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Residents' Attitudes Towards Waste Management After Exposure to Public Awareness Campaigns in Mbeya City

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ABSTRACT

Public awareness campaigns are increasingly used to promote responsible waste management, although their effectiveness partly depends on residents' attitudes towards environmental practices. This article presents findings from the second objective of a study conducted in selected wards of Mbeya City, Tanzania, which examined residents' attitudes towards waste management following exposure to public awareness campaigns. A quantitative descriptive design was employed, involving 90 household respondents and 20 community leaders. Household data were collected using a five-point Likert scale and analysed using frequencies and percentages. The findings revealed generally favourable attitudes towards waste management. The highest agreement was recorded for the belief that proper waste management is everyone's responsibility (85.6%), followed by positive changes in attitudes towards environmental cleanliness (82.2%). Encouraging others to practise proper waste management and motivation to participate in community cleaning activities each recorded 81.1%, whilst support for household waste segregation reached 80.0%. Community leaders generally confirmed these findings, reporting strong perceptions of shared responsibility, increased concern for hygiene and health, greater cooperation in sanitation activities and positive attitudes towards waste segregation. The findings suggest that public awareness campaigns are associated with favourable waste-management attitudes, although continued mobilisation and adequate facilities are necessary to sustain these attitudes and support their translation into practice.

Keywords: Public awareness campaigns; residents' attitudes; waste management; environmental awareness; environmental cleanliness; waste segregation; community participation; Mbeya City; Tanzania.

1. Introduction and Background

Waste management is an important environmental, public health and sustainability concern, particularly in rapidly growing urban areas where population growth, economic activities and changing consumption patterns increase waste generation. Inadequate collection, open dumping, improper disposal and limited waste segregation can cause environmental pollution and health risks. Consequently, public awareness campaigns and environmental education are increasingly used to inform communities about the consequences of poor waste management and promote responsible attitudes and behaviours. Recent studies indicate that environmental awareness and positive attitudes can influence residents' willingness to adopt appropriate waste-management practices, although awareness alone may not produce sustained behavioural change where infrastructure and services are inadequate (Gu et al., 2024; Suryawan & Lee, 2024).

In Tanzania, rapid urbanisation and increasing waste generation continue to place pressure on municipal waste-management systems. Mbeya City faces similar challenges, making residents' awareness, attitudes and participation important for effective environmental management. Public awareness campaigns can therefore help residents understand the health and environmental consequences of improper disposal and encourage shared responsibility for maintaining clean communities.

Residents' attitudes are particularly important because they reflect their beliefs and perceptions towards waste-management activities. According to the Theory of Planned Behaviour, attitudes influence behavioural intentions alongside subjective norms and perceived behavioural control (Ajzen, 1991). Positive attitudes may encourage shared responsibility, concern for environmental cleanliness, participation in community cleaning and support for household waste segregation. However, favourable attitudes may not always translate into practice where collection services and facilities are inadequate.

1.1 Statement of the Problem

Despite public awareness campaigns, improper waste disposal and limited community participation remain persistent challenges in urban waste management. Recent studies show that awareness and environmental education can improve residents' attitudes and intentions towards responsible waste management, but positive attitudes do not always translate into practice where collection services, infrastructure and institutional support are inadequate (Gu et al., 2024; Suryawan & Lee, 2024). In Tanzania, recent evidence also indicates that public education can strengthen awareness of the health and

environmental consequences of improper waste disposal, although effective waste-management systems remain necessary to sustain behavioural change (2024). These findings suggest a need to examine not only residents' knowledge but also their attitudes following awareness interventions. However, limited evidence exists on the attitudinal effects of public awareness campaigns in Iyela, Ruanda and Sisimba wards of Mbeya City. Therefore, this study examines residents' attitudes towards shared responsibility, environmental cleanliness, encouraging others, community cleaning participation and household waste segregation.

1.2 Objective of the Study

The study aimed to examine residents' attitudes towards waste management after exposure to public awareness campaigns in Mbeya City. It examines whether campaigns have encouraged positive attitudes, such as viewing waste management as a shared responsibility, valuing environmental cleanliness, encouraging others, participating in community cleaning, and supporting household waste segregation in the three selected wards.

