

Awareness of Open Defecation Practice and Enclosed Toilet Use among Malete Residents in Kwara State, Nigeria

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Abstract

This study examined the level of awareness among residents of Malete community in Kwara State regarding open defecation practices. Open defecation, which the World Health Organisation and many nations including Nigeria have pledged to eliminate by 2030, remains a pressing global health and developmental challenge. The research examined the relationship between residents' awareness of open defecation and their adoption of enclosed toilet systems. A survey of 230 respondents was conducted. The study found strong awareness and favourable disposition toward the use of an enclosed toilet systems in ending open defecation among the residents. Chi-square analysis yielded a value of 21.400 with 4 degrees of freedom and a p-value of 0.000, providing sufficient evidence that awareness significantly influences the use of enclosed toilet systems among Malete residents. The findings suggest that increased awareness, public enlightenment, and health education can substantially reduce open defecation practices in Nigeria and other developing countries. The study recommended that government and NGOs introduce

subsidised toilet construction programmes to help households build enclosed systems.

Keywords: *Awareness, Open defecation, enclosed toilet system, Malete community, sanitary facility, environmental hygiene*

Introduction

Open Defecation (OD), the human practice of excreting in the open, such as field, gutters, bushes, canals, rails or other open places, rather than the use of an enclosed toilet (Okuku, 2020), is a global developmental and health crisis facing mainly developing nations of the world. This concern is not without far reaching implications on the environment, national health and the overall development of any society (Mara, 2017; Abubakar 2018; Okuku, 2020). The practice of OD is common where sanitation infrastructure such as hygienic toilets, water and other sanitation services is absent or deficient. Fecal contamination of the environment and poor hygiene practices among populations remain a leading cause of child mortality, morbidity, under-nutrition, stunted growth, and impaired cognitive development (Mara 2017; UNICEF, 2018; WHO, 2022). By extension, it can be a barrier to education and economic opportunities with women and girls being the most vulnerable groups to the consequences of poor sanitation services (UNICEF, 2018). The adverse effect of these poor sanitary practices underscores the importance of item 6.2 of the Sustainable Development Goals that borders on access to adequate, equitable sanitation and hygiene for all and to end open defecation (SDG 6). This unique goal is certainly seen as central for achieving other related SDGs, including nutrition, health, education, poverty, economic growth and gender equality.

Efforts have increasingly been made over the years to respond to this goal, but despite the years of effort under the concerned joint body, over 892 million people worldwide still practice OD while 856 million people are with unimproved sanitation facility, placing the world off track in the elimination of OD by the year 2030 (UNICEF, 2018). To accelerate or sustain the annual reduction rate in open defecation ahead of 2030, the World Health Organisation revealed its plan to specially focus on sanitation programming in 26 countries, classified as 'high burden'. These countries, either have more than five million people defecating in the open or more than 50 percent of the population defecating in the open, thus representing 90 percent of the global burden of open defecation (UNICEF, 2018). Nine countries of the West and Central African region are among the 26 countries requiring special focus by the United

Nations. In this region, an estimated 122 million people were practicing open defecation (OD) in 2018. This number has increased in subsequent years as efforts to reduce OD was not sufficient, given the population growth rate in these countries (UNICEF, 2018).

In 2020, UNICEF reported that approximately 46 million Nigerians still practiced open defecation, despite moderate improvements in access to water and sanitation services. The 2020 Water, Sanitation and Hygiene National Outcome Routine Mapping (WASH NORM II) survey showed that although about 70% of Nigerians had access to basic drinking water services, access to adequate sanitation remained significantly low, especially in rural communities (UNICEF, 2020). UNICEF further observed that population growth continued to outpace improvements in sanitation infrastructure, thereby undermining national progress toward Sustainable Development Goal 6, which seeks universal access to sanitation and hygiene (UNICEF, 2020).

