

Original Research Article

Influence of health promotion activities on immunization uptake among mothers of under-five children in Oron L.G.A, Akwa Ibom state Nigeria

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ABSTRACT

Background: Immunization is a cornerstone of global child survival strategies and a central component of the WHO–UNICEF Immunization Agenda 2030. However, immunization uptake remains suboptimal in many low- and middle-income countries due to sociocultural and informational barriers. This study assessed the influence of health promotion activities on childhood immunization uptake among mothers of under-five children in Oron Local Government Area, Akwa Ibom State, Nigeria.

Methods: The study was conducted between January, 2025 to June, 2025. A concurrent mixed-methods design was employed. The quantitative component used a cross-sectional descriptive design involving 384 mothers selected through multistage sampling, with data collected using a semi-structured questionnaire and analyzed using descriptive statistics. The qualitative component consisted of in-depth interviews with 60 purposively selected participants, and data were analyzed thematically.

Results: Social context factors, including cultural norms, belief systems, and the influence of significant others, accounted for 46.6% of the variation in childhood immunization uptake. Health promotion strategies, particularly community engagement forums and digital communication platforms—explained 47.9% of uptake. Overall, health promotion activities demonstrated a statistically significant positive influence on childhood immunization uptake 44.3%, $p < 0.05$. Qualitative findings supported these results, highlighting the roles of socioeconomic conditions, cultural beliefs, and community influence in maternal immunization decision-making.

Conclusions: Childhood immunization uptake in Oron Local Government Area is strongly influenced by health promotion activities and sociocultural context. Context-specific and culturally responsive health promotion interventions, with emphasis on community engagement and trust-building, are essential for improving immunization coverage. Integrating such strategies into national and subnational immunization policies may help reduce vaccine hesitancy and promote equitable access.

Keywords: Immunization, Health promotion, Uptake, Sociocultural factors, Public health

INTRODUCTION

Health, as defined by the World Health Organization, is a state of complete physical, mental, and social well-being, not merely the absence of disease.¹ Achieving this

requires individuals and communities to address social, cultural, economic, and environmental determinants of health.² Health promotion, through education, skill development, community participation, and supportive policies, enables populations to take control of these

determinants and improve well-being across the life course. Immunization is a cornerstone of public health, preventing morbidity, mortality, and healthcare costs from vaccine-preventable diseases.³ The WHO–UNICEF Immunization Agenda 2030 IA2030 emphasizes community engagement, trust-building, and demand generation to achieve equitable coverage.⁴ In Nigeria, routine immunization services exist, but coverage remains uneven, with subnational disparities driven by socio-cultural beliefs, misinformation, access barriers, and vaccine hesitancy.⁵ These challenges are particularly pronounced in the South–South region, including Akwa Ibom State, where local perceptions and gaps in health communication influence uptake. In Oron Local Government Area, empirical evidence on the impact of health promotion on mothers' immunization decisions is limited. Strengthening community engagement and culturally tailored health promotion strategies is essential for improving vaccine uptake, supporting IA2030 goals, and advancing Sustainable Development Goal 3, including reducing under-five mortality to below 25 per 1,000 live births by 2030. This study examines the role of health promotion in enhancing childhood immunization in this context.

Purpose of the study

The purpose of this study was to examine the influence of health promotion activities on immunization uptake among mothers of children under five years in Oron Local Government Area, Akwa Ibom State. Specifically, the study sought to identify the nature of health promotion activities received by mothers of under-fives in Oron LGA, explore the settings and social contexts in which these activities were delivered, and assess their influence on immunization uptake. The study was guided by research questions focusing on the nature of health promotion activities received by mothers of under-fives in Oron LGA, the settings and social contexts in which these activities were delivered, and how these health promotion activities influence immunization uptake among mothers of under-fives in the area.

METHODS

Research design

The study was conducted between January 2025 to June 2025. A cross-sectional descriptive study was used to examine the influence of health promotion on immunization uptake in Oron LGA, Akwa Ibom State. The study population included 15,965 mothers, caregivers and healthcare practitioners with data collected from randomly selected healthcare facilities.⁶

Area of study

The research was conducted in Oron Local Government Area of Akwa Ibom State, Nigeria with focus on four main healthcare facilities namely: Uya Oron, Ukouyukim,

Eyetong and Idua Assang. The area has a total population of 15 965.

