Vaccine. 2022:5433-5444.
15. Malande OO, Munube D, Afaayo RN, Annet K, Bodo B, Bakainaga A, *et al*. Barriers to effective uptake and provision of immunization in a rural district in Uganda. PLOS ONE. 2019:1-15.
16. Mohammed Y, Reynolds HW, Waziri H, Attahiru A, okere AO, Kamateeka M, *et al*. Exploring the landscape of routine immunization in Nigeria: A scoping review of barriers and facilitators. Vaccine. 2024:1-13.

17. Obiekweihe OP, Iberi IG, Attah CJ, Babaniyi IB, Mebrim SN. Barriers and Facilitators of Pentavalent-3 and Full Immunization Uptake in Northern Nigeria: A Mixed-Methods Study Guided by the 5A Taxonomy. Clinical and Medical Engineering Live. 2026:1-9.
18. Ogundele OA, Fehintola FO, Salami M, Usidebhofoh R, Abaekere MA. Prevalence and patterns of adverse events following childhood immunization and the responses of mothers in Ile-Ife, South West Nigeria: a facility-based cross-sectional survey. Osong Public Health Res Perspect. 2023:291-299.
19. Olaniyan A, Chinwoke I, Agbomeji S, Omeni OA, Ifie B, Hawk M. Barriers, facilitators, and recommendations for childhood immunisation in Nigeria: perspectives from caregivers, community leaders, and healthcare workers. Pan African Medical Journal. 2022:1-10.
20. Raji MO, Sani AA, Ibrahim LS, Muhammad H, Oladigbolu RA, Kaoje AU. Assessment of the Knowledge of Fathers, Uptake of Routine Immunization, and Its Associated Factors in a Rural Community of North West Nigeria. Annals of African Medicine. 2019:97-102.

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