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Stakeholder Engagement and Community Participation of Routine Immunization Programs in Adamawa State, Nigeria

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Abstract

This study examines the impact of stakeholder engagement and community participation on routine immunization programs in Adamawa State, Nigeria. Quantitative data were collected through structured questionnaires administered to 166 participants, including healthcare workers, community leaders, and program administrators. The sample size was determined using the Cochrane formula, considering a 20% non-response rate. The results showed that most participants (85.1%) perceived active engagement between health facilities and communities. Healthcare workers were recognized as crucial for education and vaccination services by 54.0% of participants, while community leaders were seen as important for advocacy by 58.4%. However, challenges included resource constraints (37.9%), communication difficulties (42.2%), and vaccine hesitancy (27.3%). To improve engagement, participants suggested enhancing communication (55.9%), forming partnerships (46.6%), and strengthening monitoring and evaluation (46.6%). About 59.6% of participants felt that there were no regular dialogue platforms among stakeholders. Therefore, this study recommended that enhancing communication, fostering collaboration and establishing regular coordination mechanisms are essential steps toward achieving higher immunization rates and better health outcomes.

Keywords: *Accessibility, Barriers, Intervention, Routine Immunization, Shortages and Awareness.*

Introduction

Routine immunization programs play a vital role in public health by preventing infectious diseases that can lead to significant morbidity and mortality, especially in low- and middle-income countries (LMICs). Achieving widespread immunization coverage and equity goes beyond simply providing vaccines; it requires effective stakeholder engagement and strong community participation. These factors are essential for ensuring that immunization programs are not only executed efficiently but are also widely accepted by the target populations. Engaging diverse stakeholders ranging from national governments to local healthcare providers ensures that immunization strategies are tailored to local needs, while active community involvement helps overcome challenges and increases vaccine acceptance.

Immunizations stand out as health interventions because they benefit both individual and public health. The success of vaccination programs in reducing the spread of infectious diseases relies on the collaboration of a wide range of stakeholders, each with specific roles. These include parents of vaccinated children, healthcare professionals administering vaccines, and public health experts overseeing vaccine delivery and safety (National Academies Press (US) [1].

Stakeholder involvement in immunization programs requires the coordination of various entities, including government agencies,

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healthcare providers, non-governmental organizations (NGOs), international organizations, and community leaders. Engaging these stakeholders at all levels fosters a unified approach that optimizes resources and addresses challenges in vaccine distribution. Governments play a central role in creating policies, securing funding, and establishing regulatory frameworks, which directly impact the accessibility and sustainability of immunization programs [2, 3]. NGOs and international bodies like UNICEF and WHO provide advocacy, technical support, and vaccine supplies in resource-limited areas [4]. Involving local communities in decision-making processes ensures a sense of ownership, which boosts program success. For example, research by [5] showed that close collaboration between local health authorities and communities builds trust, reduces misinformation, and increases vaccination uptake.

Community participation involves the active engagement of individuals and local groups in the planning, execution, and monitoring of immunization efforts. It goes beyond mere awareness campaigns and actively involves communities in decision-making, which is crucial for overcoming barriers such as geographical, cultural, and financial challenges. In many LMICs, particularly in rural and underserved areas, community-based approaches have proven effective in tackling vaccine hesitancy and misinformation, thus improving vaccination rates [6]. Community participation also plays a key role in ensuring the long-term sustainability of immunization programs. Involving community members fosters a sense of responsibility and ownership, making them an integral part of the healthcare system. This participation can take various forms, including organizing local vaccination campaigns, monitoring vaccine distribution, and addressing concerns about vaccine safety. A study in Nigeria by [7] found that when community leaders actively support vaccination efforts and engage with local populations, immunization rates improve.

Therefore, this study aims to explore the impact of integrating stakeholder engagement and community participation, which is essential for achieving high immunization coverage and equity, particularly in low- and middle-income countries. By adopting these approaches, we can develop a more resilient and effective public health system that protects individuals and communities from the severe effects of infectious diseases.