Population for the study

The study population comprised of residents of Oron LGA, focusing on individuals accessing healthcare services in Uya Oro, Ukouyukim, Idua Assang, and Eyetong. Only participants who provided informed consent were included, ensuring both geographic relevance and adherence to ethical standards.

Sample and data analysis

The study sampled 384 mothers using multistage sampling, with equal representation of 96 respondents from each of four clusters, based on the Cochrane formula. Quantitative data were analyzed using descriptive statistics (means and standard deviations), while qualitative data from 60 purposively selected participants were analyzed thematically through in-depth interviews.

Data collection instrument

Data was collected using a researcher-designed questionnaire IHPAIUAMUF with four sections. Section A captured demographic information, while Sections B–D assessed the influence of health promotion on immunization uptake among mothers of under-fives, with 15 items rated from Very Ineffective to Very Effective. The questionnaire was validated by three public health experts, and a reliability coefficient of 0.75 confirmed its suitability for the study.

Data collection techniques

A mixed-methods approach was used, combining structured questionnaires for quantitative data and in-depth interviews for qualitative insights. A total of 384 questionnaires were administered and retrieved by the researcher and two assistants, while interview schedules were designed to align with the research questions.

Method of data analysis

Data were analyzed using multistage sampling, with frequency and percentage calculations to ensure representativeness. Four clusters were selected based on district health facilities, and eligible adults were randomly sampled within households and facilities. Completed questionnaires were screened, coded, and analyzed using IBM SPSS Statistics version 21.

RESULTS

Table 1 presents the demographic characteristics of the 384 respondents. The majority were female (n=364, 94.8%), reflecting the predominance of women in caregiving roles, while 20 participants (5.2%) were male.

The largest age group was 34–41 years (n=113, 29.4%), suggesting that the study primarily captured the perspectives of older community members with relevant caregiving experience and knowledge. Research Question examined What are the nature of health promotion activities received by mothers of under-fives at Oron LGA of Akwa Ibom State? Data responding the research

questions are contained in table 2. Most respondents (87.2%) rated health promotion strategies as ineffective, and 47.4% reported them as inaccessible. This highlights gaps in the reach and effectiveness of current programs. Policy actions should focus on improving accessibility and strengthening the delivery of health promotion activities to boost immunization uptake.

Table 1: Socio-demographic characteristics of the respondents (n=384).

Demographic profile	Variable	Frequency (N)	Percentage (%)
Age of participant (years)	18-25	84	21.88
	26-33	75	19.53
	34-41	113	29.43
	42-49	82	21.35
	50 and above	30	7.81
Educational status	No formal education	20	5.21
	Primary education	120	31.25
	Secondary education	150	39.06
	Tertiary education	94	24.48
Occupation	Farming	105	27.34
	Petty trading	76	19.79
	Fishing	170	44.28
	Civil service	33	8.59
Religion	Christianity	324	84.37
	Traditional religion	39	10.16
	Islam	0	0
	Others	21	5.47
Sex	Male	20	5.21
	Female	364	94.79

Table 2: Mean and standard deviation of strategies used in delivering health promotion activities among mothers of mothers of under-fives (n=384).

S no.	Items	Very in effective F (%)	Ineffective F (%)	Effective F (%)	Very effective F (%)	Mean	Std.
1	Effectiveness of Educational Campaigns about the importance of Childhood Immunization	158 (41.1)	177 (46.1)	24 (6.3)	25 (6.5)	193.4	9.8
2	Educational Materials used in Providing Information about Vaccine safety is Accessible	Not Accessible	Slightly Accessible	Moderately Accessible	Very Accessible	204.6	
		182 (47.4)	113 (29.4)	47 (12.2)	42 (10.9)		
3	Immunization Services are Conveniently Delivered to my Community	Very Inconvenient	Inconvenient	Convenient	Very Convenient	195.8	9.6
		149 (38.8)	187 (48.7)	23 (5.9)	25(6.5)		
4	Group health talk on immunization Provided by the Healthcare	Not Important	Slightly Important	Very Important	Moderately Important	133.8	107.6
		87 (22.7)	72 (18.8)	111 (28.9)	114 (29.7)		
	Providers during Parental visits are Very important to Childhood Immunization Uptake						

Continued.

