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# FACTORS INFLUENCING ADHERENCE TO ANTIRETROVIRAL MEDICATIONS AMONG PEOPLE LIVING WITH HIV IN KENYATTA AND MBAGATHI HOSPITALS, KENYA

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## ABSTRACT

**The Purpose of The Study:** The study aimed to explore the challenges that patients face with medication adherence when taking Highly Active Antiretroviral Treatment (HAART) at Kenyatta and Mbagathi Hospitals, Kenya.

**Problem Statement:** HIV/AIDS affects millions globally, with high rates of opportunistic infections among PLWHA. Effective treatment requires at least 95% adherence to antiretroviral therapy to suppress the virus and prevent resistance.

**Methodology:** A quasi-experimental study was conducted from January to July 2025 with 198 PLWHA at Kenyatta and Mbagathi hospitals. Adherence was assessed using MMAS-8 and an open-ended question on ARV barriers. Socio-demographic and clinical data were collected, and qualitative responses were thematically analyzed.

**Results of the study:** Among the factors highlighted were forgetting, disclosure, side effects of medication, disclosure of HIV status, pill burden arising from co morbidities, 'feeling well', nutrition, alcohol use, travelling etc.

**Conclusion:** Antiretroviral medication adherence is a multidimensional phenomenon that is shaped by psychological, physical and social factors. Continuous support and individualized medication plan that fit in patients' unique lifestyles are recommended to enhance adherence outcomes in this population.

**Policy Recommendation:** Policies to offer comprehensive patient counseling customized to specific challenges to adherence are essential in combating poor adherence to HAART.

**Keywords:** *Antiretroviral, Medications, People Living with Hiv, Kenyatta, Mbagathi Hospitals*

## INTRODUCTION

Sustained adherence to antiretroviral therapy should ideally reach a minimum of 95 percent for appreciable viral suppression (Mbuagbaw et al., 2018). Regrettably, lack of adherence to treatment persists as a major challenge in Kenya, warranting implementation of adherence programs to prevent poor treatment outcomes, increased treatment costs, and heightened resistance to medication. For PLWHA, poor adherence may further aggravate opportunistic infections (Onyango et al., 2021). This underscores an urgent need for scientific intervention to adopt strategies that enhance ART adherence and reduce opportunistic infections among PLWHA. Antiretroviral therapy (ART) has seen a significant increase in global usage, and it has been found that following a successful ART regimen can reduce the risk of transmitting HIV to an uninfected sexual partner by an impressive 96%. Therefore, the importance of using ART goes beyond merely suppressing the replication of the virus in the infected individual, but it also plays a crucial role in minimizing the risk of HIV transmission between sexual partners (Antiretroviral Therapy for HIV Infection, 2021).

Consistent and proper adherence to ART helps in preventing the development of drug-resistant HIV strains. When individuals adhere strictly to their medication schedule, the virus finds it harder to mutate and become resistant to the drugs. This is crucial in maintaining the effectiveness of current treatment regimens. According to current HIV management guidelines, all individuals diagnosed with HIV must be initiated in antiretroviral treatment regardless of the CD4 count or the viral load (Antiretroviral Therapy (ART) in Treatment-Naive Patients with HIV Infection, 2022). Treatment adherence to ART is essential for enhancing the overall success of HIV treatment and improving the long-term health outcomes of individuals living with the virus (Reid et al., 2017). Healthcare providers often encounter challenges in identifying patients who may exhibit adherence issues regarding therapy. Nonadherence to medications is a common occurrence globally and is observed across numerous cases of chronic diseases like coronary heart disease, asthma, and others. Adherence rates in developing countries are often perceived to be lower than in industrialized ones, with an average of 50% for chronic conditions (de los Rios et al., 2020).

## STATEMENT OF THE PROBLEM

Provision of adequate antiretroviral therapy worldwide has not been quite effective in eradicating HIV/AIDS mortality partly because of poor adherence (Woldegeorgis et al., 2024).