Methodology

This section outlines the research methodology employed to study the impact of stakeholder engagement and community participation in routine immunization programs. The methodology is structured to explore both the roles and contributions of different stakeholders, as well as the mechanisms of community involvement in the success of immunization campaigns.

Research Design

The quantitative approach is used to assess the impact of these factors on immunization coverage, while the qualitative approach explores the perceptions, experiences, and challenges faced by stakeholders and community members. Surveys will be conducted with healthcare providers, community leaders, and program administrators to quantify the level of stakeholder involvement and its impact on immunization rates.

Sampling Techniques

To ensure representative data collection, both purposive and random sampling techniques will be used. Purposive sampling will target key stakeholders, such as government officials, NGO representatives, and healthcare workers involved in immunisation programs. Stratified random sampling will be used for the community-based survey to include participants from diverse socio-economic

backgrounds, geographic locations, and age groups. The sample size for quantitative components will be determined using statistical power calculations to ensure adequate representation and the ability to detect significant effects. The study sample size was calculated using the Cochrane formula as shown below:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where:

n = Sample size

p = The proportion of mothers who are aware and have knowledge of childhood immunisation, which is 20%.

d = Maximum error of the study, which is 0.05.

Z = Standard normal deviation that corresponds to a 5% level of statistical significance, i.e:1.96.

$$n = \frac{(1 \cdot 96)^2 0.1(1-0.1)}{(0.05)^2} = \frac{0.345744}{0.0025} = 138.2976 \gg 138$$

Taking into account a 20% non-response rate, the sample size was determined as follows: n= 138×0.20)+138=165.6*n*=(138×0.20)+138=165 .6. Rounding up, approximately 166 mothers were included in this study.

Population

The population for this study includes: Health policy makers, healthcare workers (e.g., nurses, doctors, community health workers), local government officials, NGO representatives, and members of international organizations involved in immunization programs. Residents from selected rural and urban areas are the recipients of immunization services. These participants will be selected based on their exposure to immunization campaigns and their direct or indirect involvement in the vaccination process (e.g., caregivers, parents, and local leaders).

Method of Data Collection

A secondary data collection method will be used. Structured questionnaires will be administered to stakeholders and community members to gather quantitative data on the level of engagement, participation, and immunization coverage. The questions will be designed to capture factors such as frequency of stakeholder involvement, types of community engagement activities, and immunization uptake rates.

Method of Data Analysis

Data analysis will be conducted separately for the quantitative and qualitative components:

Data from surveys will be analyzed using descriptive and inferential statistical methods. Descriptive statistics (e.g., frequencies, percentages, means) will be used to summarize the characteristics of the sample and the responses related to stakeholder engagement and immunization rates. Inferential statistics, such as regression analysis, will be employed to examine the relationship between the level of stakeholder involvement, community participation, and immunization coverage.

Ethnical Consideration

This study will adhere to several ethical principles to protect participants' rights and well-being. Informed consent will be obtained from all participants, ensuring they are fully aware of the study's purpose and procedures. Confidentiality and privacy will be maintained by anonymizing data and securely storing it with restricted access. The study will prioritize non-maleficence, minimizing any potential harm to participants and ensuring that the data collection process does not disrupt immunization efforts or cause distress. Cultural sensitivity will guide the research, with respect for local customs, language, and norms. Finally, the study will undergo review and approval by an institutional ethics review board (IRB) to ensure compliance with ethical standards.

Result and Discussion

The Results and Discussion section presents the findings of the study on community engagement and stakeholder involvement in routine immunization programs. It provides an analysis of participants' views regarding the effectiveness of collaboration among health facilities, community leaders, NGOs, and other stakeholders. The section also highlights the perceived challenges, such as resource constraints and communication issues, that may impact the success of immunization efforts. Furthermore, it discusses strategies suggested by participants to improve engagement and enhance immunization program outcomes. The results are interpreted about existing literature, and the implications for future policy and practice are explored.