2. Literature Review

2.1 Theoretical Basis: Theory of Planned Behaviour

The theoretical basis explains the main theory used to understand residents' attitudes towards waste management, while the empirical basis reviews findings from previous studies on public awareness campaigns and waste-management attitudes. Together, these foundations provide a basis for interpreting how awareness campaigns may influence residents' perceptions, willingness and participation in waste-management activities.

The study was guided by the Theory of Planned Behaviour (TPB) developed by Ajzen (1991), which explains how attitudes, subjective norms and perceived behavioural control influence behavioural intentions and actions. The theory is relevant to waste management because public awareness campaigns can influence residents' beliefs about environmental cleanliness, shared responsibility and appropriate waste-handling practices. A major strength of TPB is that it provides a clear framework for understanding how positive attitudes may encourage residents to develop intentions to participate in responsible waste-management activities. However, its weakness is that positive attitudes and intentions do not always result in actual behaviour because external factors, such as inadequate collection services, limited segregation facilities and weak institutional support, may restrict residents' actions. In this study, TPB helps explain whether awareness campaigns are associated with favourable attitudes towards shared responsibility, environmental cleanliness, community cleaning, encouraging others and household waste segregation.

2.2 Empirical Literature Review

Empirical evidence demonstrates that public awareness campaigns and environmental education can influence residents' attitudes towards waste management by improving their understanding of environmental risks, encouraging shared responsibility and increasing willingness to participate in sustainable waste-management activities. Studies cited in the literature, including Olowoyo and Aremu (2022) in South Africa, Nwachukwu and Eze (2023) in Nigeria, Uwimana et al. (2022) in Rwanda, Chibuzor et al. (2021), Diop and Ndiaye (2023), Phiri and Banda (2021), and Zephania et al. (2025) in Tanzania, generally indicate that exposure to environmental information is associated with more positive attitudes towards waste separation, recycling, cleanliness and community participation. More recent evidence reinforces this relationship. Suryawan and Lee (2024) found that environmental concerns and social attitudes influence residents' willingness to engage in sustainable waste-management practices, demonstrating the importance of attitudinal factors in promoting responsible behaviour. Similarly, recent evidence from Nigeria indicates that awareness of waste-management policies is associated with more positive attitudes and greater willingness to comply with appropriate waste-management measures.

However, empirical studies also highlight an important awareness–practice gap, whereby positive attitudes do not necessarily result in consistent waste-management behaviour. Inadequate collection services, limited segregation facilities, weak institutional support and poor enforcement can constrain residents' ability to translate favourable attitudes into practice. Therefore, awareness campaigns are most effective when combined with reliable waste-management infrastructure, accessible collection services and continuous community mobilisation. This evidence provides a basis for examining whether residents in Iyela, Ruanda and Sisimba wards demonstrate favourable attitudes following exposure to public awareness campaigns.

2.3 Literature Gap

Existing studies have established that public awareness, environmental education and community engagement can improve attitudes towards waste management, including waste separation, cleanliness and environmental responsibility. However, much of the existing literature focuses broadly on knowledge, practices or overall waste-management behaviour, with limited attention to residents' specific attitudinal responses following exposure to awareness campaigns. Furthermore, evidence remains limited regarding how residents perceive shared responsibility, environmental cleanliness, community cleaning and household waste segregation in specific urban wards of Tanzania. This creates a contextual and empirical gap concerning Iyela, Ruanda and Sisimba wards of Mbeya City. Therefore, this study addresses the gap by examining residents' attitudes towards waste management after exposure to public awareness campaigns in these selected wards.

3. Methodology

3.1 Study Area and Population

The study was conducted in Iyela, Ruanda and Sisimba wards of Mbeya City, Tanzania. The study population comprised household residents and community leaders. For this article, data from 90 household residents and 20 community leaders were analysed.

3.2 Study Approach and Design

A mixed approach and descriptive research design were employed to assess residents' attitudes towards waste management following exposure to public awareness campaigns. The design enabled the findings to be summarised using frequencies and percentages.

3.3 Sample and Sampling

The study analysed 90 household residents and 20 community leaders from the three selected wards. Household respondents were selected to provide information on their attitudes, while community leaders were purposively selected based on their involvement in community sanitation and environmental activities.

