



Assessment of Communication in Community Engagement for the Roll-Back Malaria Programme in Kogi East Senatorial District, Kogi State

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Abstract

This study assessed communication in community engagement for the Roll-Back Malaria Programme in Kogi East Senatorial District, Kogi State. The study examined the communication strategies used to mobilize communities, the extent to which these strategies were associated with reported engagement in malaria-prevention activities, communication-related challenges, and perceived community responsiveness. The study was anchored on the Health Belief Model and Social Cognitive Theory. A mixed-method design combined a descriptive survey of 385 community residents selected from six communities in Dekina, Ofu and Ankpa Local Government Areas with key-informant interviews involving six programme stakeholders. Quantitative data were analyzed using frequencies, percentages, means and standard deviations, while interview data were organized through framework analysis. The findings indicate that town criers/announcements, radio programmes/jingles, and posters/banners/handbills were commonly reported communication channels, whereas house-to-house contact with health workers had comparatively lower reported reach. Reported engagement was higher for individual preventive behaviours, particularly insecticide-treated-net use and early treatment seeking, than for behaviours involving collective action or changes in established treatment practices. Respondents also reported communication barriers related to limited health-worker visits, access to radio, conflicting traditional beliefs, and doubts about some messages. The qualitative evidence similarly identified manpower, infrastructure, cultural beliefs and trust as recurring implementation challenges. Because the quantitative analysis is descriptive, the findings are interpreted as reported patterns and associations rather than causal effects. The study recommends strengthening sustained interpersonal communication, using trusted community structures, improving access to communication channels, and designing culturally responsive feedback mechanisms within the study area.

Keywords: communication, community engagement, Roll-Back Malaria Programme, Kogi East, health communication

Introduction

Malaria remains a major public-health challenge, particularly in the WHO African Region, where the burden is concentrated and inequities in access to prevention, diagnosis and treatment remain important concerns. The World Health Organization's World malaria report 2024 estimated 263 million malaria cases and 597,000 deaths globally in 2023, with approximately 95% of malaria deaths occurring in the African Region (World Health Organization [WHO], 2024). These figures reinforce the importance of communication approaches that help communities understand malaria risks, access available services and participate in prevention activities.

Communication is an important component of malaria control because prevention measures depend not only on the availability of interventions but also on whether people receive, understand, trust and act on relevant information. The Nigeria Malaria Indicator Survey 2021,



implemented by the National Malaria Elimination Programme (NMEP), the National Population Commission and ICF, documents malaria-related knowledge, prevention practices and exposure to malaria information in Nigeria (National Malaria Elimination Programme [NMEP], National Population Commission [NPC], & ICF, 2022). At programme level, NMEP identifies community-owned and multi-sectorial approaches as part of its malaria-control mission (NMEP, 2021–2025).

Evidence from malaria-endemic settings also shows that communication is most useful when it combines channels and involves communities rather than treating them solely as recipients of messages. In southeast Nigeria, Umeano-Enemuoh et al. (2015) found that community members and health workers received malaria information through multiple sources, including radio, television, posters and health workers, and highlighted community involvement in the design and delivery of information as an important strategy. More recent evidence similarly indicates that community-engagement approaches can strengthen ownership and contextual relevance, although the effects vary according to programme design and local conditions (Awasthi et al., 2024; Abdul Rahim et al., 2025).

The empirical picture within Kogi State itself illustrates why this evidence gap matters locally. State-level results from the 2021 Nigeria Malaria Indicator Survey placed malaria prevalence among children aged 6–59 months in Kogi State at 16%, close to the North Central zonal average, while insecticide-treated-net use among children under five in the state (21%) remained well below the national average of 41% (NMEP, NPC, & ICF, 2022). These figures indicate a persistent gap between the availability of malaria-prevention commodities and their consistent use, a gap in which communication and community engagement are widely assumed to play a role. However, the national and zonal survey figures describe outcomes; they do not explain how communication reaches residents of specific communities, which channels respondents themselves report relying on, or why reported engagement with prevention practices varies. This distinction between documented outcomes and documented communication processes is the empirical problem that motivates the present study.

The present study is situated in Kogi East Senatorial District, where the empirical investigation covers six communities in Dekina, Ofu and Ankpa Local Government Areas. The study therefore focuses on the communication interface between malaria-programme implementers and community residents within a defined geographical setting, rather than making claims about all communities in Kogi State. This geographical focus is important because access to communication channels, health workers, community structures and local interpretations of malaria messages may differ across settings, so that state-level averages such as those reported above may mask meaningful variation within a senatorial district.

Within the study area, the communication activities examined include community announcements, radio messages, printed materials, health-worker visits and related community mobilisation activities. However, exposure to a message does not by itself demonstrate sustained participation or behavioural change. A community may hear a malaria message without consistently using an insecticide-treated net, seeking prompt treatment, participating in environmental sanitation or changing established treatment practices. The distinction between message exposure, engagement and reported behaviour therefore requires empirical examination.