Table 1 presents information on participants' views regarding community engagement activities between their health facility and the local community. The data reveals that a significant majority (85.1%) of participants believe there is active community engagement between their health facility and the surrounding community. However, a small minority (14.9%) feel that there is no such activity. This suggests that in some areas or facilities, community engagement efforts may be insufficient or not well-established.

Table 2 provides insights into participants' views on the roles of various stakeholders in community engagement activities for routine immunization programs. A majority (54.0%) believe healthcare workers and providers are involved in educating families, administering vaccinations, and tracking records, while 31.1% do not see this role as important. A larger portion (58.4%) think community leaders and influencers help advocate for vaccination and address vaccine misinformation, with 26.7% not perceiving this as significant. Regarding government agencies, 33.5% believe they are involved in policy development, funding, and implementation, but a majority (51.6%) do not find this role significant. Similarly, 40.4% see NGOs as playing a role in funding, logistics, advocacy, and outreach, but 44.7% do not. A minority (32.9%) think community-based organizations help educate and provide health services, while 52.2% do not view this as important. Lastly, 24.2% believe families and caregivers impact immunization through their decisions, but 60.9% do not.

Table 3 provides information on participants' views regarding the effectiveness of collaboration and coordination among stakeholders in ensuring the success of routine immunization programs. A total of 69 participants (42.9%) consider the collaboration and coordination to be very effective, while 73 participants (45.3%) view it as effective. Together, 88.2% of participants believe that the collaboration and coordination among stakeholders are either effective or very effective, indicating a strong perception of teamwork in supporting the success of immunization programs. However, a small minority perceive the coordination as less effective: 16 participants (9.9%) rate it as moderately effective, and 3 participants (1.9%) consider it ineffective.

Table 4 presents information on participants' views regarding the challenges in engaging stakeholders in routine immunization programs. A significant minority (37.9%) of participants believe that resource constraints are a challenge in stakeholder engagement, although a larger portion (62.1%) does not consider this a major issue. A notable minority (42.2%) perceive coordination and communication difficulties as a challenge, while 57.8% do not see this as significant. Similarly, 27.3% of participants view vaccine hesitancy and misinformation as challenges in stakeholder engagement, whereas 72.7% do not find this to be a major concern. Cultural barriers are considered a challenge by 30.4% of participants, but a larger portion (69.6%) does not view them as significant. A majority (56.5%) identify transport and accessibility issues as key challenges, suggesting these are

more widely recognized as barriers. Lastly, 13.0% of participants believe inconsistent policies hinder stakeholder engagement, while 87.0% do not perceive this as a significant challenge.

Table 5 outlines participants' views on strategies that could improve stakeholder engagement and enhance the implementation of routine immunization programs. A notable minority (46.6%) of participants believe that establishing collaborative partnerships could strengthen stakeholder engagement, although a larger portion (53.4%) does not see it as a key strategy. A significant minority (55.9%) think that improving communication and information sharing would enhance stakeholder engagement, indicating strong support for this approach. Another notable minority (43.5%) view developing culturally sensitive campaigns as a way to improve engagement, though a larger portion (56.5%) do not consider it a significant strategy. Additionally, 46.6% of participants believe that strengthening monitoring and evaluation could improve stakeholder engagement, while a larger portion (53.4%) does not find it particularly impactful. A significant minority (37.9%) see providing incentives for participation as a way to improve engagement, yet a larger portion (62.1%) does not view it as crucial. Finally, 38.5% of participants believe that building trust through transparency could enhance engagement, but a larger portion (61.5%) do not perceive this as a key strategy.

Table 6 presents participants' views on the availability of platforms or mechanisms for regular dialogue and coordination among stakeholders involved in immunization programs in their Local Government Area (LGA). The results show that a significant majority (59.6%) of participants believe that no such platforms or mechanisms are in place. However, a notable minority (40.4%) believe that such platforms or mechanisms do exist, indicating that in some areas or LGAs, systems for regular dialogue and coordination among stakeholders may have been established.

Table 1. Is there an active community engagement activity between your health facility and the host community?

