Community Engagement for Malaria Elimination

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Abstract

More and more, Community Engagement (CE) is recognized as an important component of malaria elimination efforts. Findings from 22 peer-reviewed empirical studies published between 2015 and 2023, examining the role, impact, and challenges of CE in malaria programs worldwide are synthesized in this systematic review. The implementation of CE remains highly variable in both depth and effectiveness since it has been identified as indispensable for enhancing intervention uptake, program sustainability, and empowering affected communities. High-quality participatory CE which is characterized by collaboration, co-decision-making, cultural alignment, and capacity building, is consistently associated with improved health outcomes, including increased bed net usage, early malaria detection, and better treatment adherence. Still, many CE initiatives are undermined by short-term donor-driven agendas, restricted to superficial or tokenistic participation, lack of standardized evaluation frameworks, inadequate funding, and restricted community decision-making power. In other to achieve sustainable malaria elimination, the review pinpoints the urgent need for structural integration of CE into national strategies, emphasizing long-term partnerships, continuous funding, community leadership, and equity-focused frameworks.

Keywords: Barriers, Community Engagement, Health Outcomes, Malaria Elimination, Participatory Approaches, Sustainability.

Introduction

Malaria continues to pose a formidable challenge to global health, despite notable advances made over the past two decades. According to the World Health Organization [21], there were an estimated 247 million cases of malaria and over 600,000 deaths reported in 2021, with the vast majority of cases and fatalities occurring in sub-Saharan Africa and Southeast Asia. These figures underscore the enduring burden of malaria and the urgent need for sustained, multifaceted efforts to achieve complete elimination. While biomedical interventions, such as antimalarial drugs, insecticide-treated bed nets (ITNs), and indoor residual spraying (IRS), have been central to malaria control and elimination strategies, it has become increasingly evident that technical solutions alone are insufficient. Social and behavioral factors play a critical role in the success and sustainability of malaria programs, and Community Engagement has emerged as a vital, though often underutilized, component in this endeavor.

Since 2015, Community Engagement has been elevated as a strategic priority within major global health frameworks. The WHO's *Global Technical Strategy for Malaria 2016–2030* and the *Framework for Malaria Elimination* explicitly emphasize the importance of involving communities not merely as passive recipients of health services but as active partners in the design, delivery, and evaluation of interventions [20, 22]. CE encompasses a wide spectrum of participatory practices aimed at empowering local

populations [8]. Describe CE as encompassing a range of activities, from basic dissemination of information and community mobilization efforts to more sophisticated forms of shared decision-making and co-implementation of health initiatives. Through these participatory approaches, CE aims to build long-term trust between communities and health systems, tailor interventions to local social, cultural, and ecological contexts, enhance surveillance mechanisms through community-based reporting, and address persistent access and equity barriers.

Despite the increasing recognition of its importance, the integration of CE into malaria elimination programs has been uneven and, in many cases, inadequately documented. Engagement often fluctuates along a continuum, from superficial, one-way communication to deeper, collaborative models where communities are genuinely empowered to influence outcomes [19] and [15] caution that many programs fall short of meaningful engagement, operating instead at a tokenistic level where community input is solicited but rarely acted upon. In such instances, CE is treated as an ancillary activity rather than a central pillar of malaria elimination strategies. This superficiality limits the potential of CE to address deeper systemic and behavioral barriers that impede progress toward malaria eradication.

Moreover, the inconsistent application of CE methodologies across malaria programs suggests a need for greater clarity about what constitutes effective engagement, how it should be operationalized, and under what conditions it yields the greatest impact. There is also a pressing need to systematically document the outcomes of CE initiatives, both in terms of malaria-specific health indicators and broader metrics such as community empowerment, trust-building, and system resilience. Without a strong evidence base, CE risks being sidelined in favor of more readily quantifiable biomedical interventions, perpetuating a narrow approach to malaria elimination that overlooks the complex social dynamics underlying transmission and control [19, 15].

Understanding the nuances of CE in the context of malaria elimination is particularly important as the global health community shifts focus from malaria control, reducing incidence and mortality to full elimination and ultimately eradication. Unlike control efforts, elimination demands sustained community commitment, active case detection, and responsiveness to residual transmission pockets, all of which are difficult to achieve without strong community partnerships. The role of CE becomes even more critical in addressing emerging challenges, such as drug and insecticide resistance, climate change impacts on malaria epidemiology, and health system disruptions caused by concurrent public health emergencies like COVID-19.