The Nigerian government intensified efforts to tackle the sanitation crisis through the “Clean Nigeria: Use the Toilet Campaign,” launched in 2019 and sustained throughout the review period. The campaign aimed to eliminate open defecation nationwide and initially targeted achieving Open Defecation Free (ODF) status by 2025 (UNICEF, 2022). The initiative built on the earlier “Making Nigeria Open-Defecation-Free by 2025: A National Roadmap,” developed by the Federal Ministry of Water Resources in collaboration with UNICEF and other development partners. The roadmap emphasised Community-Led Total Sanitation (CLTS), sanitation marketing, behavioral change communication, media campaigns, and increased investment in sanitation infrastructure.

By 2024 and 2025, the Federal Government acknowledged that Nigeria would likely miss its initial target of becoming Open Defecation Free by 2025. Consequently, the Clean Nigeria Campaign Strategic Plan was revised, extending the target to 2030 (UNICEF, 2024). During the launch of the revised strategy in 2024, the Nigerian government disclosed that nearly 48 million Nigerians were still practicing open defecation (UNICEF, 2024). The government stated that over 135 LGAs and 30,000 communities had attained ODF status since the commencement of the campaign in 2019 (Federal Ministry of Information, 2024). However, achieving nationwide ODF status by 2030 would require a substantial increase in the pace of sanitation interventions and stronger collaboration among federal, state, and local governments, development partners, civil society organizations, and communities (UNICEF, 2024).

Agada-Mba and Anorue (2021) in a study revealed the important role behavioural change communications can play in the attainment of sustainable goals, especially as it relates to Open Defecation. The target, usually for attitude change campaigns, which are aggressively needed in this case, is to change attitudes and behaviours of affected communities. As aptly captured by the researchers, ODF is expected to materialise in attitude and behavioural change (Agada-Mba & Anorue, 2021) even as these variables form part of the predictors of toilet ownership and continuous usage (Alemu et al., 2018). This is important because many health communication scholars and researchers have underscored the relationship between health communication messages and increased audience knowledge, awareness of health issues, influence of beliefs and attitude that may ultimately change social norms and prompt adoption of recommended behaviour (Akinfeleye, 2008; Okoro, et al., 2015; Ngigi & Busolo, 2018).

However, given this reality, there seem to exist a gap between awareness and practice of health-related behaviour in some of the communities that have consistently received intervention, due to downplaying, by the interveners, of the role of context and structures in which individuals exist (Ngigi & Busolo, 2018; Agada-Mba, 2021). Therefore, this present study is an attempt to contribute to the solutions to some of the challenges which bothers on understanding the community-specific factors that contribute to OD. This is especially important in states with high prevalence rates such as Kwara State. Kwara was rated as the highest among states with the prevalent cases of OD in Nigeria, followed by Plateau, Ebonyi and Kogi states and according to the 2021 report by Water, Sanitation and Hygiene National Outcome Routine Mapping Survey (WASH NORM), 50 percent of Kwara indigenes are still practicing OD (Osishana, 2022).

Therefore, open defecation persists in Kwara State despite years of national and state-level interventions, with Malete community reflecting this paradox: residents are exposed to awareness campaigns yet continue to practice OD. This situation raises critical questions about the effectiveness of awareness in driving behavioural change and adoption of enclosed toilet systems. The focus on Malete community in Moro Local Government Area of the state is of significance given that Malete is one of the rural/developing communities which hosts the State-owned University and is faced with sanitation problems and open defecation.

The specific objectives the study sought to achieve are to:

- i. Examine the awareness of open defecation practice among members of Malete community of Kwara State
- ii. Ascertain the disposition of members of Malete community of Kwara State on the use of enclosed toilet system
- iii. To assess residents' perceptions of the need to reduce OD and identify reasons why residents support reduction of OD.
- iv. Establish whether the awareness of members of Malete community against open defecation practice significantly encourages their use of enclosed toilet system.

Hypothesis

The study hypothesises that:

H₁ Awareness level against open defecation practice does not significantly improve the use of enclosed toilet system among residents of Malete Community in Kwara State.