Despite gains made in the management of HIV/AIDS globally and in Kenya, there is still evidence of high prevalence rate of 78.8 percent of opportunistic infections among PLWHA. This is an indicator that control of HIV/AIDs is far from being achieved hence the need to optimize utilization and adherence to antiretroviral therapy (Chepkondol et al., 2020). HIV infection has been a devastating pandemic which has attracted various interventions to render it a treatable chronic illness (Mojola et al., 2022). However, levels of adherence remain a great challenge varying between 27 and 80 percent in various populations as compared to the desired 95 percent (Iacob et al., 2017). Strategies to combat both intrinsic and extrinsic factors that influence adherence to HIV medication is of utmost importance.

## RESEARCH OBJECTIVES

i. To determine the socio-demographic characteristics of people living with HIV/AIDS (PLWHA) attending care clinics.

ii. To explore factors that hinder adherence to HIV medication schedules among PLWHA.

## RESEARCH QUESTIONS

i. What are the socio-demographic characteristics of PLWHA attending Kenyatta and Mbagathi hospitals?

ii. What factors hinder PLWHA from adhering to their prescribed HIV medication schedules?

## THEORITICAL REVIEW/ FRAMEWORK

This study was anchored on Cognitive Behavioral Theory by Aaron Beck, developed in the 1960s and is supplemented by the Theory of Planned Behavior formulated by Icek Adjen and Martin Fischbein in 1980 in addition to The Transactional Model of Stress and Coping, developed by Lazarus and Folkman in 1984. Cognitive behavioural theory is about restructuring negative automatic thoughts. It is the main theory that interacts with cognitive behavioural therapy. It therefore addresses the psychological issues and break barriers that may contribute to lack of adherence e. g anger issues, lack of self-esteem, grief, self-pity. It helps to replace maladaptive thought patterns with positive ones by managing emotional distress. It also encouraged activity scheduling and may motivate the patient to adopt routines that favour medication taking behavior.

Problem solving like behaviour activation is a major aspect of CBT and one aspect would be to communicate with the health care pro one's perception of self and events, imaginations, memory, judging, problem solving as well as selective attention. CBT-AD would address adherence by engaging the patient in a self-directed health enhancing behaviour, one's perception of self and events, imaginations, memory and judging. The Transactional Model of Stress and Coping focusses the patient to understand their problems and appraise themselves on whether they have the internal resources to deal with their unique problems like stigma, forgetfulness, emotional distress. It helps one to assess their challenges and by changing their thought patterns, even threatening problems can intentionally be managed. Psychotherapy would help patients with motivation education and practice on behavior change.

**EMPIRICAL REVIEW**

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Treatment adherence to ART is essential for enhancing the overall success of HIV treatment and improving the long-term health outcomes of individuals living with the virus (Reid et al., 2017). Healthcare providers often encounter challenges in identifying patients who may exhibit adherence issues regarding therapy. Nonadherence to medications is a common occurrence globally and is observed across numerous cases of chronic diseases like coronary heart disease, asthma, and others. Adherence rates in developing countries are often perceived to be lower than in industrialized ones, with an average of 50% for chronic conditions (de los Rios et al., 2020).

It is apparent that many patients have trouble adhering to their treatment plan, as visualized in the trends in adherence levels. As per research conducted in Australia, individuals infected with HIV are likely to experience various mental illnesses. These may encompass conditions like depression, substance use disorders, post-traumatic stress disorder, suicidality, psychosis, and generalized anxiety disorder, in addition to other mental health–related disorders. These mental

health conditions can negatively impact the treatment and management of adherence to antiretroviral treatment, thus affecting overall health outcomes, and most of these conditions are said to go undetected (Zhan et al., 2024).