Given these considerations, this systematic review seeks to provide a comprehensive synthesis of peer-reviewed literature published between 2015 and 2023 on the role of Community Engagement in malaria elimination programs. Specifically, the review is guided by three primary objectives:

1. **Assessing Definitions and Implementations of CE:**

First, the review aims to explore how CE has been conceptualized and implemented across different malaria elimination contexts. This includes examining the range of engagement strategies used, the level of community participation achieved (e.g., information-sharing, consultation, collaboration, or community-led initiatives), and the degree to which CE efforts were integrated into broader program designs.

2. **Evaluating Impacts of CE on Health Outcomes:**

Second, the review seeks to assess the documented impacts of CE on malaria-specific health outcomes. These may include changes in malaria incidence and

prevalence, improvements in treatment-seeking behaviors, enhanced adherence to preventive measures, and greater community involvement in surveillance and case management activities. Where possible, the review will also consider the indirect effects of CE, such as increased trust in health authorities and strengthened local health governance structures.

3. **Identifying Barriers and Enabling Factors:**

Finally, the review will identify key barriers that have impeded effective and sustainable CE in malaria programs, as well as factors that have facilitated success. Barriers may range from structural issues such as resource constraints and limited political will to socio-cultural challenges like community mistrust or divergent health beliefs. Conversely, enabling factors might include strong leadership, inclusive governance structures, tailored communication strategies, and continuous capacity building among community members and health workers alike.

In addressing these objectives, the review aims to contribute to a deeper understanding of how community engagement can be optimized to support malaria elimination goals. By highlighting best practices, common pitfalls, and context-specific insights, the findings will inform future program design and policy development, ensuring that communities are not just passive beneficiaries but active architects of malaria-free futures.

Ultimately, the transition from malaria control to elimination will not be achieved through technological innovations alone. It will require genuine partnerships with communities, built on mutual respect, shared ownership, and sustained collaboration. By systematically examining the role of Community Engagement in malaria programs over the past decade, this review endeavors to shed light on pathways toward more equitable, effective, and sustainable malaria elimination efforts.

Despite its growing prominence, the application of CE in malaria programs remains inconsistent and is often under-documented. Engagement varies from passive consultation to active community governance, with many programs still operating at a tokenistic level [19, 15]. As a result, the true potential of CE in advancing malaria elimination remains under-realized.

This systematic review synthesizes peer-reviewed literature from 2015 to 2023 to:

1. Assess how CE has been defined and implemented in malaria elimination programs.
2. Evaluate the documented impacts of CE on malaria-related health outcomes.
3. Identify key barriers and enabling factors to effective and sustainable CE in diverse settings.

Methods

A comprehensive systematic review was conducted to examine the role of community engagement (CE) in malaria elimination. Literature was sourced from four major databases: PubMed, Google Scholar, Scopus, and Web of Science, using a Boolean search string ("community engagement" OR "community participation" OR "community involvement") AND ("malaria elimination" OR "malaria control") AND ("2015" : "2023").

Inclusion Criteria

Studies were included if they met the following conditions:

1. Peer-reviewed and published in English between January 2015 and December 2023.
2. Empirical studies using qualitative, quantitative, or mixed methods, or systematic reviews with detailed empirical analysis.
3. Focused specifically on community engagement within malaria prevention, control, or elimination programs.

Exclusion Criteria

Studies were excluded if they:

1. Did not focus specifically on malaria-related interventions.
2. Were editorials, theoretical pieces, or opinion articles without primary data.
3. Addressed general health topics without a clear focus on CE in malaria.

Screening and Selection

178 articles were returned from an initial search, 54 full-text articles were reviewed in detail after title and abstract screening. Based on methodological rigor, relevance to CE in malaria contexts, and richness of data, a total of 22 studies were selected and included in the final synthesis. The review process emphasized the inclusion of studies with clear documentation of CE strategies, outcomes, and contextual factors.

Results

Study Characteristics

Findings from 23 peer-reviewed studies conducted between 2015 and 2023, covering 14, with the majority based in Africa (n=12) and Southeast Asia (n=6) were synthesized in this review. The studies employed a range of methodologies including mixed methods (n=13), qualitative (n=6), and quantitative (n=4). The most common interventions examined included:

1. Deployment of community health workers (CHWs) and village malaria workers (VMWs)
2. Participatory surveillance and mapping
3. Community-led bed net distribution
4. Local health education campaigns

Definitions and Models of Community Engagement

Community engagement was defined across a broad spectrum, from simple information dissemination to collaborative and empowered participation. Most studies mapped their CE models using frameworks like the IAP2 spectrum and Arnstein's Ladder, identifying the following categories:

1. Inform/Consult: Top-down campaigns and training [14, 17].
2. Involve/Collaborate: Participatory mapping and CHW programs [12, 13].
3. Empower: Community-led initiatives with decision-making roles [2, 7].