Literature Review

Insights on Open Defecation

The prevalence of open defecation across the globe, especially in developing countries of Asia and Africa has made it a subject of empirical research across various disciplines. This is because of the threat posed by the practice and its negative impacts on the health and dignity of man as well as the ecosystem. OD practice increases morbidity and mortality rates and fosters violence especially among the vulnerable in the society – women and children. The new set of global goals or sustainable development goals which are expected to have been attained by 2030, has elimination of OD on its list. Nigeria, like other member nations of the United Nations, set an ambiguous goal of ending open defecation by 2025. Scholarly works on OD abound, especially in the developing countries. In Uganda, Ntaro et al. (2022); Ghana, Nunbogu, et al. (2019); Alhassan & Anyarayer, 2019); Nigeria, Ebimbo, et al. (2019).

A study by Ntaro, et al. (2022) explored contextual and psychological factors perceived to influence attaining Open-Defecation-Free (ODF) status in Uganda. The study reported contextual factors of farming away from home, rainy seasons, psychological factors of perceived risk and severity of transmittable water, sanitation and hygiene related diseases and norm factors as predictors of ODF status. The study adopted the RANAS factor model (Risk, Attitude, Norm, Ability and Self-Regulation). In a related study, Nunbogu, et al. (2019) investigated factors associated with enclosed toilet (latrine) completion

and use in Community Led Total Sanitation (CLTS) programme in Ghana within the context of RANAS factor model. The study reported a reduction in the practice of OD by households as construction of household toilet facilities near completion. People's decisions to build and use toilet facilities depend on a combination of psychosocial, structural and contextual factors. Alhassan and Anyarayer (2018) investigated determinants of continued use of ODF innovations introduced in the Community Led Total Sanitation (CLTS) implementation. The study established that while communication of innovation was effective in widespread awareness of the innovations, continued sustainability and use of toilet infrastructures was inhibited by household income.

In Nigeria, a study by Ebimigbo et al. (2019) examined residents of South-East Nigeria's knowledge of the threats to public health posed by open defecation and the implications it has for social workers. The study reported ample knowledge of the challenges to public health posed by OD. However, despite being knowledgeable, the practice of OD was still prevalent in the areas of study. Reasons proffered for the continuous practice of OD included inadequate enclosed toilet facilities predicated by low-income levels, attitudes and perceptions of people who own or do not own toilet infrastructures. Attitude was found to have a great influence on the choice to continue the practice of OD despite having knowledge about the health risks involved. Therefore, attitudinal change is important in reducing the practice of open defecation, which discussants and informants in the study judged to be normal behaviour.

Causes of Open Defecation

Open defecation is more common in rural communities in Nigeria and is related to the culture, values, traditions and morals of the people (Nyoni & Nyoni, 2020). Some rural areas in Nigeria find joy in openly pouring human waste into the rivers and lakes that serve as sources of drinking water, resulting in a loss of safe, clean water and sanitation (Ngwu, 2017; Agada-Mba & Anorue, 2021). Poverty, lack of toilets, and lack of awareness of the dangers associated with OD have been identified as the main reasons for OD practice in Nigeria (Ngwu, 2017). Okuku (2020) argues that poor people are unlikely to be able to afford certain basic facilities, such as building toilets. It is clear that OD is an indicator of extreme poverty in countries with high prevalence.

In the same vein, Olagbemide and Oluropo (2025) argue that one of the major causes of open defecation in Nigeria is poverty and the lack of access to sanitation infrastructure. Many households cannot afford to build toilets or

maintain sanitation facilities. In overcrowded urban settlements and rural communities, residents often share inadequate sanitation facilities or resort to open spaces, bushes, drainage systems, rivers, and abandoned buildings for defecation. In some riverine communities in the Niger Delta for instance, Olagbemide and Oluropo (2025) revealed that people construct wooden latrines over rivers, allowing human waste to flow directly into water bodies used for domestic purposes.

Cultural beliefs and behavioural attitudes also contribute significantly to the persistence of open defecation. In certain communities, open defecation is normalized and even considered preferable to using pit latrines. Some rural residents believe that toilets located close to homes can cause illness or infertility (Prince-Edward, 2025). Others perceive flush toilets as symbols of modernity and social status but are unable to afford them, thereby rejecting simpler and cheaper sanitation alternatives. The communal nature of open defecation in some areas also reinforces the behaviour socially and culturally.

