

Examining the Factors Contributing To Non-Adherence to Antiretroviral Therapy (ART) Among HIV/AIDS Patients: A Case of Mbalizi Hospital, Mbeya Rural District, Tanzania

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ABSTRACT: This study examined factors contributing to non-adherence to Antiretroviral Therapy (ART) among HIV/AIDS patients at Mbalizi Hospital, Mbeya Rural District, Tanzania. It addressed two specific objectives: assessing patients' awareness of ART and identifying factors contributing to ART non-adherence. A qualitative case study design, guided by the Health Belief Model and Social Cognitive Theory, was employed. Data were collected through semi-structured interviews, focus group discussions, and observation from 25 purposively selected participants, comprising 18 HIV/AIDS patients and 7 healthcare providers at the Care and Treatment Clinic (CTC). Data were analysed thematically using Braun and Clarke's six-step approach, with findings supported by verbatim participant quotations. The findings showed that most patients had a general understanding of ART, although their knowledge developed progressively with treatment duration. Newly enrolled patients were particularly likely to hold misconceptions regarding when ART could safely be discontinued. ART non-adherence resulted from interacting individual, social, and health service-related factors. Individual factors included forgetfulness, medication side effects, alcohol use, food insecurity, and treatment complacency. Social factors involved stigma, fear of disclosure, inadequate family support, and conflicting cultural and religious beliefs. Health service-related factors included long waiting times, inadequate staffing, and occasional drug shortages. The study concludes that ART non-adherence is multidimensional and requires coordinated interventions addressing patient, social, and health system factors. It recommends strengthening patient education, decentralising ART services, providing differentiated care, enhancing nutritional and economic support, reducing community stigma, and systematically tracing patients who miss appointments.

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I. INTRODUCTION

HIV/AIDS remains a major global public health issue with significant social, economic and health consequences. An estimated 39 million people worldwide were living with HIV, and about 630,000 people died from HIV-related illnesses in 2022 alone (UNAIDS, 2023). Antiretroviral therapy (ART) is the cornerstone of HIV/AIDS management, suppressing viral load, improving immune function and reducing HIV-related morbidity and mortality when taken consistently and correctly, thereby enabling people living with HIV to achieve near-normal life expectancy and reducing the risk of onward transmission (World Health Organization [WHO], 2021; UNAIDS, 2023). However, the success of ART programmes depends heavily on sustained optimal adherence, commonly estimated at 95% or above, to achieve viral suppression and prevent treatment failure and drug resistance. Despite this requirement, maintaining consistent adherence remains a major global challenge, with many patients struggling to follow their treatment regimens due to a range of complex and interrelated factors (WHO, 2021).

Sub-Saharan Africa is home to approximately 25.6 million people living with HIV, representing about two-thirds of the global total (UNAIDS, 2023). Although the widespread rollout of ART has transformed HIV into a manageable chronic condition across the continent, poor adherence remains a major challenge in many African countries due to a combination of structural, social and individual factors, including poverty, food insecurity, stigma and limited access to healthcare services (WHO, 2021). Shubber et al. (2016) reported that adherence across sub-Saharan Africa is influenced by a wide range of factors, including adverse drug effects, stigma, inadequate social support, financial constraints and barriers within healthcare systems, underscoring the need for interventions that address both individual and structural determinants of adherence.

In Tanzania, HIV prevalence remains significant, particularly in the southern highlands zone, which has the greatest concentration of HIV cases nationally. Evidence from the Tanzania HIV Impact Survey 2022–2023 indicates that Mbeya ranks approximately third nationally, with adult HIV prevalence estimated at 9 to 10 percent, more than double the national average of approximately 4.4 percent (Ministry of Health [MoH] & National Bureau of Statistics [NBS], 2023). Although ART is widely available and free of charge in public health facilities, many Tanzanian patients still struggle to take medications consistently as prescribed. National reports identify multiple barriers to adherence, including stigma and discrimination, fear of disclosure, poverty, food insecurity, long distances to health facilities and health system challenges such as long waiting times, occasional drug stock-outs and limited counselling services (WHO, 2021).