3.4 Data Collection

Data were collected using structured questionnaires. Household respondents rated five attitude statements covering shared responsibility, environmental cleanliness, encouraging others, community cleaning and household waste segregation using a five-point Likert scale ranging from Strongly Agree to Strongly Disagree. Community leaders provided complementary assessments of residents' attitudes.

3.5 Data Analysis

Data were coded and analysed using frequencies and percentages. Strongly Agree and Agree responses were combined to indicate positive agreement. Findings were presented in tables and figures.

3.6 Validity and Reliability

Content validity was enhanced by aligning questionnaire items with the study objective and theoretical framework. Standardised questions and consistent administration were used to enhance reliability. Responses from community leaders also provided data-source triangulation.

3.7 Ethical Considerations

Participation was voluntary, and respondents were informed about the study before providing responses. Confidentiality and privacy were maintained, and information was used strictly for academic purposes. Permission to conduct the study was obtained from the relevant authorities.

4. Findings and Results

4.1 Demographic Profile of Respondents

Demographic characteristics provide essential context for understanding how public awareness campaigns influence waste management attitudes and practices in Mbeya City. To evaluate the sample's diversity, respondents were categorised by age group, formal education level, and stakeholder category. A comprehensive synthesis of these baseline demographic variables (N = 120) is presented in Table 1.

Table 1: Respondents Demographic characteristics

Demographic Category	Classification / Group	Frequency (n)	Percentage (%)
Age Group	18–25 years	28	23.3%
	26–35 years	36	30.0%
	36–45 years	30	25.0%

Demographic Category	Classification / Group	Frequency (n)	Percentage (%)
	46–55 years	18	15.0%
	Above 55 years	8	6.7%
Education Level	Primary Education	32	26.7%
	Secondary Education	46	38.3%
	Certificate / Diploma	24	20.0%
	Bachelor's Degree & Above	18	15.0%
Respondent Category	Community Members	90	75.0%
	Community Leaders	20	16.7%
	Ward Waste Management Officers	5	4.2%
	Ward Health Officers	5	4.1%
Total Sample Base	**Overall Participants**	**120**	**100.0%**

Source: Field Data (2026)

Data shows that half of all respondents (55.0%) were aged between 26 and 45 years. This represents the core economically active adult population directly engaged in household management and daily waste generation. Younger participants (23.3%) provide perspective on contemporary digital and media channels, while older participants (21.7% aged 46+) contribute long-term experience with municipal waste practices (Mwanza & Mboera, 2022). A substantial majority (73.3%) attained secondary education or higher. This indicates that most participants possessed sufficient formal literacy to understand, interpret, and apply environmental messages delivered via radio, community barazas, posters, and health officer visits (Senkoro et al., 2023). Combining community beneficiaries (75.0%) with key administrative stakeholders (25.0% key informants and technical officers) allowed the study to cross-verify public perception with practical municipal enforcement, strengthening the credibility of the overall findings.

4.2 Household Residents' Attitudes towards Waste Management after Campaign Exposure (n = 90)

The results show a strongly favourable attitudinal orientation after exposure to public awareness campaigns. Positive agreement ranged from 80.0% to 85.6% across the five indicators. The highest result was the perception that proper waste management is everyone's responsibility (85.6%), while the lowest was support for household-level waste segregation (80.0%).

Attitudinal Statement	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)	Total Agree n (%)
Proper waste management is everyone's responsibility	45 (50.0%)	32 (35.6%)	7 (7.8%)	4 (4.4%)	2 (2.2%)	**77 (85.6%)**
Public awareness campaigns changed attitude towards cleanliness	43 (47.8%)	31 (34.4%)	8 (8.9%)	5 (5.6%)	3 (3.3%)	**74 (82.2%)**
Encourage others to practise proper waste management	40 (44.4%)	33 (36.7%)	8 (8.9%)	6 (6.7%)	3 (3.3%)	**73 (81.1%)**
Motivated to participate in community cleaning	39 (43.3%)	34 (37.8%)	8 (8.9%)	6 (6.7%)	3 (3.3%)	**73 (81.1%)**

Attitudinal Statement	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)	Total Agree n (%)
Support household-level waste segregation	37 (41.1%)	35 (38.9%)	9 (10.0%)	6 (6.7%)	3 (3.3%)	**72 (80.0%)**