While the literature clearly identifies poverty, infrastructure deficits, and deeply rooted cultural beliefs as primary drivers of open defecation, there remains a critical gap in understanding how targeted awareness campaigns can break these behavioral patterns. Most existing studies focus heavily on the structural barriers to sanitation, leaving the behavioral transition from awareness to enclosed toilet adoption under-researched. This study directly addresses this gap by examining how awareness levels among residents of Malete community influence their actual disposition and transition toward enclosed toilet systems.

Theoretical Framework

The goal of the End Open Defecation (EOD) campaign is to change the age-long practice among the people to promote healthy living in society. This is by persuading them to adopt a new way or method of doing things. Over the years, the process of adopting new innovations has been studied and one of the most famous adoption models has been propounded by Rogers which he described in his book as Diffusion of innovations (Sherry & Gibson, 2002 cited in Sahin, 2006). Diffusion is the process through which an innovation is communicated through certain channels overtime among members of a social system (Rogers, 2003). For instance, Barker (2004) reported three international development efforts in relation to the diffusion concepts. Two of these instances were experiences in Haiti and Nepal. In Haiti, a United States Agency for International Development effort to conduct HIV prevention education in rural villages identified and recruited village voodoo practitioners. This category of

people who were almost always considered credible and trusted sources of advice by Haiti villagers, were used to encourage villagers to participate in village meetings with USAID change agents. The idea was a huge success as the outcome exceeded the expectations of the change agents. In Nepal, where vitamin A deficiency contributes to very high rates of infant and maternal mortality, the innovation of kitchen gardens was diffused among households through neighbour social modeling. This resulted in heightened knowledge, positive attitudes, increased vegetable and fruit growing and consumption, and improvements in vitamin A nutrition.

Although many diffusions literature focus on innovations in industrial and service settings, attention is now being paid to public service and public policy innovations. There is now considerable emphasis on the diffusion of innovations in the health care and educational sectors (Nutley & Davies, 2000). According to Dearing (2010), the key components of the diffusion theory are:

1. The innovation, and especially potential adopter perceptions of its attributes of relative advantage (effectiveness and cost efficiency relative to alternatives), complexity (how simple the innovation is to understand), compatibility (the fit of the innovation to established ways of accomplishing the same goal), observability (the extent to which outcomes can be seen), and trialability (the extent to which the adopter must commit to full adoption);
2. The adopter, especially each adopter's degree of innovation (earliness relative to others in adopting the innovation);
3. The social system, especially in terms of the structure of the system, its local informal opinion leaders, and potential adopter perception of social pressure to adopt;
4. The individual adoption process, a stage-ordered model of awareness, persuasion, decision, implementation, and continuation;
5. The diffusion system, especially an external change agency and its paid change agents who, if well trained, correctly seek out and intervene with the client system's opinion leaders, paraprofessional aides, and innovation champions.

In relation to the above, the innovation-decision process theory is based on time and five distinct stages (Nutley, Davies & Walter, 2002). The first stage is knowledge. Potential adopters must first learn about innovation. Second, they must be persuaded as to the merits of innovation. Third, they must decide to adopt the innovation. Fourth, once they adopt the innovation, they must implement it. Fifth, they must confirm that their decision to adopt was the

appropriate decision. Diffusion results once these stages are achieved (Rogers, 2003).

One of the limitations of the diffusion approach is that the theory does not consider the possibility of rejection of an innovation by the people even if it has been fully understood by them (Waterman, 2004). Nutley et al. (2002) also pointed out that the nature of the utilisation of knowledge in diffusion of innovations is complicated by contrasting direct adoption (replication) versus reinvention (adaptation).

In relation to the study, the EOD campaign is an innovation introduced to Malete, which is a rural community. The intervention campaign began with community entry in the form of advocacy visits to the community leaders to sensitise them on the need to embrace the innovation. After their conviction about the campaign, they mobilised the people through the appropriate opinion and religious leaders to abandon the age long practice of open defecation and embrace the innovative way of using toilets. At the implementation stage, the motor parks, markets and the entire community were mobilised for a successful intervention. Suffice to state that the community, opinion and religious leaders were key in diffusion process. In the grand finale of the campaign, members of the Malete community were assembled and presented with a lecture on the health hazards of open defecation by a medical doctor coupled with a drama presentation focusing on the importance of using enclosed toilet system.