Some studies, such as those by [15], criticized the tendency to equate engagement with compliance rather than partnership, a sentiment echoed across multiple cases.

Impact on Malaria-Related Outcomes

The review found strong associations between high-quality CE and improved health outcomes:

1. Cambodia: By 41%, community-based surveillance increased malaria case detection [4].
2. Tanzania: Household net usage was raised by 29–30% through participatory net distribution [13].
3. Zambia: Earlier outbreak detection and improved surveillance resulted from community-directed programs [7].
4. Ghana and Zambia: Better treatment adherence came as a result of trusted CHW networks [23].

Key Enablers of Effective Community Engagement

Successful CE programs shared several enablers:

1. Cultural focus: Programs embedded in local customs and languages achieved greater acceptance [9, 19].
2. Training and incentives: Performance and retention was improved by continuous training and compensation of CHWs and VMWs [3].
3. Community ownership: Active involvement in planning and governance led to better sustainability and accountability [5].

Barriers and Limitations

Despite the demonstrated value, CE efforts often faced significant barriers:

1. Tokenism: Many initiatives limited CE to implementation, excluding communities from planning and decision-making [2].
2. Funding instability: Once donor support ended, programs often collapsed [10].
3. Evaluation challenges: Only 3 out of 22 studies used validated tools to assess the depth or effectiveness of CE [1, 6].
4. Power dynamics: Top-down approaches and exclusion of marginalized groups weakened trust and long-term outcomes [3].

Lessons Learned and Best Practices

Studies that demonstrated long-term success generally emphasized co-creation, participatory planning, and integration of local knowledge. Effective tools for fostering meaningful engagement came from strategies such as community advisory boards, participatory mapping, and co-designed training. Locally focused strategies that invest in community capacity and build on traditional governance structures were encouraged by WHO (2016).

Discussion

This review affirms a clear and reliable finding where community engagement significantly improves malaria-related outcomes and plays an essential role in the success and long-term sustainability of malaria elimination programs. This is true only when it is deep, meaningful, inclusive, and sustained. Effective CE, when approached as a true partnership rather than as a one-way communication strategy, fosters trust, promotes local ownership of health initiatives, increases the uptake of interventions, and contributes to enduring health gains. However, despite widespread recognition of its critical importance, CE is still too often implemented in a tokenistic or top-down manner, where communities are treated as passive recipients rather than as active partners. This undermines the full potential of CE and limits its ability to drive meaningful and lasting change.

Shifting from Tokenism to True Partnership

Many studies have shown that just the involvement of community health workers (CHWs) or volunteers does not automatically lead to improved outcomes or lasting impact. What matters is the quality and depth of engagement. Programs that limit CE to resource distribution or awareness campaigns, without involving communities in more meaningful ways, often fail to build sustainable change. In contrast, in Zambia and Ghana, CE models that emphasized shared planning, decision-making, implementation, and monitoring, led to substantial and lasting reductions in malaria burden [7, 2]. These examples highlight the very important need to shift from the instrumental use of communities toward models of shared governance, genuine partnership, and co-ownership to achieve transformative outcomes.

Sustainability and Donor Dynamics

A recurring issue across the literature is the fragility of donor-dependent programs. A critical challenge identified is the short-term nature of donor funding, which often leads to the collapse of community engagement initiatives once external support ends. Many community-based efforts have failed to sustain themselves after the withdrawal of international funding, highlighting the vulnerability of programs that are not fully embedded within local systems. In contrast, CE initiatives in Laos and Cambodia demonstrated resilience and long-term success when local leadership was institutionalized and CE was supported through national policy frameworks [11, 12]. These examples underscore the importance of stable financing, institutionalizing community leadership, and fully integrating CE into

national systems to ensure program resilience, continuity, and lasting impact.

Need for Standardized Evaluation Frameworks

A major barrier to advancing community engagement in malaria elimination is the lack of standardized evaluation tools. Only a small number of studies [1, 6, 5] have used validated frameworks like Arnstein's Ladder or the IAP2 Spectrum to systematically assess the depth and quality of engagement. The absence of standardized evaluation methods limits the ability to compare programs across different contexts, weakens the development of evidence-based policies, and undermines efforts to improve CE practices. To strengthen the field, future research must prioritize the development, application, and consistent use of robust, validated CE metrics.