In another study, poor adherence to antiretroviral medication was pegged on cognitions among PLWHA, where the patients were said to suffer from cognitive impairment. In this study, mental disorders, especially depression was identified as a major impediment in ensuring adherence to antiretroviral medication (Mergenova et al., 2024). In Ethiopia, Oluma et al., 2020 reported that PLWHA who did not experience adverse side effects from ART or issues with food security demonstrated significantly higher levels of adherence compared to those who did not (Oluma et al., 2020). This highlights the intricate relationship between medication tolerability, food and treatment commitment. The study indicated that some participants deliberately skipped doses or completely avoided medication intake in order to circumvent unpleasant physiological reactions. This finding resonates with broader literature emphasizing that side effects are not merely biomedical issues, but also psychosocial stressors that intersect with stigma, disclosure anxiety, and mental health vulnerabilities, such as depression and anxiety, thereby amplifying the burden of adherence.

The interplay between food insecurity and medication adherence also emerges as an important clinical factor. In South Africa, using semi-structured in-depth interviews to explore how food availability and beliefs about medication shape adherence behaviors, the study revealed that adequate access to sufficient and quality food was essential for retention in HIV care. Participants explained that taking medication without food often intensified side effects such as nausea or dizziness, leading to intentional treatment interruptions (Cluver et al., 2022). Beyond food-related concerns, the challenge of managing co-morbidities compounds adherence difficulties. Many PLWHA are simultaneously managing other chronic conditions unrelated to HIV, such as hypertension, diabetes, respiratory diseases, skin conditions, and fungal infections. As patients age, the prevalence of these co-morbidities increases, leading to polypharmacy the use of multiple medications on a daily basis Zheng et al., 2022 , in a study conducted in China, found that polypharmacy created additional burdens for PLWHA who were already immunocompromised, increasing the risk of treatment fatigue and non-adherence. Polypharmacy introduces risks of drug-drug interactions, confusion about dosing schedules, and heightened side effects, thereby undermining adherence.

One strategy aimed at mitigating the effects of polypharmacy has been the simplification of treatment regimens. While most first-line ART regimens now combine two to three drugs into a single tablet, second-line therapies remain complex, often requiring patients to take multiple pills separately. Bomfim et al., 2022 argue that the complexity of drug regimens remains a major barrier for patients with long-term HIV or other chronic illnesses. Similarly, Elnaem et al. (2020), after reviewing 684 studies, reported that simplification of drug regimens, whether for HIV or other chronic conditions such as diabetes, generally improved adherence by reducing pill burden. However, the review also cautioned that reduced pill burden did not always translate into improved clinical outcomes, suggesting that while regimen simplification supports behavioral adherence, it may not fully address underlying biomedical complexities or socio-structural barriers.

Efforts to improve adherence have also been supported through health system decentralization strategies. In Sub-Saharan Africa, particularly in Kenya, ART programs have been progressively shifted from tertiary referral hospitals to smaller, more localized primary health care facilities. Decentralization allows PLWHA to access treatment closer to their communities, thereby reducing transportation costs and time burdens associated with clinic visits. For example, level one dispensaries and level two health centers in Kenya now serve as feeder facilities to larger hospitals, offering comprehensive HIV care with referral options when necessary. Such models have demonstrated improvements in accessibility, convenience, and patient satisfaction. Nonetheless, scholars note that decentralization must be accompanied by adequate training of frontline health workers, continuous supply of drugs, and sufficient counseling services, otherwise the benefits may not be fully realized (WHO, 2020).

The World Health Organization (WHO, 2020) underscores that adherence is central to its treatment goals, which aim to eliminate HIV/AIDS as a public health problem by 2030. The ambitious 95-95-95 targets ensuring that 95% of people living with HIV know their status, 95% of those diagnosed are on sustained ART, and 95% of those on treatment achieve viral suppression—cannot be achieved without consistently high levels of adherence. Programs that address the major clinical barriers, including side effects, polypharmacy, food insecurity, and accessibility through decentralization, are therefore vital in moving closer to this global vision.