This innovation-decision process provides the framework for testing the study's null hypothesis (H_0). According to Rogers, the 'knowledge' stage (awareness) should ideally lead to 'persuasion' and 'implementation' (toilet use). However, as critics note, individuals may reject an innovation despite having full knowledge of it. By testing whether awareness significantly improves enclosed toilet use among Malete residents, this study empirically verifies if the first stage of Rogers' model successfully drives residents through to the final implementation stage in a Nigerian rural context

Methods

This study utilised a quantitative, descriptive cross-sectional survey design. This approach is highly appropriate for describing attitudes, opinions, and behaviors within a large population (Creswell, 2009; Wimmer & Dominick, 2011). The target population of the Malete community is estimated at 10,547, excluding the temporary university student population, based on Moro Local Government Secretariat records. Over the past 17 years, the establishment of

the state university has transformed Malete into an advanced rural hub with upgraded infrastructure, including private hospitals, markets, and transport systems.

A sample size of 230 respondents was selected for this study. To ensure wide coverage, a multi-stage sampling technique was employed. First, the community was clustered into distinct public and residential zones: the central market, motor parks, worship centers, and households. Next, respondents within these clusters were selected to participate. Data were gathered using a semi-structured questionnaire. Because a significant portion of the target population had limited literacy, five trained postgraduate research assistants administered the instrument face-to-face by reading questions aloud and recording responses verbatim. This process took five weeks and two days.

To ensure reliability, a pilot study was conducted prior to the main fieldwork, and the instrument was adjusted based on feedback. To test the study's null hypothesis (H_0), data regarding awareness levels and enclosed toilet use were analysed using Pearson Chi-Square test of independence via IBM SPSS Statistics software.

Findings

This section presents and discusses the empirical findings of the study, beginning with the socio-demographic distribution of the respondents and progressing through the analysis of the research objectives and hypothesis.

Out of the 230 copies of the questionnaire distributed with the assistance of trained research assistants, 228 copies were correctly completed and retrieved, representing a 99.1% response rate. The collected data were analysed using IBM SPSS Statistics version 23.0. Descriptive statistics (frequencies, mean, and standard deviation) were used to analyse the research questions, while the inferential tool of Chi-Square was used to test the study's null hypothesis.

Socio-Demographic Characteristics of Respondents

Table 1 outlines the demographic profiling of the 228 respondents surveyed within the Malete community.

Table 1: Demographic Characteristics of Respondents (N=228)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	115	50.5%
	Female	113	49.5%
Age Group	23–35 years	118	51.8%

	36 – 40 years	23	10.0%
	41 years and above	87	38.2%
Education Level	No Formal Education	94	41.2%
	Primary Education	28	12.4%
	O' Level (Secondary)	78	34.1%
	OND / NCE	8	3.5%
	HND	11	4.9%
	B.Sc.	7	3.1%
Primary Occupation	Trading	117	51.3%
	Farming	35	15.2%
	Transportation	16	7.1%
	Others	60	25.9%
Monthly Income	Low Income	174	76.5%
	Medium Income	23	10.1%
	High Income	31	13.4%
Marital Status	Married	160	70.2%
	Single	55	24.1%
	Others (Widowed/Divorced)	13	5.7%

Source: Field Survey, 2023

Table 1 shows the demographic details of the 228 people who took part in the study. The data reveals that 50.5% of the respondents were male and 49.5% were female. In terms of age, 51.8% were between 23 and 35 years old, 10.0% were between 36 and 40 years old, and 38.2% were 41 years and older. The literacy data indicates that 41.2% of the respondents had no formal education, 12.4% finished primary school, and 34.1% reached secondary school (O' Level). Only a small group held higher degrees like OND/NCE (3.5%), HND (4.9%), or a B.Sc. (3.1%).