Gender and Equity Considerations

A major gap identified in this review is the limited attention to gender and equity within community engagement strategies. Most studies failed to disaggregate community involvement by gender or to explore how marginalized groups, such as women, youth, and minority populations, were included in planning, decision-making, and implementation. This oversight risks reinforcing existing power imbalances and undermines the potential of CE to function as a truly inclusive and transformative force. As [8] argue, addressing gender and equity in CE is not only an ethical imperative but also a practical necessity—ensuring that the voices and needs of the most vulnerable are represented, empowered, and effectively reached. Equity-focused engagement is therefore critical to the success and sustainability of malaria elimination efforts.

Policy and Programmatic Implications

National malaria control programs must stop treating community engagement as a peripheral activity and instead embed it as a core strategic pillar of malaria elimination efforts. Unlocking the full potential of CE requires comprehensive action, including:

1. Policy integration of community-led approaches and embedding CE into program design.
2. Institutional support for participatory structures and ensuring community representation in decision-making bodies.
3. Training, capacity building, and incentive structures to empower local actors.
4. Establishment of accountability mechanisms and feedback loops to enable ongoing program adaptation.

In summary, CE must evolve from rhetoric to reality, from passive compliance to active, community-driven leadership, rooted in shared power, cultural respect, and long-term commitment. Only through this shift can malaria programs achieve true effectiveness, sustainability, and resilience.

Conclusion

Community engagement has evolved from a supplementary role to a foundational element of malaria elimination strategies between 2015 and 2023. Studies and experiences during this period show that when communities are genuinely involved, interventions become more relevant, widely accepted, and sustainable, leading to significantly improved outcomes. Despite this growing recognition, CE implementation remains uneven, with many programs continuing to rely on top-down models where decisions are made without true collaboration. Such approaches often fail to build trust or foster lasting behaviour change. True CE demands mutual respect, shared decision-making, and the treatment of communities as equal stakeholders, not passive recipients. Moreover, a one-size-fits-all model for CE does not work; malaria programs must design context-specific, participatory, and culturally integrated frameworks that involve community members at every stage, that is planning, implementation, and evaluation,

ensuring interventions align with local realities and needs. To sustain progress, CE must be formally inserted into national policies and health systems, with stable funding, strong local leadership that reflects community diversity, consistent feedback mechanisms for real-time adaptation, and the development of strong, standardized evaluation metrics to measure participation quality. Ultimately, the success of malaria elimination depends on genuinely empowering the communities most affected, giving them real authority and ownership in shaping and leading elimination efforts, building investment, resilience, and sustainability, especially in regions where malaria remains endemic. Without this deep, inclusive, and sustained engagement, malaria elimination efforts will continue to fall short of their full potential.

Recommendations

1. Shift from Tokenism to Genuine Partnership: Programs must move beyond superficial engagement (e.g., information campaigns) and promote shared decision-making where communities actively co-design, implement, and evaluate malaria interventions.

2. Institutionalize Community Engagement in Policy and Health Systems: National malaria control programs should embed CE into formal strategies and program structures, treating it as a core pillar, not a side activity.

3. Ensure Long-Term Sustainability Through Local Ownership: Build local leadership and institutional capacity so that community-driven efforts persist beyond donor funding. CE efforts should be rooted in local governance and national health systems for durability.

4. Develop and Use Standardized CE Evaluation Frameworks: Adopt validated tools (like Arnstein's Ladder or the IAP2 Spectrum) to systematically assess the quality and depth of community engagement across programs and contexts.

5. Focus on Gender and Equity in Community Engagement: Design CE strategies that actively include women, youth, and marginalized groups, ensuring equitable participation and leadership to avoid reinforcing existing inequalities.

6. Prioritize Continuous Training, Capacity Building, and Incentives: Equip community health workers and volunteers with ongoing training, resources, and appropriate incentives to maintain high motivation and program quality.

7. Embed Cultural Sensitivity in Engagement Approaches: Tailor interventions to local cultural, linguistic, and social contexts to improve acceptance, trust, and relevance of malaria initiatives.

8. Establish Strong Feedback and Accountability Mechanisms: Create real-time feedback loops where community members can provide input during program implementation, allowing for adaptive management and ongoing improvements.

9. Secure Stable and Long-Term Funding for CE Initiatives: Advocate for sustained financial investment from both national governments and international partners to ensure that CE activities are not vulnerable to funding cycles.

10. Promote Participatory Surveillance and Community-Based Monitoring: Involve communities in data collection, case detection, and surveillance, empowering them as key actors in monitoring malaria transmission and elimination progress.

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