Source: *Field Data (2026)*

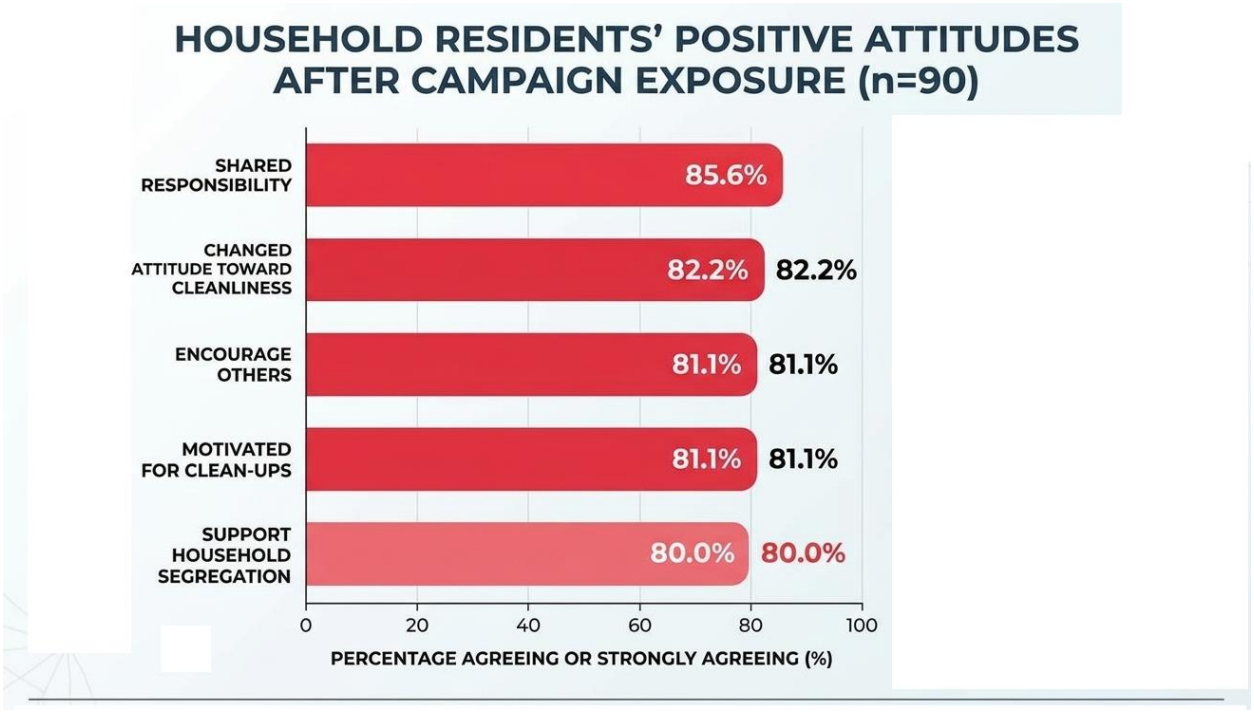


Figure 1. Percentage of household residents expressing positive attitudes after campaign exposure (n=90).

The distribution demonstrates a consistent pattern rather than a single isolated attitude change. The belief that waste management is a shared responsibility recorded the highest agreement, suggesting a shift towards personal and collective accountability. The 82.2% reporting a changed attitude towards environmental cleanliness indicates that campaign exposure was associated with a broader environmental mindset. Similarly, more than four out of five residents reported willingness to encourage others and motivation to join community cleaning activities. Support for household segregation, although still high, was comparatively lower at 80.0%, indicating that attitudes towards more specific waste-management actions may be somewhat less strong than general environmental responsibility.

4.3 Community Leaders' Assessment

Community leaders provided an external assessment that broadly corroborated the household responses. As shown in Table 3, 85.0% of leaders agreed or strongly agreed that residents viewed sanitation as a shared civic duty, that residents had heightened concern about neighbourhood hygiene and health hazards, and that campaigns had made residents more cooperative during environmental sanitation drives. Positive attitudes towards basic waste segregation were somewhat lower at 75.0%.