Regarding livelihood, trading was the top job at 51.3%, followed by farming at 15.2% and transportation at 7.1%. The remaining 25.9% worked in other jobs. Most respondents (76.5%) fell into the low-income bracket, while 10.1% earned a medium income and 13.4% earned a high income. Lastly, 70.2% of the participants were married, 24.1% were single, and 5.7% were widowed or divorced.

Objective One: To examine the awareness of open defecation practice among members of Malate Community, Kwara State.

Table 2 presents the empirical data regarding the level of awareness against open defecation practice among the sampled residents of the Malete community.

The descriptive analysis reveals that an overwhelming majority of the respondents, accounting for 87.1% (n = 198), possess explicit knowledge and awareness of open defecation practices and the campaigns against them within the community. In contrast, only a minor segment of the population, representing 12.9% (n = 30), indicated a lack of awareness regarding these practices.

The data demonstrates a very high baseline of public awareness across the community. This high frequency confirms that information regarding the open defecation problem has successfully reached the vast majority of Malete residents, leaving only a small fraction of the population unreached.

Table 2: Awareness of Open Defecation Practice (N=228)

Awareness	Frequency (n)	Percentage (%)
Yes	198	87.1%
No	30	12.9%
Total	228	100.0%

Source: Field Survey, 2023

Objective Two: To Ascertain the Disposition of Members of Malete Community on the Use of Enclosed Toilet Systems

Table 3: Preference for Enclosed Toilet Systems Over Open Defecation (N=228)

Preference	Frequency (n)	Percent (%)
Yes	211	92.5%
No	17	7.5%
Total	228	100.0%

Source: Field Survey, 2023

Table 3 displays the data regarding the residents' preference for enclosed toilet systems over open defecation across the entire sample (N=228). The descriptive results show that 92.5% (n = 211) of the respondents prefer enclosed toilets, while 7.5% (n = 17) do not.

Logically, this sample includes the 30 individuals who previously indicated a lack of awareness about anti-OD campaigns in Table 2. This complete response rate indicates that while some residents are unreached by public awareness campaigns, they still maintain an intrinsic, personal preference for enclosed toilet facilities over open defecation when asked directly. This highlights that a desire for better sanitation exists independently of formal campaign awareness.

Objective Three: Residents' Perceptions and Reasons for Supporting Open Defecation Reduction

Table 4 shows whether the respondents perceive a need to reduce open defecation in the community. The data reveals that 91.7% (n = 209) of the participants recognize the need to reduce open defecation, while 8.3% (n = 19) do not see the need.

Table 4: Perception of the Need to Reduce Open Defecation (N=228)

Perception of Need	Frequency (n)	Percent (%)
Yes	209	91.7%
No	19	8.3%
Total	228	100.0%

Source: Field Survey, 2023

To understand the specific drivers behind this perception, respondents were asked to identify their primary reasons for supporting the reduction of open defecation. As outlined in Table 5, the most common reason chosen was "For healthy living" at 71.6% (n = 156). Other reasons included "All of the above" at 9.2% (n = 20), "To prevent environmental hazards" at 7.8% (n = 17), and "To keep our community clean" at 7.3% (n = 16). A small segment of the population chose "None of the above" at 6.7% (n = 15). Finally, "To prevent or

reduce untimely death" and "To comply with and assist the government" both recorded 0.9% (n = 2).

Table 5: Reasons for Supporting the Reduction of Open Defecation (N=228)

Reasons for Reduction	Frequency (n)	Percent (%)
For healthy living	156	71.6%
All of the above	20	9.2%
To prevent environmental hazards	17	7.8%
To keep our community clean	16	7.3%
None of the ave	15	6.7%
To prevent or reduce untimely death	2	0.9%
To comply with and assist the government	2	0.9%
Total	228	100.0%

Source: Field Survey, 2023

Logically, both Table 4 and Table 5 maintain the complete sample size of 228 respondents, which includes the 30 individuals who previously reported a lack of awareness regarding formal anti-open defecation campaigns i Table 2. This continuity is intentional.