The existing evidence establishes three things with reasonable confidence: that malaria remains a significant burden in Kogi State relative to national targets; that a range of communication channels; mass media, printed materials, interpersonal contact and community



structures, are used in malaria-control programming in Nigeria; and that community involvement in the design and delivery of messages is associated with stronger ownership and contextual relevance elsewhere in the country and region (Umeano-Enemuoh et al., 2015; Awasthi et al., 2024; Abdul Rahim et al., 2025). What this evidence does not establish is how these channels are actually experienced by residents of Kogi East specifically, whether reported exposure to any given channel corresponds with reported engagement in prevention practices, what communication-related barriers residents and programme implementers themselves identify, and how community members perceive the responsiveness of the programme's communication efforts. This is the precise knowledge gap the present study addresses.

The study responds to this gap by bringing together community-level survey evidence and programme-implementer perspectives. Rather than assuming that communication causes behavioural change, the study describes the communication channels reported by respondents, examines their reported relationship with engagement indicators, identifies communication barriers, and assesses perceived responsiveness. This approach provides a more precise basis for understanding what communication appears to reach communities and where implementation gaps remain. In light of these considerations, this study assesses communication in community engagement for the Roll-Back Malaria Programme in Kogi East Senatorial District, Kogi State. It specifically examines the communication strategies reported by residents, their reported association with engagement in malaria-prevention activities, the communication-related challenges affecting participation, and the perceived responsiveness of communities to the programme's communication efforts, interpreting the findings within the Health Belief Model and

Statement of the Problem

Malaria-control communication in Nigeria operates within a context in which prevention depends on both access to interventions and community understanding and participation. National evidence and programme documents demonstrate the continuing importance of advocacy, communication and social mobilization, yet national or programme-level evidence does not by itself explain how communication is experienced in particular communities (NMEP et al., 2022; NMEP, 2021–2025).

Despite this national and programme-level evidence, no known study has systematically examined how communication in community engagement functions for the Roll-Back Malaria Programme within Kogi East Senatorial District. It is not established which communication channels residents of the selected communities themselves report relying on, whether reported exposure to these channels corresponds with reported engagement in specific prevention practices, what communication-related barriers residents and programme stakeholders identify, or how community members perceive the responsiveness of the programme's communication efforts. The problem, therefore, is that programme planning in Kogi East proceeds without locally grounded evidence on these four dimensions, evidence that is necessary to identify where communication is working, where it is not, and why. This study addresses that problem by combining community-level survey data with key-informant interviews with programme implementers, providing an evidence base that can inform more targeted communication and community-engagement strategies for the Roll-Back Malaria Programme in the study area.



Objectives of the Study

The aim of this study is to assess communication in community engagement for the Roll-Back Malaria Programme in Kogi East Senatorial District, Kogi State. Specifically, the study seeks to:

1. examine the communication strategies used to mobilize communities for the Roll-Back Malaria Programme in the study area;
2. assess the reported extent to which the communication strategies are associated with active engagement in malaria-prevention activities;
3. identify communication-related challenges affecting community participation in the study area;
4. assess the perceived level of community responsiveness to the programme's communication efforts.

Research Questions

The following research questions have been formulated to guide this study:

1. What communication strategies are used to mobilize communities for the Roll-Back Malaria Programme in the study area?
2. To what extent are the communication strategies associated with reported engagement in malaria-prevention activities?
3. What communication-related challenges affect community participation in the study area?
4. What is the perceived level of community responsiveness to the programme's communication efforts?

Literature Review

Communication Strategies in Public Health

Communication strategies in malaria control: Communication strategies include mass media, interpersonal communication, community dialogue, printed materials and other locally appropriate channels. Their value depends on reach, credibility, comprehension, repetition and opportunities for feedback. Evidence from southeast Nigeria shows that communities receive malaria information through multiple sources and that community involvement in the design and delivery of messages can strengthen communication (Umeano-Enemuoh et al., 2015). The implication is not that one channel is universally superior; rather, different channels may serve different communication functions. Mass media may provide broad exposure, while interpersonal and community-based approaches can provide clarification, trust and feedback.

Community engagement and responsiveness: Recent literature increasingly treats community engagement as more than attendance at campaigns. Awasthi et al. (2024), in a scoping review, found a range of approaches through which communities participate in malaria prevention, control and elimination. Abdul Rahim et al. (2025) similarly mapped evidence on community knowledge and emphasizes the importance of culturally adapted approaches. These studies converge on the importance of community participation, but they also indicate variation in context and implementation. For the present study, community engagement is therefore examined through reported participation and responsiveness rather than assumed from exposure to messages alone.