Despite ART's proven effectiveness, the magnitude and influence of adherence barriers vary considerably across settings and communities, and there remains limited empirical evidence specifically documenting the factors contributing to non-adherence among HIV/AIDS patients attending Mbalizi Hospital in Mbeya Rural District. Most available evidence on ART adherence in Tanzania originates from urban settings or regional referral hospitals, limiting understanding of how rural health system constraints, including staff shortages and high patient loads, affect patient knowledge and adherence behaviour. This gap limits the ability of healthcare providers and policymakers to design targeted interventions addressing the unique challenges faced by patients in rural facilities. This study therefore sought to examine the factors contributing to non-adherence to ART among HIV/AIDS patients attending Mbalizi Hospital, with the aim of generating evidence to inform effective strategies for improving adherence and treatment outcomes. This article draws specifically on Specific Objective 1 and Specific Objective 2 of the wider dissertation from which it is derived, namely:

1. To assess the level of awareness among HIV/AIDS patients regarding ART; and
2. To identify the factors contributing to non-adherence to ART among HIV/AIDS patients at Mbalizi Hospital.

II. MATERIALS AND METHODS

Research Approach

This study adopted a qualitative research approach to explore in depth the experiences and challenges faced by patients living with HIV/AIDS in adhering to ART at Mbalizi Hospital. This approach enabled the researcher to interact directly with patients and understand their personal views, feelings and behaviours regarding ART adherence (Creswell & Poth, 2018). Through in-depth interviews, patients shared individual experiences, including challenges such as medication side effects, forgetfulness, stigma and lack of support, while focus group discussions (FGDs) explored shared experiences among patients and healthcare providers, helping to reveal common social and cultural factors influencing adherence.

Research Design

A case study design was adopted to explore the factors influencing non-adherence to ART among patients living with HIV/AIDS at Mbalizi Hospital. This design is considered appropriate because it allows an in-depth investigation of a specific phenomenon within its real-life context, particularly within a single health facility (Creswell & Poth, 2018). Mbalizi Hospital served as the case, enabling the researcher to examine patients' experiences, perceptions and challenges related to ART adherence in detail through multiple data collection methods, facilitating a holistic understanding of how individual, social and health service-related factors interact to influence adherence within the Care and Treatment Clinic (CTC) setting.

Area of the Study

The study was conducted at Mbalizi Hospital, located in Mbeya Rural District, Mbeya Region, Tanzania. The hospital provides comprehensive HIV care and treatment through its CTC, serving patients from Mbalizi Ward and surrounding rural and peri-urban communities. Mbeya Region was selected due to its relatively high HIV burden, with recent estimates placing regional HIV prevalence at approximately 9 to 10 percent, among the highest in Tanzania (MoH & NBS, 2023; UNAIDS, 2023). Mbalizi Hospital was specifically selected because of the significant number of HIV patients receiving care and treatment at its CTC, making it an appropriate facility for studying factors influencing non-adherence to ART in a rural setting.

Population and Sample Size

The population for this study consisted of patients living with HIV/AIDS receiving ART at Mbalizi Hospital, along with healthcare providers, including nurses, clinicians and ART counsellors, involved in the management and monitoring of ART adherence. A sample size of 25 participants was selected, comprising 18 HIV/AIDS patients and 7 healthcare providers. This size is considered

sufficient for a qualitative case study, where the goal is to obtain in-depth, rich and detailed information rather than to generalise findings to the entire population (Creswell & Poth, 2018), and is consistent with recommendations that qualitative case study or phenomenological samples typically range between 15 and 30 participants. Purposive sampling was used to select participants with relevant knowledge and experience of the phenomenon under investigation (Ahmad & Wilkins, 2025); the researcher purposively selected HIV/AIDS patients enrolled in the ART programme who had a history of non-adherence, together with healthcare providers directly involved in patient care and follow-up, ensuring firsthand and information-rich perspectives. Data collection continued until data saturation was reached, the point at which no new themes or insights emerged from additional participants.