Community Leaders' Assessment Statement	Total Agree n (%)	Interpretation
Residents view sanitation as a shared civic duty	17 (85.0%)	Strong
Residents show heightened concern about hygiene and health hazards	17 (85.0%)	Strong
Campaigns increased cooperation during sanitation drives	17 (85.0%)	Strong
Residents show positive attitudes towards basic waste segregation	15 (75.0%)	Positive but comparatively lower

Source: Field Data (2026)

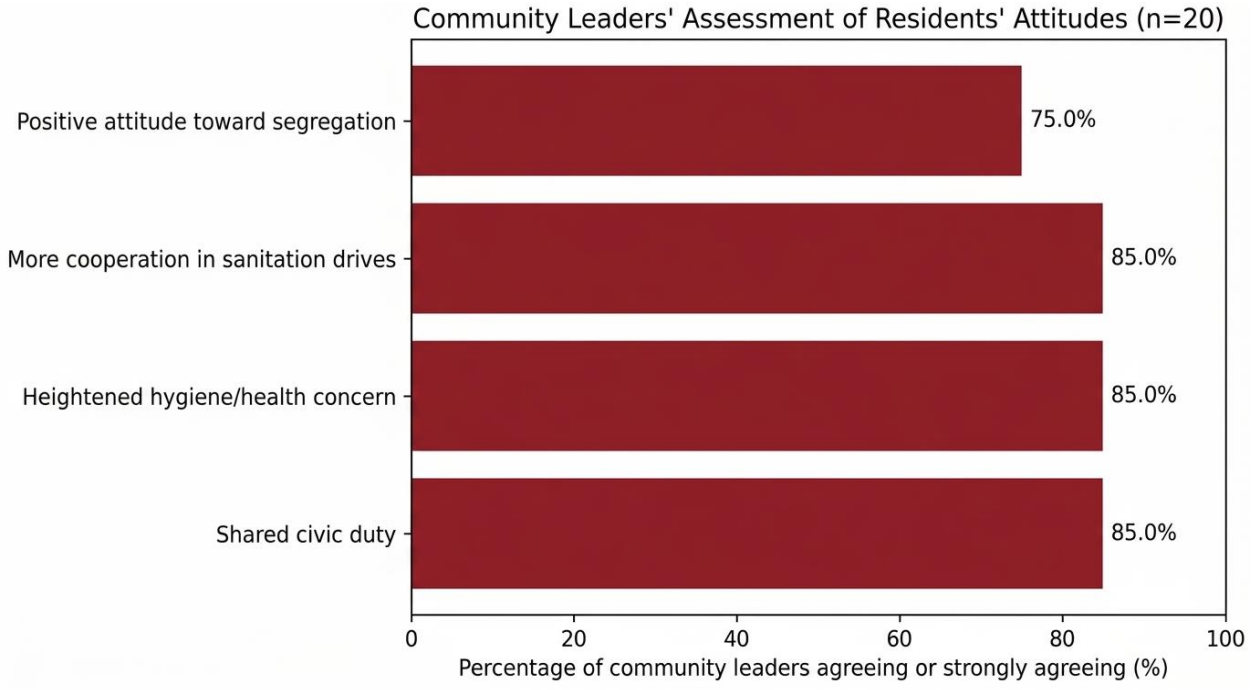


Figure 2. Community leaders' assessment of residents' positive attitudes (n=20).

The convergence between household self-reports and community leaders' assessments strengthens the interpretation that favourable attitudes were evident following campaign exposure. Importantly, both datasets identify waste segregation as the comparatively weaker attitude indicator. This consistency suggests that residents may readily accept broad messages about cleanliness and responsibility while requiring more practical guidance and enabling conditions for specific technical waste-management activities.

5. Discussion

The findings indicate that public awareness campaigns were associated with favourable attitudes towards waste management among residents of Mbeya City. The strongest household response concerned shared responsibility, with 85.6% agreeing or strongly agreeing that proper waste management is everyone's responsibility. Community leaders provided almost identical evidence, with 85.0% agreeing that residents viewed sanitation as a shared civic duty. This convergence suggests that awareness activities may have helped shift the perception of waste management from being solely a municipal responsibility towards a shared household and community obligation.

The result is consistent with the Theory of Planned Behaviour because favourable attitudes and stronger subjective norms can contribute to behavioural intentions. The study specifically interprets the high level of shared responsibility as evidence of a movement towards personal accountability and community participation. Qualitative evidence also describes residents increasingly cautioning others and participating voluntarily in sanitation activities after regular sensitisation.