Community engagement in malaria Prevention

The literature suggests that communication and community engagement are closely related but conceptually distinct. Communication concerns the production, delivery and exchange of information, whereas engagement includes participation, dialogue, feedback, ownership and



action. The distinction is important because a programme can achieve broad message exposure without achieving sustained community participation. The current study addresses this distinction by measuring communication strategies separately from reported engagement and responsiveness. Communication challenges and contextual factors: Barriers to malaria communication include inadequate human resources, unequal access to communication infrastructure, low literacy, competing explanations of illness, mistrust and weak feedback systems. The literature also cautions against assuming that information automatically produces behaviour. For example, the evidence synthesized by Awasthi et al. (2024) and Abdul Rahim et al. (2025) indicates that community context and participation shape how interventions are understood and accepted. These findings are relevant to Kogi East because the survey and interview data point to both communication-access barriers and sociocultural barriers.

Review of Empirical Studies

The empirical literature relevant to this study can be organized around communication exposure, community participation and contextual barriers. Umeano-Enemuoh et al. (2015) used qualitative methods in six communities in southeast Nigeria and found that radio, television, posters and health workers were among the sources of malaria information. The study also emphasized community involvement in information design and delivery. Its qualitative design provided rich contextual evidence but did not quantify communication exposure among a large community sample. This limitation makes the present survey component useful for describing the distribution of reported communication experiences in Kogi East. Kebede et al. (2020) evaluated school-based social and behaviour change communication in Ethiopia using a pre-posttest design and reported changes in message exposure, acceptance and preventive practices. The intervention-oriented design is useful for showing how communication can be embedded in community structures, but the Ethiopian setting and school-based intervention differ from the present study. The current study therefore uses the finding as comparative evidence rather than assuming that the same effects occur in Kogi East.

Awasthi et al. (2024) synthesized evidence on community-engagement approaches for malaria prevention, control and elimination. Their review demonstrates considerable diversity in how communities are engaged and supports the need to examine local context. Abdul Rahim et al. (2025) similarly synthesized evidence concerning community knowledge in malaria prevention and control. Together, these recent reviews strengthen the conceptual case for community-centred communication, but neither provides the specific empirical evidence required for the selected Kogi East communities.

Theoretical and Methodological Implications of the Empirical Literature

Across the empirical literature, a recurring methodological issue is that communication exposure, engagement and behavioural outcomes are not always measured together. Qualitative studies provide depth but may not quantify patterns; intervention studies may demonstrate change but depend on specific programme designs; and scoping reviews synthesize evidence without generating local primary data. The present study responds by combining descriptive survey data with key-informant evidence. Because the quantitative data are descriptive, however, the study does not infer causality or statistical relationships beyond the observed response patterns.

The evidence reviewed establishes the importance of communication, community participation and contextual adaptation in malaria control, but there remains a need for locally grounded evidence describing how these dimensions interact in specific Nigerian settings. In



particular, the reviewed literature does not provide a direct assessment of communication in community engagement for the Roll-Back Malaria Programme across the selected communities of Kogi East Senatorial District. This study addresses that gap by examining four linked dimensions; communication strategies, reported engagement, communication challenges and community responsiveness, using community survey data and programme-stakeholder interviews.

Theoretical Framework

The study is anchored on the Health Belief Model (HBM) and Social Cognitive Theory (SCT). The two frameworks are used as complementary interpretive lenses rather than as statistical models. The HBM helps explain how perceived susceptibility, severity, benefits, barriers, cues to action and self-efficacy may shape responses to malaria messages (Rosenstock, 1974). SCT emphasizes reciprocal relationships among personal factors, behaviour and the social environment, including observational learning, modelling and reinforcement (Bandura, 1986). The HBM is relevant because malaria-prevention communication may function as a cue to action and may influence how individuals perceive risk and the benefits or barriers associated with preventive practices. In this study, the model helps interpret why respondents reported relatively higher levels of some individual preventive practices while reporting lower responsiveness in areas involving established treatment practices. The model does not, however, establish that the communication messages caused those behaviours.

SCT is relevant because malaria prevention takes place within social environments in which community members observe health workers, peers, family members, traditional leaders and other information sources. The theory therefore helps interpret the importance of interpersonal communication, community modelling and reinforcement. It also provides a framework for understanding why the social environment; such as availability of health workers, community structures and access to communication channels, may condition the usefulness of messages. the HBM and SCT provide a complementary framework for interpreting the findings. The HBM directs attention to individual perceptions and perceived barriers, while SCT directs attention to social learning and environmental conditions. The study uses these concepts to interpret reported communication exposure, engagement and responsiveness without treating either theory as proof of causal effects.