Data Collection

Data were collected using semi-structured in-depth interviews, focus group discussions and observation. Semi-structured interviews were conducted with selected HIV/AIDS patients and healthcare workers using open-ended questions, allowing flexibility in exploring emerging issues while maintaining consistency across interviews (Creswell & Poth, 2018). Focus group discussions, each comprising five to eight participants grouped by relevant characteristics such as patient status or healthcare provider type, were conducted to gain group perspectives on ART adherence; FGDs are particularly useful for exploring shared experiences, social norms, stigma and community-level influences that may not emerge during individual interviews (Hennink & Kaiser, 2022). A structured observation checklist was additionally used to gather first-hand information on service delivery and patient experiences within the CTC, noting aspects such as patient flow, waiting time, counselling procedures and provider-patient interactions, which reduces reliance on self-reported information alone (Creswell & Poth, 2018).

Data Analysis

Data were analysed thematically following the six-phase process outlined by Braun and Clarke (2006), proceeding from familiarisation with the data through repeated reading and note-taking, to generation of initial codes, searching for and reviewing themes, defining and naming themes, and producing the final report. Thematic analysis was selected because it enables the systematic identification, organisation and interpretation of patterns across qualitative data sets, making it well-suited to exploring complex phenomena such as ART non-adherence (Saunders et al., 2023). Data are presented in narrative form using direct quotations from participants to illustrate themes and sub-themes; participants' real names were not used, and pseudonyms or participant codes were assigned to maintain confidentiality.

Trustworthiness of the Study

Trustworthiness was ensured through the criteria of credibility, transferability, dependability and confirmability proposed by Lincoln and Guba (1985). Credibility was strengthened through prolonged engagement with participants and member checking to verify the accuracy of responses. Transferability was achieved through thick description of the study setting and participants. Dependability was maintained through an audit trail documenting all research procedures, and confirmability was ensured through reflexivity, participants' direct quotations and minimisation of researcher bias throughout the study.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review bodies prior to data collection, and permission was sought from the administration of Mbalizi Hospital. Participation was voluntary, and informed consent was obtained from all participants after the purpose, procedures, risks and benefits of the study had been clearly explained; participants were assured of their right to withdraw at any point without penalty or loss of services. Confidentiality and anonymity were strictly maintained by not recording personal identifiers and by securely storing all collected data. Given the sensitive nature of HIV/AIDS, interviews and FGDs were conducted in private settings to protect participants' privacy, in line with established research ethics guidelines (WHO, 2016; National Institute for Medical Research [NIMR], 2020).

III. RESULTS

This section presents findings obtained from patient and healthcare provider participants in relation to Specific Objective 1 and Specific Objective 3 of the study. A total of 25 participants took part in the study, comprising 18 HIV/AIDS patients enrolled in the ART programme and 7 healthcare providers, including nurses, clinicians and ART counsellors. Fifteen participants (60%) were female and 10 (40%) were male; the majority (52%) were aged between 31 and 45 years, 56% were married, 44% had primary-level education, and 52% had been on ART for between two and five years. These characteristics provide important context for understanding the patterns of awareness and adherence behaviour described below. Findings are organised by objective and illustrated through verbatim participant quotations.

Objective 1: Awareness of Antiretroviral Therapy Among HIV/AIDS Patients

Specific Objective 1 sought to assess the level of awareness among HIV/AIDS patients at Mbalizi Hospital regarding ART. Findings are organised under four sub-themes: understanding of the purpose of ART, knowledge of treatment requirements and dosage, awareness of consequences of non-adherence, and sources of information about ART.