In India, Hiregoudar et al. (2019) noted that personal commitments and inconvenient work schedules were leading causes of non-adherence. For many patients, rigid workplace structures

or long hours prevented timely intake of ART, while fear of stigma at the workplace discouraged carrying medication openly. This finding points to the broader tension between treatment adherence and livelihood demands, where survival through employment or income-generating activities may take precedence over strict adherence to treatment schedules. In this sense, behavioral factors are not merely issues of individual negligence but are structurally embedded in the socio-economic realities of patients' lives. Forgetfulness, which consistently appears as a leading barrier in multiple studies, is often compounded by the absence of effective reminder systems. While some patients develop personal strategies such as using alarms, associating medication with meals, or relying on family support, these mechanisms are not always reliable, particularly when individuals are under stress or lack social support. Cluver et al. (2021) further observed that behavioral lapses such as forgetfulness are not only influenced by daily busyness but also by underlying psychological distress, including depression and anxiety, which disrupt concentration and memory, making adherence more challenging.

Travel, both short-term and long-term, remains another recurring factor undermining adherence. In many cultural contexts, patients travel for family responsibilities, work, or social events, often without carrying sufficient medication or without access to refill facilities during their absence from their primary health center. A study in Malawi by Amberbir et al. (2008) revealed that travel-related interruptions were common in rural populations, where distances between health facilities and communities were vast. Travel, therefore, does not only signify mobility but also highlights geographical inequities in ART provision, where decentralization efforts have not fully addressed mobility-related interruptions.

Moreover, lifestyle practices, including alcohol and substance use, can further erode adherence. Velloza et al., 2020 found that alcohol consumption is significantly associated with missed doses of ART, as intoxication or hangovers disrupt medication routines. Similarly, substance use is linked to chaotic lifestyles that interfere with regularity, stability, and health-seeking behaviors further frustrating achievement of the UNAIDS 90-90-90 HIV treatment targets. These patterns suggest that adherence interventions must integrate harm reduction and behavioral counseling strategies tailored to the specific realities of patients' lifestyles.

## CONCEPTUAL FRAMEWORK

According to Regoniel (2015), a conceptual framework serves as a visual representation that outlines the key variables that collectively contribute to explaining the focal

concerns. It establishes the connections between the research title, objectives, study methodology, and literature review. Within this context, the upcoming section will delineate the variables within this study and illustrate their interconnectedness. Good adherence would lead to improved health outcome like increased viral load and reduced CD4 cell count. As a result of intervening variable like psychological interventions, the adherence behaviour of the patients are likely to improve. Such interventions may include psycho education on the importance of antiretroviral therapy highlighting issues of resistance and treatment failure. Adherence counseling teaches behaviour activations that enhance medication taking practice and coping strategies empowers the individual to manage stressors that may hamper drug taking behaviour. Modifying variables which may strengthen adherence behaviour are like the sociodemographic characteristics e. g age of the patient where middle age adults with more established expectations and responsibilities in life would be more motivated to adhere to medication regimen as compared to a young adults. Clinical characteristics like side effects of medication, other co morbid illnesses a patient may be suffering from including the number of pills one may be determine whether the patient will be inclined to take their medications appropriately.