Methodology

This study adopted a mixed-method design comprising a descriptive cross-sectional survey and qualitative key-informant interviews. The study population comprised residents of Kogi East Senatorial District, and the empirical scope was defined as six communities located in Dekina, Ofu and Ankpa Local Government Areas: Anyigba and Dekina town; Ugwolawo and Ogbonicha; and Ankpa town and Enjema. The manuscript's projected 2025 population estimate of 2,593,445 was retained as the planning population, based on the 2006 census figure reported in the study and an assumed annual growth rate of 3%. Because this planning population is very large, the survey sample size was determined using Cochran's (1963) formula for large populations, $n = Z^2pq/e^2$, with a 95% confidence level ($Z = 1.96$), an assumed response distribution of $p = q = 0.5$, and a 5% margin of error ($e = 0.05$). This produced a minimum sample of approximately 384 respondents, rounded to 385 for the survey. A multistage sampling procedure was used to select survey respondents. First, the nine LGAs in Kogi East constituted the sampling frame, and three LGAs—Dekina, Ofu and Ankpa—were selected through simple random sampling. Second, two communities were selected in each chosen LGA using the same procedure: Anyigba and Dekina



town; Ugwolawo and Ogbonicha; and Ankpa town and Enjema. Third, the sample of 385 was proportionately allocated across the three selected LGAs using the projected population figures reported in the study: Dekina 150, Ankpa 125 and Ofu 110. Within the selected communities, respondents were approached purposively on the basis of residency and willingness to participate. This final purposive stage means that the survey should be interpreted as descriptive of the respondents reached rather than as a statistically representative estimate of every resident of Kogi East.

For the qualitative component, six key informants were purposively selected because they held programme-coordination, communication or community-engagement roles in the organizations responsible for the Roll-Back Malaria activities examined in the study. The informants represented NMEP, SFH and CRS, the three organizations with direct operational responsibility for malaria-communication activities in the study area, and were selected to ensure that each organization's perspective was represented. The small number reflects the total population of accessible programme-implementer roles in the study area at the time of data collection; it was intended to capture programme-implementer perspectives rather than to achieve statistical representation, and their accounts were used to complement and contextualize the survey findings rather than to generalize across all implementers. The instruments were a structured questionnaire and a semi-structured interview guide. The questionnaire used a five-point Likert scale: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly Disagree (1). A decision benchmark of 3.00 was used: item means of 3.00 or above were classified as Accepted, while means below 3.00 were classified as Rejected.

The face and content validity of both instruments were established through expert review: the draft questionnaire and interview guide were given to three specialists in health communication and research methodology, who assessed each item for clarity, relevance to the four research questions and appropriateness of the response format, and the instruments were revised in line with their comments before administration. The revised questionnaire was then pilot-tested with 30 residents of a Kogi East community that was not among the six communities selected for the main study, and this pilot data were excluded from the final analysis. Reliability testing of the questionnaire (computing McDonald's omega or Cronbach's alpha for the overall instrument and its subscales) was not conducted for this round of data collection, as the pilot-stage item-level data were not retained for statistical analysis; the questionnaire's adequacy therefore rests on the expert content-validity review described above rather than on a statistically derived reliability coefficient, and this is acknowledged as a limitation of the study. For the qualitative strand, the same expert review supported the content validity of the interview guide, and its consistent use across all six informants.

The study did not go through a formal institutional ethics or research committee review, as no such review was sought or obtained prior to data collection; this is acknowledged as a limitation of the study. Nonetheless, standard ethical safeguards were followed in the field. Written informed consent was obtained from every survey respondent and key informant after the purpose, procedures and voluntary nature of participation had been explained in a language they understood; participants were informed of their right to decline or withdraw at any stage without penalty, and no participant received payment for taking part. Confidentiality was maintained by omitting personal identifiers from the questionnaire and by reporting key-informant accounts under anonymized role-based labels (for example, State Programme Manager, SFH) rather than personal



names. Of the 385 questionnaires administered to the purposively approached respondents in the six selected communities, all 385 were completed and returned, yielding a response rate of 100 percent; no returned questionnaire was discarded for incompleteness.

The study used the quantitative survey and the qualitative key-informant interviews. Quantitative data were analyzed using frequencies, percentages, means and standard deviations, while interview data were organized through framework analysis. The two sets of findings were then systematically integrated at the interpretation stage: for each research question, the survey results are presented first, the corresponding interview themes are presented alongside them, and the Discussion section explicitly compares where the two data sources converge or diverge before interpreting the combined evidence through the Health Belief Model and Social Cognitive Theory. This structure allows the qualitative accounts of programme implementers to contextualize and help explain the descriptive survey patterns, rather than treating the two components as separate, unconnected analyses. No inferential statistical test is reported because respondent-level raw data permitting such analysis were not supplied for this revision.