Response	Frequency	Percentage
No	24	14.9
Yes	137	85.1
Total	**161**	**100.0**

Table 2. If Yes, Below are Some of the Roles of Stakeholders, Kindly Select as Applicable

Role	Response	Frequency	Percentage
Healthcare Workers and Providers: To educate families about vaccines, administer shots, and monitor vaccination records	No	50	31.1
	Yes	87	54.0
	Total	**137**	**85.1**
Community Leaders and Influencers: Advocate for vaccination and help dispel myths and misinformation about vaccines	No	43	26.7
	Yes	94	58.4
	Total	**137**	**85.1**
Government Agencies: responsible for policy formulation, funding, and the overall implementation of immunization programs.	No	83	51.6
	Yes	54	33.5
	Total	**137**	**85.1**
Non-Governmental Organizations (NGOs) often provide support through funding, logistics, and advocacy for immunization initiatives. They may	No	72	44.7
	Yes	65	40.4
	Total	**137**	**85.1**

also run awareness campaigns and outreach programs to improve vaccine access			
Community-Based Organizations work directly within communities to educate residents about vaccines and provide health services, often leveraging local knowledge and networks	No	84	52.2
	Yes	53	32.9
	Total	**137**	**85.1**
Families and Caregivers: Their decisions and attitudes toward vaccination directly affect their children's immunization status	No	98	60.9
	Yes	39	24.2
	Total	**137**	**85.1**

Table 3. How Effective is the Collaboration and Coordination among these Stakeholders in Ensuring the Success of Routine Immunization Programs?

Response	**Frequency**	**Percentage**
Effective	73	45.3
Moderately effective	16	9.9
Not effective	3	1.9
Very effective	69	42.9
Total	**161**	**100.0**

Table 4. Some Challenges in Engaging Stakeholders

Challenges	**Response**	**Frequency**	**Percentage**
Resource Constraints	No	100	62.1
	Yes	61	37.9
	Total	**161**	**100.0**
Coordination and Communication Issues	No	93	57.8
	Yes	68	42.2
	Total	**161**	**100.0**
Vaccine Hesitancy and Misinformation	No	117	72.7
	Yes	44	27.3
	Total	**161**	**100.0**
Cultural Barriers	No	112	69.6
	Yes	49	30.4
	Total	**161**	**100.0**
Transport and Accessibility	No	70	43.5
	Yes	91	56.5
	Total	**161**	**100.0**
Inconsistent Policies	No	140	87.0
	Yes	21	13.0
	Total	**161**	**100.0**

Table 5. Strategies can be implemented to Improve Stakeholder Engagement and strengthen the Implementation of Routine Immunization Programs

Strategies	**Response**	**Frequency**	**Percentage**
Establish Collaborative Partnerships	No	86	53.4
	Yes	75	46.6

	Total	**161**	**100.0**
Enhance Communication and Information Sharing	No	71	44.1
	Yes	90	55.9
	Total	**161**	**100.0**
Develop Culturally Sensitive Campaigns	No	91	56.5
	Yes	70	43.5
	Total	**161**	**100.0**
Strengthen Monitoring and Evaluation	No	86	53.4
	Yes	75	46.6
	Total	**161**	**100.0**
Provide Incentives for Participation	No	100	62.1
	Yes	61	37.9
	Total	**161**	**100.0**
Build Trust through Transparency	No	99	61.5
	Yes	62	38.5
	Total	**161**	**100.0**

Table 6. Are there any Existing Platforms or Mechanisms for Regular Dialogue and Coordination among the Various Stakeholders Involved in Immunization Programs in your LGA

Response	**Frequency**	**Percentage**
No	96	59.6
Yes	65	40.4
Total	**161**	**100.0**

Table 7. Relationship between Active Community Engagement Activity (Roles of Stakeholders) and Health Facility on Routine Immunization