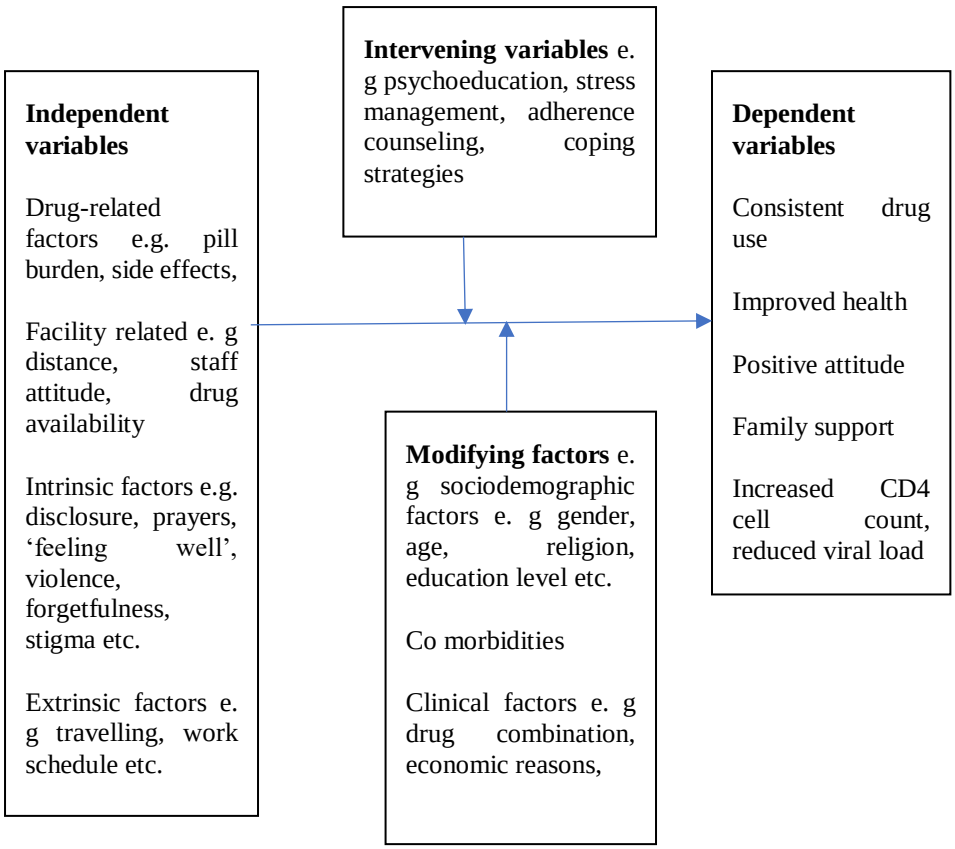


**Figure 1: Conceptual Model**

Modifying characteristics include sociodemographic characteristics e. g age of a patient may influence drug taking behavior, level of income may determine accessibility to medication or to the facility, gender may influence how one engages with adherence practices for example those who suffer gender-based violence may not adhere to medication. Socio-economic factors, social support from family, may also influence adherence. Intervening variables like motivational factors, psycho-education, stress management may strengthen adherence behaviour.

## RESEARCH METHODOLOGY

Research design pertains to the strategic approach that the researcher selects to harmonize the distinct elements of a study to address the research problem or to answer the research questions in order to envision the conclusions intended. This research adopted a cross sectional survey design and the tools utilized included one researcher designed socio-demographic questionnaire and one open-ended question which explored challenges experienced by the participants with regards to HIV medication adherence. The target study population included

patients who attended Comprehensive Care clinics at both Kenyatta National hospital and Mbagathi hospital, had received antiretroviral treatment for at least three months and had been referred for adherence counseling. Among this group, consenting adults of 18years and above were included whereas ages below 18 or a prior diagnosis of depression was excluded. Systematic random sampling was used to get a sample of 180 participants with attrition of 10% to give a sample of 198 participants, however only 197 responded.

## FINDINGS AND DISCUSSION

This study examined the socio-demographic characteristics and factors hindering adherence to HIV medication schedules among people living with HIV/AIDS attending Kenyatta and Mbagathi hospitals. The findings reveal important patterns in the demographic profile of participants and identify multiple barriers to medication adherence that require targeted interventions.

**Table 1: Socio-Demographic Characteristics**

| Variable | Frequency | Percentage | P Value |
|---|---|---|---|
| Gender | | | 0.666 |
| Female | 83 | 41.9 | |
| Male | 115 | 58.1 | |
| Age in years | | | 0.213 |
| 18-35 | 90 | 45.5 | |
| 36-60 | 99 | 50.0 | |
| Over 60 | 9 | 4.5 | |
| Marital status | | | 0.439 |
| Single | 81 | 40.9 | |
| Married | 92 | 46.5 | |
| Divorced | 25 | 12.6 | |
| Level of education | | | 0.934 |
| Primary | 15 | 7.7 | |
| Secondary | 117 | 59.0 | |
| Tertiary | 66 | 33.3 | |
| Religion | | | 0.533 |
| Muslim | 20 | 10.1 | |
| Christian | 174 | 87.9 | |
| Other | 4 | 2.0 | |