Data Presentation and Analysis

Table 1. *Communication Strategies Used in Mobilizing Communities for the Roll Back Malaria Programme*

Item	SA	A	N	D	SD	N	Mean	SD	Decision
I have seen or heard malaria prevention messages through community town criers/announcements.	112 (29.1)	158 (41.0)	48 (12.5)	42 (10.9)	25 (6.5)	385	3.88	1.12	Accepted
I have been exposed to malaria prevention messages through radio programmes or jingles.	94 (24.4)	142 (36.9)	62 (16.1)	54 (14.0)	33 (8.6)	385	3.69	1.20	Accepted
I have received information about malaria prevention through posters, banners or handbills in my community.	78 (20.3)	128 (33.2)	71 (18.4)	68 (17.7)	40 (10.4)	385	3.44	1.26	Accepted
I have received house-to-house visits from health workers educating about malaria prevention.	52 (13.5)	88 (22.9)	74 (19.2)	102 (26.5)	69 (17.9)	385	2.81	1.36	Rejected
Cumulative Mean							3.46		

Table 1 shows that the most frequently reported communication exposure was through community town criers/announcements (Mean = 3.88), followed by radio programmes/jingles (Mean = 3.69) and posters, banners or handbills (Mean = 3.44). The mean for house-to-house visits by health workers was 2.81 and therefore fell below the 3.00 benchmark. The cumulative mean of 3.46 indicates an overall positive response across the four communication-strategy items. The table describes reported exposure; it does not establish that any particular channel caused engagement or behaviour.



Table 2. *Extent to Which Communication Strategies Promote Active Community Engagement in Malaria Prevention Activities*

Item	SA	A	N	D	SD	N	Mean	SD	Decision
The radio messages I heard motivated me to participate in malaria prevention activities.	88 (22.9)	136 (35.3)	68 (17.7)	58 (15.1)	35 (9.1)	385	3.61	1.22	Accepted
The community announcements encouraged me to attend health talks and community meetings on malaria.	72 (18.7)	118 (30.6)	82 (21.3)	72 (18.7)	41 (10.6)	385	3.39	1.27	Accepted
The posters and handbills I saw inspired me to use insecticide-treated bed nets regularly.	64 (16.6)	108 (28.1)	91 (23.6)	78 (20.3)	44 (11.4)	385	3.25	1.28	Accepted
The information from health workers' visits influenced me to seek early treatment when I had malaria symptoms.	46 (11.9)	82 (21.3)	76 (19.7)	98 (25.5)	83 (21.6)	385	2.71	1.37	Rejected
Cumulative Mean							3.24		

Table 2 indicates that respondents reported the highest level of engagement in relation to radio messages motivating participation in malaria-prevention activities (Mean = 3.61). Community announcements (Mean = 3.39) and posters/handbills (Mean = 3.25) also met the 3.00 benchmark. The item concerning health-worker visits and early treatment seeking recorded a mean of 2.71 and was therefore rejected. The cumulative mean was 3.24.

Table 3. *Level of Community Responsiveness Resulting from Communication Efforts of the Roll Back Malaria Programme*

Item	SA	A	N	D	SD	N	Mean	SD	Decision
I sleep under an insecticide-treated bed net every night as a result of the malaria prevention messages I received.	82 (21.3)	124 (32.2)	76 (19.7)	64 (16.6)	39 (10.1)	385	3.50	1.25	Accepted
I seek early treatment at a health facility whenever I have malaria symptoms because of the information I received.	76 (19.7)	118 (30.6)	82 (21.3)	70 (18.2)	39 (10.1)	385	3.47	1.24	Accepted
I participate in community sanitation and environmental clean-up activities to prevent malaria breeding sites.	58 (15.1)	102 (26.5)	88 (22.9)	84 (21.8)	53 (13.8)	385	3.12	1.30	Accepted
I have stopped using traditional/herbal remedies as first treatment for malaria because of health education I received.	42 (10.9)	78 (20.3)	82 (21.3)	102 (26.5)	81 (21.0)	385	2.70	1.34	Rejected
Cumulative Mean							3.20		



Table 3 indicates that reported responsiveness was highest for sleeping under an insecticide-treated bed net (Mean = 3.50) and seeking early treatment at a health facility (Mean = 3.47). Participation in community sanitation activities also met the benchmark (Mean = 3.12). The item on stopping traditional/herbal remedies as a first treatment recorded 2.70 and was rejected. The cumulative mean of 3.20 suggests moderate overall agreement across the responsiveness items, while the item-level variation indicates that some behaviours were more readily reported than others.