Understanding of the Purpose of ART

A substantial number of participants demonstrated a foundational understanding of the role of ART in managing HIV, describing it as a treatment that helps control the virus, improve health and prevent disease progression. One patient with more than five years of treatment experience offered a particularly detailed account:

These medicines do not cure HIV, but they keep the virus under control so my body stays strong. My blood tests show good results when I take them daily. I have seen others stop because they felt fine and later they fell very sick. That is why I never stop, even when I feel well. (Patient 3, In-depth Interview, Mbalizi Hospital, 2026)

This response reflects a sophisticated appreciation of the relationship between adherence and viral suppression; the participant's reference to observing consequences in others suggests that social learning, consistent with Social Cognitive Theory, reinforces health behaviour. A healthcare provider corroborated this picture but cautioned that understanding was not universal, particularly among newly enrolled patients:

Patients who have been here for years understand what the medicines do; they know missing doses makes the virus harder to treat. But newly enrolled patients are often confused. Some believe they can stop once they feel better. That is a serious challenge because we have to keep educating them at every visit. (Healthcare Provider 2, FGD, Mbalizi Hospital, 2026)

These findings reveal that ART awareness tends to develop progressively over the course of treatment rather than being fully established at initiation, with implications for the design of education programmes, which must be ongoing rather than limited to the first counselling session.

Knowledge of Treatment Requirements and Dosage

Beyond the purpose of ART, the study explored whether participants understood the specific requirements of correct use, including timing, avoidance of missed doses and dietary guidelines. A female participant on ART for three years explained:

We are told to take the medicine at the same time every day; even shifting from morning to night causes problems. I use a phone alarm and when it rings I know it is time to take my pills. But not everyone has a phone, and that makes it hard for some patients to keep the timing correct. (Patient 11, In-depth Interview, Mbalizi Hospital, 2026)

This response illustrates a nuanced understanding of dosage timing but also an implicit socioeconomic dimension: access to technology-based reminders is contingent on mobile phone ownership, a resource not uniformly available among rural patients. In contrast, other participants showed a more faith-based compliance, following instructions without fully understanding the underlying rationale. A participant with two years on ART commented:

I know I must take medicine every day and not miss. But I do not really understand what happens inside my body when I skip. The nurses say it makes the virus stronger, so I follow their instructions. I just wish they had more time to explain things properly. (Patient 7, In-depth Interview, Mbalizi Hospital, 2026)

Faith-based compliance of this kind can be effective in the short term but may be insufficient to sustain adherence when patients encounter competing life challenges, as a deeper cognitive understanding of why adherence matters is more likely to support resilience in the face of barriers.

Awareness of Consequences of Non-Adherence

The majority of participants were able to articulate general negative consequences of non-adherence, most commonly referencing health deterioration, vulnerability to opportunistic infections and the risk of drug resistance. A male participant who had personally experienced a period of non-adherence shared a vivid account:

Once I stopped medicine for about three weeks and ended up in hospital. The doctor said my body had weakened because the virus had risen. That experience changed me completely. I now tell everyone in my support group missing medicines is not a small thing. (Patient 5, In-depth Interview, Mbalizi Hospital, 2026)

Healthcare providers confirmed that patients who experienced treatment interruptions and subsequent illness tended to demonstrate improved adherence following recovery. One nurse working in the CTC noted:

Patients who have been sick from missing doses usually return more committed to their treatment; they have seen the consequences themselves. But those who have never experienced that may underestimate the risk. That is why we keep educating everyone, even those who seem to be doing well. (Healthcare Provider 5, FGD, Mbalizi Hospital, 2026)

However, some participants, despite being aware of general consequences, held misconceptions about specific aspects of non-adherence, for instance incorrectly believing that occasional missed doses were harmless as long as treatment resumed promptly, indicating a gap in detailed understanding that counselling programmes need to address specifically.

Sources of Information about ART

Participants identified a diverse range of information sources, with healthcare providers most frequently cited, followed by support groups, fellow patients, community health workers and media platforms including radio programmes. A participant enrolled in a peer support group described the value of this channel:

The support group has helped me a lot. Hearing from patients who have been on treatment for years and are still living well gives me hope. We share tips on managing side effects and remind each other about medicines. Sometimes we call each other when someone seems to be struggling. (Patient 9, In-depth Interview, Mbalizi Hospital, 2026)

Healthcare providers acknowledged the value of peer-based information channels but noted that peer-shared information was not always accurate, with instances of patients receiving incorrect information about stopping treatment once they felt well or substituting herbal remedies for ARV medications. Radio and community media were also valued for their accessibility, particularly among rural participants, although messages were often general and did not address specific individual treatment questions, representing an important area for improvement in ART communication strategies.