While these 30 individuals were unreached by formal public health messaging, they still possess an organic understanding of basic health, environmental hygiene, and community cleanliness. When asked to evaluate the physical practice of open defecation, they were fully capable of expressing an opinion on whether it should be reduced and identifying personal reasons, such as health or clean surroundings, to support that stance. This confirms that community support for improved sanitation can stem from direct personal values, even in the absence of formal campaign exposure.

Objective Four: To establish whether the awareness of members of Malete community against open defecation practice significantly encourages their use of the enclosed toilet system.

Objective four sought to establish whether awareness against open defecation practice significantly encourages the use of enclosed toilet systems among members of the Malete community. To examine this relationship, a cross-tabulation analysis was performed between public awareness and actual toilet usage across the entire sample (N=228).

As outlined in Table 6, among the respondents who are aware of open defecation practices, 95.9% (n=190) report utilising an enclosed toilet system, while only 4.1% (n=8) do not. Among those who lack awareness, 76.7% (n=23) utilise enclosed toilets, while 23.3% (n=7) do not. This descriptive variation

shows that awareness substantially increases the likelihood of adopting improved sanitation options.

Table 6: Cross-Tabulation of Public Awareness and Enclosed Toilet System Use (N=228)

Use of Enclosed Toilet System	Aware of OD Practice: Yes	Aware of OD Practice: No	Total
Yes	190 (95.9%)	23 (76.7%)	213 (93.4%)
No	8 (4.1%)	7 (23.3%)	15 (6.6%)
Total	198 (100.0%)	30 (100.0%)	228 (100.0%)

Source: Field Survey, 2023

Hypothesis Testing

To empirically test the study's null hypothesis (H_0): Awareness level against open defecation practice does not significantly improve the use of enclosed toilet systems), an inferential Pearson Chi-Square (χ^2) test of independence was conducted.

Table 7: Chi-Square Test Results (N=228)

Statistical Metric	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square (χ^2)	14.542	1	.000
Likelihood Ratio	11.230	1	.001
Number of Valid Cases	228		

Source: Field Survey, 2023

The inferential data displayed in Table 7 reveals a Pearson Chi-Square value of ($\chi^2 = 14.542$) with (1) degree of freedom, yielding a highly significant probability value of ($p < .001$). Because the calculated (p)-value is less than the standard academic significance level of ($\alpha = 0.05$), the null hypothesis (H_0) is definitively rejected.

Consequently, the alternative hypothesis (H_1) is accepted. The study concludes that the awareness level against open defecation practice does significantly improve and encourage the use of enclosed toilet systems among the residents of Malete Community in Kwara State.

Discussion of Findings

The primary goal of this study was to investigate the relationship between public awareness of open defecation and the actual adoption of enclosed toilet systems within the Malete community of Kwara State. By separating the descriptive findings from the underlying behavioral mechanics, the empirical results provide critical insights into how health communication drives rural sanitation habits.

The descriptive findings from Table 2 revealed a remarkably high baseline of public awareness, with 87.1% of the respondents acknowledging the presence of campaigns and discussions against open defecation. This high penetration rate indicates that local sensitisation efforts, institutional community entry, and public health campaigns have been highly effective in delivering messages to the rural population.

When evaluated through Rogers' (2003) Diffusion of Innovations Theory, this group represents the critical "Knowledge Stage." According to the model, before any social unit can change its behaviour, its members must first be exposed to the innovation's existence and gain a baseline understanding of its functions.

However, this high awareness rate also uncovers a behavioural paradox. While 87.1% of the community is aware of the dangers and campaigns, open defecation practices still persist in the wider region. This gap directly mirrors the empirical findings of Ebimngbo et al. (2019) in Southeastern Nigeria, who reported that widespread public knowledge regarding public health risks does not automatically stop open defecation practices. This confirmation proves that while information delivery is a necessary first step, awareness alone is not a magic solution for immediate behavioural change.

The data regarding community disposition (Table 3 and Table 4) reveals a strong collective desire for improved sanitation, with 92.5% of residents expressing a preference for enclosed toilets over open defecation, and 91.7% recognising the urgent need to reduce the practice. Furthermore, Table 5 highlights that 71.6% of this support is driven by a desire "For healthy living."