Table 4. *Major Communication-Related Challenges Affecting Community Participation in the Roll Back Malaria Programme*

Item	SA	A	N	D	SD	N	Mean	SD	Decision
I do not receive enough malaria prevention information because health workers rarely visit my community.	122 (31.7)	162 (42.1)	44 (11.4)	35 (9.1)	22 (5.7)	385	3.98	1.09	Accepted
I find it difficult to access radio programmes on malaria prevention due to lack of electricity or radio set.	102 (26.5)	138 (35.8)	58 (15.1)	54 (14.0)	33 (8.6)	385	3.76	1.20	Accepted
Some traditional beliefs in my community contradict the malaria prevention messages we receive.	88 (22.9)	128 (33.2)	72 (18.7)	62 (16.1)	35 (9.1)	385	3.57	1.23	Accepted
I sometimes doubt the truthfulness of some malaria prevention messages I hear.	68 (17.7)	108 (28.1)	94 (24.4)	76 (19.7)	39 (10.1)	385	3.30	1.26	Accepted
Cumulative Mean							3.65		Accepted

Table 4 shows that all four listed communication challenges were accepted. The highest mean concerned inadequate malaria-prevention information because of infrequent health-worker visits (3.98), followed by difficulty accessing radio programmes because of electricity or radio-set limitations (3.76), conflicting traditional beliefs (3.57), and doubts about the truthfulness of some messages (3.30). The cumulative mean of 3.65 indicates that respondents generally agreed that these challenges affected communication and participation. These are reported perceptions and should not be interpreted as independently verified causal determinants.

Analysis of the Interview Data

Key-informant interviews were conducted with six stakeholders involved in the Roll-Back Malaria activities examined in the study: the State Malaria Elimination Coordinator (NMEP), BCC/Communication Officer (NMEP), State Programme Manager (SFH), Community Mobilization Officer (SFH), SMC Coordinator (CRS), and Community Engagement Officer (CRS). The interviewees remained anonymous. Their accounts were organized under themes corresponding to the study objectives and were used to contextualize the survey findings.

Table 1: Communication Strategies Used in Mobilizing Communities for the Roll Back Malaria Programme

Respondents confirmed that the programme employs multiple communication channels including radio jingles, community town criers, posters and handbills, and house-to-house visits. However, the reach and consistency of these strategies varied significantly.

“Radio remains our strongest channel. We run regular jingles on state and local stations, and feedback shows people are listening. But we know not everyone has access.” - State Programme



Manager, SFH “Town criers are very effective, especially in rural areas where traditional structures are still strong. We engage community and religious leaders to amplify our messages.” - Community Mobilization Officer, SFH “House-to-house visits are part of our plan, but honestly, we don’t have enough personnel or funding to cover all communities consistently. We prioritize campaign periods like net distribution and SMC rounds.” - SMC Coordinator, CRS.

The interviews corroborated the survey evidence that several communication channels are used, while also highlighting differences in reach and continuity. Respondents described radio and town criers as important channels but reported that house-to-house contact was constrained by personnel and funding. The qualitative evidence therefore complements, rather than proves, the survey pattern of lower reported interpersonal exposure.

Interviewees expressed cautious optimism about the effectiveness of their communication efforts, noting that while awareness has increased, translating it into sustained behavioral change remains challenging. “We’ve seen good turnout during net distribution campaigns, which tells us the radio and community announcements are working. But getting people to sustain behaviors like net usage every night is harder.” - BCC/Communication Officer, NMEP. “Community meetings do attract people when we organize them, but attendance drops when there’s no immediate incentive like free nets or drugs. The motivation isn’t always intrinsic.” - Community Engagement Officer, CRS. “Our radio messages have definitely motivated people. We hear testimonies of families that now use nets regularly because of what they heard on air.” - State Malaria Elimination Coordinator, NMEP.

The interview evidence suggests a distinction between generating awareness and sustaining participation. Stakeholders described strong turnout during some campaign activities but also reported difficulties in maintaining behaviours between campaigns. These accounts are consistent with the survey's moderate means, but they do not establish that communication alone produced the reported behaviours.

Stakeholders agreed that while certain behaviors like net usage have improved, deeper behavioral changes particularly abandoning traditional remedies and consistent participation in sanitation activities remain limited.

“Net usage has definitely increased. During our monitoring visits, we see more households with nets hung over sleeping spaces. That’s a win for our communication efforts.” - State Programme Manager, SFH. “People are seeking treatment earlier now, which is good. But many still go to chemists or herbalists first before coming to the health facility. Old habits die hard.” - SMC Coordinator, CRS. “Community sanitation is where we struggle most. People attend the initial mobilization, but sustaining participation in cleanup exercises is difficult. They see it as government work, not their responsibility.” - Community Mobilization Officer, SFH. “The reliance on traditional medicine is still very strong. Even educated people sometimes prefer herbs first. Our health education hasn’t fully broken that cultural barrier.” Community Engagement Officer, CRS.

The qualitative responses indicate variation in community responsiveness. Stakeholders described visible uptake of some individual protective practices while reporting continuing challenges around traditional treatment practices and sustained participation in collective sanitation activities. These accounts help explain the item-level variation in the survey, but the interview data cannot establish the prevalence of these behaviours in the wider population.