S. no.	Items	Very in effective F (%)	Ineffective F (%)	Effective F (%)	Very effective F (%)	Mean	Std.
5	Free vaccinations Strategies are Effective and Motivating Mothers to Ensure your child Receive all Recommended Vaccinations	Very Effective 26 (6.8)	Ineffective 38 9.8)	Effective 184 (47.9.)	Very Effective 136 (35.4)	42.2	211.2
6	Total					787.8	393.6

Table 3: Frequencies and percentage (%) showing setting/places /social context and health promotion activities on mothers with under five child (n=384).

S. no.	Items	Highly influential F (%)	Somewhat influential F (%)	Moderately influential F (%)	Not influential F (%)	Mean	Std.
1	Cultural beliefs about immunization influence childhood immunization Uptake	179 (48.6)	98 (25.5)	77 (20.1)	30 (7.8)	213.6	21.4
2	Immunization health information delivered in a group and social circle impacts Parents to Vaccine their children	To large extend 113 (24.4)	To moderate extent 126 (32.8)	Not at all 66 (17.2)	To small extent 79 (20.6)	147.6	0.8
3	Socio-economic factors are Impactful to family’s access to immunization services in my community	No impact 140 (36.5)	Minimal impact 147(38.3)	Moderate impact 67 (17.4)	Significant impact 30(7.8)	60.4	19.4
4	How likely are parents in your community mistrust on immunization information shared by healthcare profession is likely to affect childhood Immunization uptake	Very unlikely 106 (27.6)	Unlikely 110 (27.6)	Likely 131 (34.1)	Very likely 37 (9.6)	48.6	35.2
5	Social settings of my community are supportive of childhood immunization	Not supportive at all 177(46.1)	Moderate supportive 160 (41.7)	Somewhat supportive 31(8.1)	Highly supportive 16(4.2)	217.6	34.2
6	Total					787.8	393.6

Research Question 2 examined the settings and social contexts in which health promotion activities were delivered to mothers of children under five years in Oron Local Government Area of Akwa Ibom State. The data addressing this research question are presented in Table 3. Table 3 indicates social context plays a significant role in shaping health promotion activities, with 46.6% of respondents reporting it as highly influential and 25.5% as somewhat influential. However, perceptions of influence varied widely, as reflected in the grand mean (787.8) and standard deviation (393.6). These findings highlight the need for health promotion strategies that are responsive to local social dynamics to improve

immunization uptake. Research Question 3 examined the influence of health promotion activities on immunization uptake among mothers of children under five years in Oron Local Government Area. The data responding to this research question are presented in Table 4. Socio-demographic characteristics of respondents: A total of 384 respondents participated in the study. The majority were female (364;94.8%), reflecting women’s predominant care giving role, while 20 (5.2%) were male. Most respondents were aged 34–41 years (113;29.4%), followed by those aged 18–25 years 84;21.9% and 42–49 years (82;21.4%). Regarding educational attainment, 150 respondents 39.1% had secondary education, 120 (31.3%)

had primary education, 94 (24.5%) had tertiary education, while 20 5.2% had no formal education. Farming 105;27.3%, petty trading 76;19.8%, and fishing

170;44.3% were the predominant occupations. Most respondents identified as Christians 324;84.4%.

Table 4: Frequencies and percentage (%) showing influence of health promotion activities and uptake of immunization among mothers under five (n=384).