The reported change in attitude towards environmental cleanliness was also substantial: 82.2% of household respondents agreed or strongly agreed that public awareness campaigns had changed their attitudes. This finding is supported by the report's discussion of exposure channels. Local radio had the widest reach, with 86.7% of household respondents reporting either frequent or occasional exposure, followed by Ward Barazas and public announcements at 85.6%. Posters and visual banners reached 74.4%, while door-to-door health officer visits reached 72.2%.

The prominence of radio and Ward Barazas is important because these channels combine broad information dissemination with locally relevant communication. Radio can deliver repeated health and environmental messages, while community meetings allow local leaders to interpret messages and mobilise residents. This supports the wider literature reviewed in the study, including research showing that community workshops, local radio and environmental education can strengthen concern for cleanliness and support for waste-management initiatives.

Another important finding is that 81.1% of residents reported that they encouraged other people to practise proper waste management, while an identical 81.1% reported being motivated to participate in community cleaning activities. These results indicate that campaign influence extended beyond individual perceptions to social and civic dimensions of waste management. This represents a social multiplier effect in which residents reinforce appropriate norms among family members and neighbours. This interpretation is compatible with TPB, particularly the role of subjective norms in shaping intentions.

However, the comparatively lower result for household-level segregation deserves attention. Although 80.0% of household respondents supported segregation, this was the lowest of the five household attitude indicators. Among community leaders, only 75.0% agreed or strongly agreed that residents

demonstrated positive attitudes towards basic segregation. This comparatively weaker result is linked to practical challenges associated with translating general awareness into technically specific waste-management actions. The literature reviewed similarly shows that infrastructure and service availability can condition the effect of awareness campaigns on environmental attitudes and subsequent behaviour.

This finding is particularly consistent with Molaba et al. (2023) and Etim et al. (2024), who emphasised that awareness can create positive environmental attitudes, but sustained waste-management outcomes depend on supporting facilities and reliable services. The present findings therefore suggest that campaigns in Mbeya City should not be evaluated only by whether resident's express positive attitudes; they should also be accompanied by practical opportunities that make the recommended behaviours feasible.

The findings are also consistent with Zephania et al. (2025), whose study in Iringa Municipal reported that awareness could strengthen environmental consciousness and supportive attitudes while not necessarily producing proactive participation in all waste-management activities. The similarity is useful because both contexts are Tanzanian urban settings. At the same time, the current findings contribute a Mbeya-specific picture showing strong support for shared responsibility, environmental cleanliness, community mobilisation and household segregation.

6. Conclusion

The evidence demonstrates that residents of the selected Mbeya City wards generally held favourable attitudes towards waste management after exposure to public awareness campaigns. Household agreement was high across all five indicators, ranging from 80.0% to 85.6%, while community leaders independently reported agreement ranging from 75.0% to 85.0%. The strongest attitudinal outcome was the recognition of waste management as a shared responsibility, followed by improved concern for environmental cleanliness. Campaign exposure was also associated with willingness to encourage others and motivation to participate in community cleaning activities.

Nevertheless, the relatively lower scores for household segregation indicate that positive general attitudes do not necessarily imply equally strong support for specific technical practices. Public awareness campaigns should therefore continue, but should be combined with practical demonstrations, community mobilisation, accessible segregation facilities and reliable waste collection arrangements. Such an integrated approach is more likely to strengthen positive attitudes and create conditions in which those attitudes can be sustained.

7. Practical Implications

Mbeya City Council should sustain rather than rely on occasional awareness campaigns, using local radio, Ward Barazas, health education and other locally accessible channels.

Awareness messages should continue to emphasise shared responsibility, environmental cleanliness and community health because these areas recorded particularly strong attitudinal responses.

Campaigns should provide practical demonstrations on household segregation and clearly explain where separated waste can be stored, collected or recycled.

Community leaders and Ward Health/Waste Management Officers should reinforce campaign messages through regular household and community engagement.

Positive attitudes should be supported by adequate waste containers, collection points and reliable services so that residents have realistic opportunities to act on the attitudes encouraged by campaigns.

8. Limitations

The evidence is based primarily on reported attitudes after campaign exposure and therefore should not be interpreted as experimental proof that campaign exposure caused the observed changes. In addition, the study was conducted in selected wards of Mbeya City, so the findings should be generalised cautiously beyond the study setting.

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