Variables	**Coefficient**	**Standard Error**	**Z-Value**	**P-value**
Constant	4.496	1.186	14.366	0.000*
Healthcare Workers and Providers	3.198	1.141	7.860	0.005*
Community Leader and Influencers	1.050	0.596	3.106	0.078
Government Agencies	0.003	0.788	0.000	0.997
Non-Government Organization	1.766	0.815	4.695	0.030*
Community-Based Organization	2.824	0.719	15.434	0.000*
Families and Caregivers	1.478	0.786	3.540	0.060

** Significant at 5% Level*

Table 7 shows the relationship between active community engagement activities (roles of stakeholders) and health facility performance in routine immunization. It provides the coefficient, standard error, Z-value, and p-value for each variable. The high Z-value and low p-value confirm that this baseline is statistically significant. The positive coefficient of 3.198 indicates that the involvement of healthcare workers and providers has a significant positive impact on routine immunization performance. The p-value of 0.005 shows this effect is statistically significant. On the other hand, the positive coefficient of 1.050 suggests that the role of community leaders and influencers has a positive effect on immunization performance, though the p-value of 0.078 is slightly above the 0.05 threshold, indicating that the effect is not

statistically significant. Similarly, the role of government agencies shows a negligible effect with a coefficient of 0.003 and a p-value of 0.997, which is not significant.

The positive coefficient of 1.766 for NGOs suggests that their involvement positively affects immunization performance, with a statistically significant p-value of 0.030. The coefficient of 2.824 for community-based organizations (CBOs) indicates their involvement positively impacts immunization performance, with a highly significant p-value of 0.000. The role of families and caregivers also shows a positive effect with a coefficient of 1.478, but the p-value of 0.060 is just above the threshold for statistical significance. Overall, the results indicate that the roles of healthcare workers, NGOs, and CBOs significantly affect immunization performance, with healthcare workers, CBOs and NGOs having a positive effect. The roles of community leaders, government agencies, and families do not significantly influence performance.

Discussion of Findings

The majority of participants (85.1%) believe there is active community engagement between their health facility and the surrounding community, suggesting that community engagement efforts are largely effective. This high level of engagement is vital for the success of routine immunization programs, as it fosters trust and collaboration between healthcare providers and the community [8]. However, the 14.9% who feel there is no engagement indicate that there may be areas where these efforts are insufficient, highlighting the importance of continuous community engagement to meet local needs and build trust [9].

Participants identified key stakeholders in immunization programs, with healthcare workers and providers recognized by 54.0% as essential for educating families, administering vaccinations, and maintaining records. This underscores the critical role of healthcare workers as the primary point of contact for families and caregivers [10]. Community leaders and influencers were seen as important by 58.4% of participants for advocating vaccination and addressing misinformation. Research supports that community leaders can positively influence vaccine acceptance and combat myths [11].

Government agencies were viewed as involved in policy development, funding, and implementation by 33.5% of participants, while NGOs were seen as playing a role in funding, logistics, advocacy, and outreach by 40.4%. However, a larger portion of participants did not consider these roles significant, suggesting a need for more visibility and communication regarding the contributions of the government and NGO sectors (World Health Organization, 2020).

Despite the success in collaboration, several challenges in engaging stakeholders were identified. Resource constraints were highlighted by 37.9% of participants, pointing to the need for sustainable funding and resource allocation to support community engagement (Ozawa *et al*., 2017). Communication and coordination difficulties were viewed as challenges by 42.2%, indicating that enhanced communication strategies and platforms are needed to facilitate engagement.

Vaccine hesitancy and misinformation were challenges for 27.3% of participants, while cultural barriers were a concern for 30.4%. These findings emphasize the need for targeted education and culturally sensitive campaigns to address misinformation and cultural beliefs that hinder vaccine acceptance (Larson *et al*., 2014; WHO, 2021). Additionally, transport and accessibility issues were seen as key challenges by 56.5% of participants, suggesting that improving transportation and accessibility could enhance stakeholder engagement and improve immunization coverage.

To improve stakeholder engagement, 55.9% of participants supported enhancing communication and information sharing.