S. no.	Items: Health promotion activities and uptake of immunization	Rarely F (%)	Occasionally F (%)	Sometimes F (%)	Often F (%)	Mean	Std.
1	Health promotion activities about immunization influence childhood immunization uptake	126 (32.8)	139 (36.2)	77 (20.1)	42 (10.9)	153.8	26.8
2	Channels of communication used to promote childhood immunization uptake were helpful	Social media	Community meetings	Health facilities	Mobile apps	160.2	141.2
		114 (37.5)	136 (35.4)	81 (21.1)	23 (5.9)		
3	Health information received on effectiveness of immunization against childhood diseases	Not effective	Slightly effective	Moderately effective	Very effective	157.2	80.2
		121 (31.5)	134 (34.9)	68 (17.7)	61 (15.9)		
4	Respondents feel adequately informed about childhood vaccination	Not informed	Somewhat informed	Moderately informed	Very informed	203.4	37.6
		170 (44.3)	154 (40.1)	32 (8.3)	28 (7.3)		
5	Immunization services in the community satisfactorily improve uptake	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied	158.4	125.8
		41 (10.7)	98 (25.5)	119 (30.9)	126 (32.8)		
6	Total					166.6	

Nature of health promotion activities received by mothers

Findings revealed limited effectiveness and accessibility of health promotion activities. A large proportion of respondents rated educational campaigns on childhood immunization as ineffective 177;46.1% or very ineffective 158;41.1%. Similarly, nearly half of respondents 182;47.4% reported that educational materials on vaccine safety were not accessible. Group health talks during clinic visits were perceived as moderately to very important by 225 respondents 58.6%, indicating their potential influence when effectively delivered. Free vaccination services were considered effective or very effective in motivating immunization uptake by 320 respondents 83.3%. Overall, most respondents 87.2% perceived existing health promotion strategies as inadequate, highlighting gaps in reach and implementation.

Settings and social context of health promotion activities

Social and cultural contexts played a significant role in immunization uptake. Cultural beliefs were reported as

highly influential by 179 respondents 46.6% and somewhat influential by 98 25.5%. Health information delivered through group discussions and social networks influenced parental decision-making to a large or moderate extent among 239 respondents 57.2%. Socioeconomic factors were perceived to have minimal or no impact by 287 respondents 74.8%, though 97 respondents 25.2% acknowledged moderate to significant effects. Community social settings were largely perceived as unsupportive of childhood immunization, with 177 respondents 46.1% reporting no support. These findings underscore the importance of addressing community norms and trust in health promotion interventions.

Influence of health promotion activities on immunization uptake

Health promotion activities were reported to influence immunization uptake either rarely or occasionally by 265 respondents 69.0% while 119 respondents 31.0% reported that such activities sometimes or often influenced uptake. Communication channels varied in effectiveness are social media 37.5% and community meetings 35.4% were the most commonly cited sources of immunization

information, while mobile applications were least utilized 5.9%. Only 93 respondents 24.2% perceived health information on vaccine effectiveness as very or moderately effective. Additionally, 170 respondents 44.3% reported feeling inadequately informed about childhood vaccination. Despite these gaps, satisfaction with immunization services was relatively higher, with 245 respondents 63.7% reporting satisfaction or high satisfaction. Overall, health promotion activities demonstrated a statistically significant positive influence on childhood immunization uptake $p < 0.05$.

DISCUSSION

This study examined the influence of health promotion activities on childhood immunization uptake among mothers of under-five children in Oron Local Government Area, Akwa Ibom State. Overall, the findings indicate suboptimal satisfaction with existing health promotion efforts, alongside clear evidence that well-designed and trusted health promotion activities positively influence immunization uptake.

The low level of satisfaction reported by respondents—with over 60% expressing dissatisfaction—suggests gaps in the reach, quality, and effectiveness of health promotion activities. This finding underscores the need to strengthen the delivery of immunization-related health education, particularly in ways that are accessible, culturally appropriate, and responsive to mothers' concerns. Similar challenges have been documented in other Nigerian settings, where inadequate communication and weak community engagement have limited the impact of immunization programmes.⁷

The socio-demographic profile of respondents indicates that most participants were within the active reproductive age group, making them appropriate informants for assessing childhood immunization practices. Educational attainment emerged as a key determinant of immunization uptake, with higher levels of education associated with better acceptance of vaccines. This finding reinforces existing evidence that maternal education enhances health literacy, improves risk perception, and facilitates informed decision-making regarding childhood immunization consistent with studies conducted. Immunization uptake appears to be socially situated and shaped by cumulative exposure to health information over time.⁸