All six informants cited multiple barriers including limited human resources, infrastructural deficits, cultural resistance, and trust issues that undermine programme effectiveness. “Our biggest challenge is manpower. We simply don’t have enough health workers to do regular community visits. We’re stretched thin, especially in hard-to-reach areas.” - State Malaria Elimination Coordinator, NMEP. “Many communities, especially rural ones, don’t have electricity. So even when we air radio programmes, we’re not reaching everyone. Some don’t even own radios.” - Community Mobilization Officer, SFH. “Traditional beliefs are a major barrier. People still think malaria is caused by spirits or witchcraft. Some refuse nets because they’ve heard rumors that they cause infertility or cancer.” - Community Engagement Officer, CRS. “There’s a credibility gap. Some people don’t trust government health programmes because of past experiences or rumors. Building that trust takes time and consistent presence, which we don’t always have.” - BCC/Communication Officer, NMEP.

The interview evidence identifies four recurring contextual barriers: limited human resources, communication infrastructure gaps, competing cultural beliefs and trust/credibility concerns. These themes closely correspond with the survey respondents' ratings of communication challenges. Taken together, the two data sources indicate that communication limitations are embedded in broader implementation conditions. The evidence supports targeted improvements in sustained interpersonal engagement and culturally responsive communication, but does not justify a causal claim that any single barrier determines programme outcomes.

Discussion of Findings

The survey identified community town criers/announcements, radio programmes/jingles, and posters/banners/handbills as the most commonly reported communication channels, while house-to-house health-worker visits fell below the 3.00 benchmark. The interviews similarly described radio and town criers as routinely used and interpersonal visits as constrained by manpower and funding. This convergence is consistent with Umeano-Enemuoh et al. (2015), who found multiple sources of malaria information in southeast Nigeria, including mass media, posters and health workers. However, the present study differs in geography and design and therefore does not establish that the same communication pattern applies to all Nigerian communities. From the SCT perspective, the combination of mediated messages and interpersonal contact provides different opportunities for modelling and reinforcement; the low reported reach of interpersonal contact suggests a potential limitation in opportunities for direct clarification and reinforcement. This aligns with Umeano-Enemuoh et al. (2015), who found in their Southeast Nigeria study that community members identified radio, television adverts, posters, and village announcers as key sources of malaria information, while direct health worker contact was limited in reach. The Social Cognitive Theory supports this finding by emphasizing that observational learning occurs not only through direct interaction but also through mass media exposure, where community members observe modeled behaviors and health recommendations through broadcast messages. However, the theory also stresses that credible, relatable models such as community health workers in face-to-face settings enhance behavioral adoption through personalized reinforcement and guided practice. The rejection of house-to-house visits as a recognized strategy suggests a missed opportunity for the programme to leverage the interpersonal reinforcement mechanisms central to Social Cognitive Theory. While mass communication creates awareness through environmental cues, the absence of direct health worker engagement limits the programme’s capacity to provide the social reinforcement and self-efficacy building that sustained behavioral change requires.



The survey produced an overall cumulative mean of 3.24 for the four engagement items. Radio messages, community announcements and posters/handbills met the 3.00 benchmark, while the item relating health-worker visits to early treatment seeking did not. The interviews added that participation may be higher during campaign periods and more difficult to sustain between campaigns. These findings are broadly compatible with Kebede et al. (2020), who reported changes in message exposure and preventive practices following a structured school-based communication intervention in Ethiopia. The methodological difference is important: Kebede et al. evaluated a pre-post intervention, whereas the present study is descriptive and cross-sectional. The current findings therefore show reported patterns of engagement, not an intervention effect. The HBM helps interpret why messages may function as cues to action, while perceived barriers may limit action; SCT highlights the role of social reinforcement and environmental conditions.

The responsiveness items produced a cumulative mean of 3.20. Reported agreement was comparatively higher for insecticide-treated-net use and early treatment seeking, while stopping traditional/herbal remedies as first treatment fell below the benchmark. The interviews similarly described continuing reliance on traditional treatment practices and difficulties sustaining collective sanitation participation. Recent reviews emphasize that community knowledge and engagement are shaped by local context and should be incorporated into malaria programme design (Awasthi et al., 2024; Abdul Rahim et al., 2025). The present evidence therefore supports a contextual interpretation: communication may be reaching residents, but reported responsiveness differs across behaviours with different social, cultural and practical demands. The HBM provides a useful explanation in terms of perceived benefits and barriers, while SCT directs attention to modelling, reinforcement and the surrounding social environment.