Objective 2: Factors Contributing to Non-Adherence to ART

The third specific objective of the wider dissertation, and the second addressed by this article, was to identify factors contributing to non-adherence to ART among HIV/AIDS patients at Mbalizi Hospital. Non-adherence in this context refers to any deviation from the prescribed ART regimen, including missing doses, taking medication at incorrect times, stopping treatment without medical advice, or failing to attend clinic appointments for refills. The study's conceptual framework categorised these factors into three interrelated groups: individual factors, social factors and health service-related factors.

Individual Factors

Individual factors refer to characteristics, behaviours and conditions residing within the patient that influence their capacity or willingness to adhere to ART. The study identified forgetfulness, drug side effects, alcohol and substance use, shortage of food, and self-perceived wellness as the primary individual-level contributors to non-adherence.

Forgetfulness was among the most commonly reported reasons for missed doses, especially among patients with demanding occupations or irregular routines. A male participant who worked as a seasonal agricultural labourer described his experience:

During the farming season I go to the field very early and by the time I remember medicine the time has passed. I cannot walk back home just for that. Sometimes I am so exhausted that I forget completely. This is especially bad during planting and harvest when there is so much pressure. (Patient 12, In-depth Interview, Mbalizi Hospital, 2026)

This account illustrates a structural tension between the rigid demands of daily treatment and the unpredictable nature of subsistence livelihoods, rather than a lack of awareness or motivation. Drug side effects also emerged as a significant barrier. A female participant who experienced significant side effects in the first months of treatment recounted:

When I started the medicines I was vomiting every morning. I could not eat, work, or care for my children. I thought the medicines were harming me and stopped for two weeks. My neighbour, who also takes ARVs, encouraged me to return to the clinic. The nurse changed one medicine and the vomiting stopped. (Patient 2, In-depth Interview, Mbalizi Hospital, 2026)

This narrative demonstrates that the physical experience of side effects can override a patient's knowledge of ART's importance, that peer support can facilitate a return to treatment, and that responsive clinical management, including medication adjustment, can effectively address side-effect-related non-adherence. Alcohol use was identified by healthcare providers as a further contributor. One clinician described the pattern observed in practice:

Several patients who drink regularly have many missed doses, especially on weekends. Some say they skip medicine when drinking because they think it is dangerous. There is some truth to that, but the bigger problem is that drinking disrupts the whole schedule. Counselling alone is not enough; the alcohol use itself must be addressed. (Healthcare Provider 3, FGD, Mbalizi Hospital, 2026)

Food shortage was also a substantial barrier, as most participants understood that ART should be taken with food to reduce stomach irritation, and skipped doses when food was unavailable. A participant from a low-income household described this dilemma clearly: Some weeks I face shortage of food. I have four children and we eat only once a day. Taking medicine without food causes serious stomach pain and I cannot afford to be sick when my children need me. On those days, skipping medicine feels like the only option, even though I know it is wrong. (Patient 16, In-depth Interview, Mbalizi Hospital, 2026)

For this participant, non-adherence is not a choice rooted in ignorance but a rational adaptation to extreme resource scarcity, requiring interventions beyond the health sector, including food support and economic empowerment programmes. Finally, self-perceived wellness and treatment complacency were identified as a further individual factor. A participant who had experienced multiple treatment interruptions described his reasoning:

After two years I was feeling so well that I thought my body had healed. I cut down from daily to every other day, then stopped completely for nearly three months. When I fell sick again my count had dropped badly. The doctor told me the virus had become resistant and I needed to change my regimen. That was hard to accept. (Patient 8, In-depth Interview, Mbalizi Hospital, 2026)

This case illustrates one of the most serious consequences of treatment complacency, the development of drug resistance, and underscores the need for healthcare providers to continually reinforce that feeling well on ART is a sign that treatment is working, not that it can be stopped.