Findings further demonstrate that health promotion activities delivered by trusted sources—particularly healthcare workers—positively influenced mothers' decisions to immunize their children. This aligns with previous evidence emphasizing that trust in health workers plays a critical role in vaccine acceptance.⁴ Educational programmes conducted during clinic visits and community interactions were especially influential, highlighting the importance of interpersonal

communication in addressing misinformation and vaccine hesitancy.

The mode of health promotion delivery was also found to be crucial. Health promotion activities that were perceived as poorly delivered or inaccessible contributed to skepticism and reduced uptake, whereas clear, consistent, and respectful communication fostered trust and acceptance. This finding supports Cheon and Nam's assertion that access to accurate health information and supportive health systems enhances immunization uptake. The relatively low proportion of respondents with no formal education suggests that appropriately tailored health messages can be effectively communicated within the community when delivery strategies are optimized.⁸

Religious composition and community norms also shaped immunization decision-making. The predominance of Christian respondents reflects the local population structure and suggests opportunities for engaging faith-based institutions as partners in immunization promotion.¹⁰ Similar observations have been reported by colleagues, who noted that community and religious participation can enhance women's engagement in public health interventions.¹¹

This study has some limitations that should be considered when interpreting the findings. The cross-sectional design limits the ability to establish causality between health promotion activities and immunization uptake. Data was self-reported by respondents and may be subject to bias and social desirability bias. Additionally, the study was conducted in selected health facilities within Oron Local Government Area, which may limit the generalizability of the findings to other settings. Despite these limitations, the mixed-methods approach provided robust insights into the contextual and behavioural factors influencing immunization uptake.

CONCLUSION

This study demonstrates that childhood immunization uptake in Oron Local Government Area remains suboptimal despite general awareness of its benefits, largely due to health system, individual, and contextual barriers. The findings show that both the nature and delivery of health promotion activities significantly influence mothers' immunization decisions. Negative health worker attitudes, concerns about vaccine safety, competing household and livelihood responsibilities, and the influence of community opinion leaders emerged as key determinants of vaccine hesitancy.

Importantly, the study establishes that vaccine hesitancy is modifiable and strongly shaped by access to accurate, timely, and culturally appropriate immunization information. While community participation has the potential to improve immunization decision-making, its effectiveness is constrained by organizational limitations and prevailing sociocultural norms. These findings

underscore the need for policies that strengthen health worker–client interactions, institutionalize context-specific health promotion strategies, and integrate flexible, community-driven service delivery models—particularly targeting young mothers and other underserved populations—to improve childhood immunization coverage.

Recommendations

Based on the findings of this study, the following recommendations are proposed to improve childhood immunization uptake in Oron Local Government Area and similar settings. Strengthen community outreach: Health promotion and communication strategies should be evidence-based, targeted, and culturally tailored to address sociocultural and contextual barriers to immunization. Attention should be given to mothers exhibiting vaccine hesitancy through community engagement forums, home visits, and collaboration with community and opinion leaders. Enhance communication strategies: Immunization programmers should prioritize clear, consistent, and credible messaging that addresses fears, misinformation, and mistrust surrounding vaccines. Communication interventions should aim to modify harmful social norms and cultural beliefs influencing immunization decisions, in alignment with national immunization communication and demand-generation frameworks.

Improve health worker–client interactions: Capacity-building initiatives should be implemented to strengthen health workers' interpersonal communication skills, promote respectful care, and improve trust between providers and caregivers, as positive provider attitudes were shown to influence immunization uptake. Adopt flexible and community-driven service delivery models: Immunization services should be designed to accommodate mothers' household and livelihood responsibilities through flexible scheduling, outreach services, and integration of immunization activities into existing community structures.

Implementing these recommendations in combination is expected to enhance vaccine acceptance, support informed parental decision-making, and strengthen childhood immunization coverage at the community level.

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