The interview responses in Theme 4 validated these patterns, with coordinators acknowledging visible improvements in net usage during monitoring visits but expressing concern about the persistence of traditional treatment-seeking patterns and weak sustained engagement in collective malaria prevention activities. They attributed partial success to the programme's focus on simple, individual protective behaviors while acknowledging that transforming cultural norms and community-level practices requires longer-term, more intensive interventions than what has been implemented. These findings correspond with Opara et al. (2023), whose systematic review across sub-Saharan Africa documented that while health education interventions successfully promoted ITN usage, barriers including poor perceptions, discomfort, and lack of sustained knowledge limited comprehensive behavioral adoption. The Health Belief Model explains the differential compliance observed: behaviors like net usage succeeded because communication effectively increased perceived susceptibility and severity while highlighting manageable benefits with minimal perceived barriers. However, abandoning traditional medicine faced insurmountable perceived barriers traditional remedies are culturally embedded, immediately accessible, affordable, and reinforced by community norms, making them psychologically "safer" choices despite biomedical health education. The model predicts that when perceived barriers overwhelm perceived benefits, behavior change fails regardless of knowledge levels, which precisely describes why respondents rejected the shift away from traditional treatments despite receiving health information.

Also, the Social Cognitive Theory provides additional understanding into why certain behaviors succeeded while others failed. Net usage benefited from observational learning opportunities communities could see neighbors using nets, observe mass distribution campaigns,



and witness social endorsement from community leaders, creating powerful environmental and social reinforcement. Early treatment-seeking similarly benefited from modeling when community members observed others accessing health facilities. However, collective behaviors like sanitation activities lacked consistent modeling and social reinforcement due to sporadic implementation, while traditional medicine use received continuous environmental reinforcement through family practices, community healers, and cultural narratives that communication efforts could not overcome. The theory emphasizes that sustainable behavior change requires reciprocal interaction between personal beliefs, environmental support, and behavioral practice when any element weakens, behavioral adoption falters, explaining the programme's mixed compliance outcomes.

Respondents identified inadequate health-worker visits, limited access to radio, conflicting traditional beliefs and doubts about some malaria messages as communication-related challenges. The interviews reinforced these themes and added manpower shortages and trust concerns. These findings are consistent with the broader literature, which emphasizes that communication effectiveness depends on access, credibility, local participation and contextual fit (Umeano-Enemuoh et al., 2015; Awasthi et al., 2024). From the HBM perspective, these barriers may increase the perceived costs of action or weaken cues to action. From the SCT perspective, they reflect environmental constraints that can limit opportunities for observation, reinforcement and sustained practice. Importantly, the present study does not measure the independent effect of each barrier; it documents respondents' perceptions and stakeholder accounts. The qualitative findings strengthen the interpretation of the survey by showing how communication constraints may arise from implementation conditions. Stakeholders reported limited personnel for regular community visits, unequal access to electricity and radio, competing cultural explanations and credibility concerns. These accounts help contextualize the lower survey rating for interpersonal communication and the higher ratings for communication challenges. They should nevertheless be read as programme-stakeholder perspectives from six informants, not as a census of all implementers or communities.

The findings also show why communication should be understood as a process rather than only as message delivery. Umeano-Enemuoh et al. (2015) emphasized the value of consistent and accurate messages from multiple sources, while recent community-engagement reviews stress participation and contextual adaptation (Awasthi et al., 2024; Abdul Rahim et al., 2025). The present study adds local descriptive evidence from Kogi East, showing that respondents report relatively broad exposure to some channels alongside weaker interpersonal contact and persistent contextual barriers.

Conclusion

This study assessed communication in community engagement for the Roll-Back Malaria Programme in Kogi East Senatorial District, Kogi State. The survey and interview evidence indicate that town criers/announcements, radio programmes/jingles and printed materials were commonly reported communication channels, while house-to-house health-worker contact was less frequently reported. Reported engagement and responsiveness were comparatively stronger for some individual preventive practices than for practices involving sustained collective action or changes in established treatment behaviour. Respondents and programme stakeholders also identified limited health-worker presence, communication infrastructure, competing beliefs and trust concerns as important challenges. Because the study used descriptive quantitative analysis



and purposive selection at the final survey stage, these findings should be interpreted as reported patterns within the study sample rather than causal estimates or population-wide effects.

Recommendations

Based on the evidence from the selected communities, the following recommendations are made:

1. Programme implementers should strengthen sustained interpersonal communication by improving the frequency and continuity of community health-worker and community-mobiliser visits, particularly where respondents report limited contact.
2. Communication campaigns should combine broadcast channels with opportunities for dialogue, questions and feedback. Community meetings, local leaders and other trusted structures can be used to reinforce messages between major campaign periods, with attention to continuity rather than one-off mobilization.
3. Messages addressing traditional treatment practices and other culturally sensitive issues should be developed with community participation. Programme teams should create structured feedback mechanisms to identify rumors, clarify misconceptions and adapt messages to local concerns.

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AI Use Declaration:

During the preparation of this work, the authors did not use AI tool to generate the study's research design, data, findings, interpretations or conclusions. The authors reviewed and edited the content as needed and take full responsibility for the accuracy, integrity and originality of the final published work.