Social Factors

Social factors refer to the interpersonal, community and cultural dimensions of patients' lives that influence adherence. The study identified stigma and discrimination, fear of disclosure, lack of family and community support, and cultural and religious beliefs as the principal social contributors to non-adherence.

Stigma emerged as one of the most pervasive and deeply felt barriers to adherence. A female participant shared her experience of stigma within her extended family network:

When my mother-in-law found out my status, she stopped letting me touch the cooking pots and told her son to leave me. I had to hide my medicines and take them secretly in my room. Sometimes she found and threw them away. My adherence was very poor during that time. (Patient 4, In-depth Interview, Mbalizi Hospital, 2026)

This account reveals the extreme lengths to which patients may go to conceal their status and treatment, creating a situation in which maintaining medication became practically impossible without disclosure, yet disclosure itself carried risks of further discrimination. Fear of disclosure was intimately connected with stigma but extended beyond family members to employers, neighbours and the broader community. A participant who worked in a shared workplace described the challenges of maintaining adherence without disclosing her status:

We all share a small room at work, so taking medicines at the right time without being noticed is very difficult. I hide them in my bag and try to take them in the bathroom, but sometimes there is no private moment. On those days I wait until I get home, which means taking them at the wrong time. I have no other choice without revealing my status. (Patient 13, In-depth Interview, Mbalizi Hospital, 2026)

Lack of family and community support was also identified as a significant contributor. Participants explained that many patients struggle to adhere because they lack emotional, social or practical support, with some hiding their status out of fear of stigma. One participant noted:

Many patients who have no family support miss their medication because there is no one to remind or encourage them. Some live alone, while others fear disclosing their HIV status to family members because they expect rejection and segregation within the family. (Healthcare Provider 5, FGD, Mbalizi Hospital, 2026)

Conversely, participants with strong family support systems consistently reported higher confidence in maintaining adherence. A participant who attributed her sustained adherence largely to family support explained:

My husband has supported me from the start. Every morning he reminds me to take my medicine before leaving for work and he takes time off to bring me to clinic. Having that support at home makes a big difference. Without it, I think I would have given up long ago. (Patient 4, In-depth Interview, Mbalizi Hospital, 2026)

Cultural and religious beliefs constituted a further social barrier, with some participants describing situations where religious leaders had encouraged them to suspend ART in favour of prayer or spiritual healing. A participant described how such teaching had influenced her adherence:

In our church, the pastor told us that if we have true faith, we do not need medicines. He said HIV is a spiritual sickness and can be healed through prayer and fasting. Many people in the congregation who were on ARVs stopped because of this teaching. I also stopped for two months because I believed him. But when I became very sick and went back to the hospital, my doctor was very concerned about how much my health had deteriorated. After that experience, I decided to follow medical advice and not mix spiritual matters with my medicine. (Patient 14, In-depth Interview, Mbalizi Hospital, 2026)

This account reflects the profound influence that religious authority can exert over health behaviour in deeply faith-oriented communities, and demonstrates that treatment decisions are embedded within cultural and spiritual frameworks that healthcare providers must acknowledge and engage with respectfully.

Health Service-Related Factors

Health service-related factors refer to characteristics of the healthcare system, facility-level conditions and service delivery processes that influence patients' ability to access and benefit from ART services consistently. The study identified long waiting times, inadequate healthcare staffing and occasional drug shortages as the primary service-related factors.