Research shows that effective communication can build trust and foster collaboration among stakeholders (Viswanath *et al.*, 2013). Furthermore, developing culturally sensitive strategies and improving logistical support were also considered important strategies to strengthen engagement and address barriers to immunization programs.

Healthcare workers, community-based organizations (CBOs), and non-governmental organizations (NGOs) significantly enhance immunization performance. Healthcare workers play a crucial role in improving immunization performance, as indicated by a significant positive coefficient (3.198) and a low p-value (0.005). This aligns with previous studies that emphasize the importance of healthcare providers in promoting vaccination uptake and addressing barriers to immunization (Paul, 2022; Monica et al., 2024). Similarly, CBOs have a substantial positive effect on immunization performance, with a coefficient of 2.824 and a highly significant p-value (0.000). This is consistent with evidence suggesting that community engagement interventions, including those involving CBOs, enhance vaccination coverage and timeliness (Jain et al., 2022). NGOs also contribute positively to immunization outcomes, as demonstrated by a positive coefficient (1.766) and a significant p-value (0.030). This supports the broader literature on the effectiveness of NGOs in health promotion and community engagement for vaccination (Jain et al., 2022; WHO, 2016).

In contrast, government agencies appear to have a negligible effect on immunization performance in this context, with a coefficient of 0.003 and a non-significant p-value (0.997). This contrasts with expectations that government support would be crucial for immunization efforts, highlighting potential gaps in service delivery or coordination (Paul, 2022). Community leaders, with a positive coefficient (1.050) and a p-value (0.078) slightly above the threshold for statistical significance, may have some positive influence, but their role is not as strongly supported by the data as that of healthcare workers, NGOs, and CBOs. However, other studies have shown that engaging traditional and religious leaders can be effective in promoting vaccination (Oyo-ita, 2020; Folayan, 2019). Families and caregivers also have a positive impact, with a coefficient (1.478) and a p-value (0.060) just above the threshold for significance. Community engagement strategies often emphasize the importance of family involvement in promoting health behaviours (Mila, Dikshya, & Ashata, 2022).

Conclusion

The data collected on community engagement activities, stakeholder roles, and the effectiveness of collaboration in routine immunization programs suggests that there is general recognition of the importance of stakeholder involvement, but with varying perceptions of the effectiveness and challenges in these efforts. A significant majority of participants view healthcare workers, community leaders, NGOs, and community-based organizations as vital in the success of immunization programs, with healthcare workers and CBOs having the most statistically significant positive impact on immunization performance. However, gaps remain in the visibility and effectiveness of these roles in certain areas, particularly in terms of coordination and the presence of regular platforms for dialogue. While some participants report challenges such as resource constraints, communication issues, and transport barriers, the overall perception of collaboration and coordination is largely positive.

Recommendations

Based on the findings, we recommend the following:

1. Health facilities should prioritize strengthening community engagement activities, especially in areas where such

activities are perceived as insufficient. This includes expanding the role of community leaders and influencers in addressing vaccine misinformation and promoting vaccination.

2. Establish more platforms for regular communication and coordination among stakeholders. This would help ensure consistent collaboration across different levels, from healthcare workers to community organizations.
3. Focus on overcoming challenges such as resource constraints, transport accessibility, and cultural barriers, as these were identified as significant factors limiting engagement. Providing adequate resources and developing solutions for transportation and accessibility could improve stakeholder participation.
4. Given the significant positive impact of NGOs and CBOs on immunization performance, health facilities should strengthen partnerships with these organizations, ensuring they play a more active role in outreach, advocacy, and education.
5. While trust-building strategies were not viewed as universally essential, they could play an important role in strengthening stakeholder engagement. Providing transparent information about immunization programs and policies may help increase participation and cooperation.
6. Efforts should be made to engage families and caregivers more actively in immunization programs, as their role was seen to positively impact performance, though not statistically significant. Educational campaigns targeting families could help increase their involvement.
7. As improving communication was identified as a crucial strategy, health facilities should implement more robust channels for sharing information and updates on immunization programs, addressing any concerns or misinformation within the community.

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