This strong alignment represents the "Persuasion Stage" of the Diffusion of Innovations Theory. At this stage, individuals form a positive or negative attitude toward an innovation based on its perceived "relative advantages," such as safety, health benefits, and personal dignity. The data proves that Malete residents are heavily persuaded of the merits of enclosed toilets.

The mismatch between this high preference (92.5%) and the actual persistence of open defecation can be explained by looking back at our socio-demographic data. Table 1 showed that 76.5% of the respondents fall into the low-income bracket, with the majority relying on informal retail trading and farming. This economic reality aligns perfectly with the arguments of Olagbemide and Oluropo (2025) and Okuku (2020), who noted that severe poverty and a lack of access to affordable infrastructure are the primary bottlenecks to sanitation adoption.

Therefore, the problem in Malete is not an ideological rejection of toilets; it is a structural barrier. The community has progressed through the knowledge and persuasion stages, but is financially stuck before reaching full implementation.

The rejection of the null hypothesis (H_0) via the Chi-Square test ($\chi^2 = 14.542$, $df = 1$, $p < .001$) provides the definitive empirical breakthrough of this study. The cross-tabulation in Table 6 demonstrates that 95.9% of respondents who were actively aware against open defecation utilised enclosed toilet systems, compared to only 76.7% among the unaware group.

This statistically significant difference confirms that targeted public awareness acts as a powerful accelerator for behavioural change. Within the diffusion of innovations framework, awareness significantly increases an individual's movement from the "knowledge" stage to the "implementation" and "confirmation" stages. While financial poverty presents a major obstacle, high awareness helps overcome cultural resistance and alters personal risk perception. It drives individuals to seek out, build, or share enclosed toilet systems despite their low income.

Conversely, the 23.3% of unaware individuals who do not use toilets represent the classic "Laggards" or slow-adopters in Rogers' model. They remain isolated from modern sanitation practices due to a combination of low literacy (41.2% with no formal education) and a lack of exposure to active health communication. This statistical proof confirms that sustained public awareness campaigns are an absolute necessity for achieving an open-defecation-free status.

Conclusion

This study demonstrates that the persistence of open defecation within the Malete community is not driven by ignorance or a lack of understanding regarding public health hazards. Instead, residents exhibit a remarkably high baseline of awareness and a strong personal preference for enclosed toilet

systems, reflecting a highly favourable community disposition shaped by sensitisation campaigns. Public perceptions regarding the necessity of reducing open defecation are equally robust, with individual health benefits serving as the primary community motivation.

Furthermore, inferential hypothesis testing confirmed that public awareness significantly encourages and improves the actual utilisation of enclosed toilet systems. This behavioural link strongly supports the core tenets of the Diffusion of Innovations Theory, validating that knowledge of a public health innovation is a mandatory prerequisite for behavioural acceptance.

In conclusion, while the mental disposition and awareness of Malete residents are exceptionally high, moving from intention to actual behavioural change requires more than just communication. The transition to an open-defecation-free community is currently bottlenecked by low income and lack of infrastructure. Therefore, transforming this high awareness into permanent behavioural change will require a deliberate mix of community education, direct structural support, and local policy interventions.

Recommendations

Based on the findings of this study, the following recommendations are proffered:

1. Provide affordable sanitation infrastructure: Since the community exhibits a high preference for toilets but suffers from widespread low income, the local government and non-governmental organisations (NGOs) should introduce subsidised or low-cost toilet construction programmes to help households build enclosed systems.
2. Launch targeted Community-Led Total Sanitation (CLTS): Public health workers should focus less on general awareness and more on hands-on community mobilisation. Utilising local, religious, and market leaders as change agents will help drive the remaining unreached populations to adopt clean habits.
3. Enact and enforce local sanitation bye-laws: The Moro Local Government should establish clear sanitation codes that mandate the inclusion of enclosed toilets in all residential dwellings, marketplaces, and motor parks, backed by consistent monitoring.

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