Long waiting times were consistently identified by participants and confirmed through observation, with patients describing spending between four and eight hours at the clinic for services. A participant who had reduced her clinic attendance partly due to waiting time concerns explained:

I have five children and often leave before they have eaten because the clinic requires an early start. The waiting takes the whole day and I miss a lot at home. I have sometimes asked a friend to collect my medicines, even though that is not allowed, because I cannot afford to spend another full day waiting. (Patient 6, In-depth Interview, Mbalizi Hospital, 2026)

This response draws attention to the indirect and opportunity costs associated with clinic attendance, which create a structural barrier to consistent care-seeking for patients with caregiving or employment demands. Inadequate healthcare staffing was identified by providers themselves as one of the most significant challenges affecting service quality and adherence support. A healthcare provider described the operational pressures experienced on a typical clinic day:

Some days we have over sixty patients with only three workers. We see the most urgent cases first, which means stable patients may get only a few minutes. We cannot do proper counselling or review treatment thoroughly. We try our best, but we know many patients leave without the care they deserve. (Healthcare Provider 6, FGD, Mbalizi Hospital, 2026)

This candid assessment underscores that the quality of patient care is fundamentally constrained by human resource limitations, and that patient-level interventions alone are unlikely to produce sustainable improvements without addressing these structural

deficiencies. Occasional drug shortages were also reported, with some patients describing temporary unavailability of their specific ART regimen. A participant who had experienced a drug shortage described her response:

Once I was told at one of my visits the drug was out of stock and I was given for a week and told to come back next week. I had no money to return so soon, so I took only the available medicines and skipped the missing one for almost two weeks. I was worried and unsure whether taking only part of the regimen was safe. (Patient 9, Focus Group Discussion, Mbalizi Hospital, 2026)

This situation illustrates how drug supply chain failures, even when intermittent, create adherence challenges that patients are poorly equipped to manage independently, reflecting a gap in patient education that needs to be proactively addressed through clear protocols for communicating with patients during stock-out situations.

IV. DISCUSSION

The findings of this study confirm that ART awareness among patients at Mbalizi Hospital develops progressively over the course of treatment rather than being fully established at initiation, a pattern consistent with Ramadhani et al. (2016) in Tanzania, who found that patients with greater knowledge of their ART line of treatment and the scarcity of future treatment options were more likely to be adherent. The persistence of misconceptions among newly enrolled patients, particularly the belief that treatment can be discontinued once symptoms subside, mirrors global evidence that awareness alone is an insufficient predictor of sustained adherence unless reinforced continuously (Shubber et al., 2016).

The three categories of non-adherence factors identified in this study, individual, social and health service-related, correspond closely with the global pattern documented by Shubber et al. (2016), whose systematic review identified forgetfulness, side effects, travel and routine disruption as leading patient-level barriers across multiple countries and settings. The centrality of stigma and fear of disclosure identified among Mbalizi Hospital participants echoes the broader regional evidence that HIV-related stigma remains a persistent structural barrier to consistent ART engagement across sub-Saharan Africa (Shubber et al., 2016), and the health-service and behavioural barriers identified in this study mirror those reported by Kilapilo et al. (2022) among ART patients in Dar es Salaam, Tanzania.

The socioeconomic dimension of non-adherence observed at Mbalizi Hospital, particularly food insecurity and the indirect costs of clinic attendance, is consistent with Mosha et al. (2019), who found that poverty, lack of transport and long distances to health facilities significantly contributed to non-adherence among ART patients in both urban and rural Tanzanian settings. The health service-related barriers identified in this study, including long waiting times, inadequate staffing and occasional drug shortages, similarly reflect the health-system challenges documented across the region and reinforce the conclusion that structural, facility-level constraints compound the difficulty of sustaining adherence even among patients who are well informed and motivated.

These findings are coherently interpreted through the integrated framework of the Health Belief Model (Rosenstock, 1974) and Social Cognitive Theory (Bandura, 1986). Within the Health Belief Model, perceived susceptibility was found to be the most critical knowledge-related determinant of adherence, with patients who accurately understood their ongoing vulnerability to HIV-related complications more motivated to maintain consistent treatment than those who misinterpreted physical wellness as evidence of reduced risk. Perceived barriers, including food insecurity, stigma, transportation costs and side effects, were found to undermine adherence even when perceived benefits and severity were well understood, confirming the model's central insight that knowledge and intention are insufficient conditions for sustained health behaviour in the presence of significant structural barriers. Personal experience of treatment interruption and subsequent illness, together with peer support group participation, emerged as the most powerful cues to action observed in the study, reinforcing adherence motivation more strongly than general health education alone. Social Cognitive Theory further illuminates the role of the social environment in shaping adherence capacity. Self-efficacy, built through supportive family environments and positive peer role models such as support groups, consistently differentiated patients who maintained adherence through challenges from those who did not, confirming Bandura's (1997) prediction that self-efficacy is a robust predictor of health behaviour maintenance across diverse challenge conditions. The finding that patients in supportive family environments demonstrated consistently better adherence than those in isolating or stigmatising environments reflects the theory's emphasis on environmental factors as active determinants of health behaviour rather than merely contextual conditions. Taken together, the Health Belief Model and Social Cognitive Theory provide a theoretically robust and empirically grounded framework for understanding why awareness and intention alone are insufficient to sustain ART adherence at Mbalizi Hospital, and why effective interventions must address beliefs, self-efficacy, social support and structural barriers simultaneously.

V. CONCLUSION

The findings of this study demonstrate that ART non-adherence at Mbalizi Hospital is a complex, multidimensional phenomenon driven by the simultaneous operation of individual, social and health system factors that interact and mutually reinforce one another. No single factor accounts for the adherence challenges observed; rather, barriers operating at different levels compound each other in ways that can make sustained adherence practically difficult for many patients despite adequate motivation and general awareness of ART's importance. ART awareness among patients is characterised by a persistent gap between surface-level knowledge and the deeper, clinically actionable understanding needed to maintain adherence across the range of challenges encountered over a lifetime

of treatment, implying that adherence education must be designed as a progressive, ongoing programme rather than a one-time orientation event. The three broad categories of non-adherence factors identified, individual, social and health service-related, each generate adherence failure through distinct mechanisms that require distinct responses, underscoring that interventions must be multi-level and simultaneously address individual, social and structural determinants if they are to produce meaningful and sustained improvements in ART adherence at Mbalizi Hospital and comparable rural district hospital settings in southern Tanzania.

RECOMMENDATIONS

Based on these findings, the Ministry of Health should continue strengthening HIV care services by ensuring the uninterrupted availability of antiretroviral medicines and other essential supplies, and by strengthening supply chain management systems to minimise stock-outs, while policymakers allocate adequate financial resources to patient education, follow-up and staff training. Healthcare providers should strengthen patient education programmes by ensuring that accurate, understandable information about HIV and ART is provided continuously throughout the treatment process, using materials adapted to patients' literacy levels and addressing common misconceptions regarding treatment discontinuation. Community leaders, religious leaders and community-based organisations should intensify education campaigns aimed at reducing HIV-related stigma and discrimination, emphasising that HIV is a manageable chronic condition and that people living with HIV deserve dignity and equal opportunities. Families should be actively involved in supporting treatment adherence with patients' informed consent, given the strong association observed between family support and sustained adherence. The government, local authorities and development partners should strengthen socio-economic support programmes, including social protection, nutritional support, transport assistance and income-generating initiatives, to reduce the poverty-related barriers that compel patients to skip doses. Finally, strong collaboration among the Ministry of Health, healthcare facilities, non-governmental organisations, researchers and people living with HIV should be promoted to strengthen adherence support programmes through a coordinated, multisectoral approach, including decentralisation of ART refill services, differentiated care models for stable patients and systematic tracing protocols for patients who miss appointments. Future studies should be conducted using larger sample sizes across multiple health facilities in different rural districts of Tanzania, as the present single-facility qualitative case study, while rich in detail, cannot be generalised to all people living with HIV in the country. Future researchers are also encouraged to adopt mixed-methods designs that combine qualitative and quantitative approaches, enabling integration of statistical measures of the prevalence and magnitude of adherence barriers with the contextual depth offered by participants' personal narratives, thereby providing policymakers and programme planners with stronger evidence for designing interventions that address both measurable and contextual determinants of ART adherence.

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DISCLOSURE

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