The socio-demographic characteristics of participants showed that males constituted the majority at 115 (58.1%) compared to females at 83 (41.9%), though this gender distribution was not statistically significant. The age distribution revealed that the largest proportion of participants were between 36-60 years at 99 (50.0%), followed closely by those aged 18-35 years at 90 (45.5%), while only 9 (4.5%) were over 60 years of age. Regarding marital status,

92 (46.5%) participants were married, 81 (40.9%) were single, and 25 (12.6%) were divorced. Educational attainment showed that the majority had secondary level education at 117 (59.0%), followed by tertiary education at 66 (33.3%), while only 15 (7.7%) had primary level education. Religious affiliation indicated that Christianity was predominant among participants at 174 (87.9%), with Muslims comprising 20 (10.1%) and other denominations representing 4 (2.0%) of the study population.

**Table 2: Clinical Characteristics of The Participants**

| Variable | Frequency | Percentage | P value |
|---|---|---|---|
| No of other diseases being treated | | | 0.365 |
| 0 | 85 | 42.9 | |
| 1 | 39 | 19.7 | |
| 2 | 57 | 28.8 | |
| 3 | 17 | 8.6 | |
| Duration on HAART | | | 0.885 |
| 1-12 months | 32 | 16.2 | |
| 1-5 years | 132 | 66.6 | |
| Over 6 years | 34 | 17.2 | |
| Drug combination | | | 0.885 |
| TDF/3TC/DTG | 37 | 18.7 | |
| AZT/3TC/DTG | 129 | 65.1 | |
| TDF/3TC/ATVr | 32 | 16.2 | |
| HIV status disclosure | | | 0.930 |
| Family | 100 | 50.5 | |
| Friend | 37 | 18.7 | |
| None | 59 | 29.8 | |
| Family and friend | 2 | 1.0 | |
| Alcohol use | | | 0.858 |
| Yes | 39 | 19.7 | |
| No | 159 | 80.3 | |

The clinical characteristics revealed that 85 (42.9%) participants had no comorbid conditions besides HIV, while 39 (19.7%) had one additional disease, 57 (28.8%) had two other conditions, and 17 (8.6%) were being treated for three other medical conditions. Duration on highly active antiretroviral therapy showed that the majority of participants at 132 (66.6%) had been on treatment for 1-5 years, while 32 (16.2%) had been on HAART for 1-12 months and 34 (17.2%) had been on treatment for over 6 years. Regarding drug combinations, 129 (65.1%) participants were taking AZT/3TC/DTG, 37 (18.7%) were on TDF/3TC/DTG, and 32 (16.2%) were being treated with TDF/3TC/ATVr. HIV status disclosure patterns showed that 100 (50.5%) had disclosed to family members, 37 (18.7%) had disclosed to friends, 59 (29.8%) had not disclosed their status to anyone, and only 2 (1.0%) had disclosed to both family and friends. Alcohol consumption was reported by 39 (19.7%) participants, while 159 (80.3%) did not use alcohol.

**Table 3: Factors Preventing Adherence to HIV Medication Among PLWHA**

| Variable | Frequency | Percentage | P value |
|---|---|---|---|
| Alcohol | 8 | 4.1 | 0.721 |
| Distance to facility | 6 | 3.0 | 1.000 |
| Economic reasons | 12 | 6.1 | 0.234 |
| Missed appointments | 2 | 1.0 | 1.000 |
| Lack of food | 1 | 0.5 | 1.000 |
| Side effects | 38 | 19.3 | 0.279 |
| Forgetfulness | 29 | 14.7 | 0.547 |
| Disclosure issues | 45 | 22.8 | 0.611 |
| Emotional issues | 8 | 4.1 | 0.721 |
| Feeling well | 4 | 2.0 | 1.000 |
| IPV | 1 | 0.5 | 1.000 |
| Prayers | 7 | 3.6 | 0.445 |
| Stigma | 4 | 2.0 | 1.000 |
| Staff attitude | 2 | 1.0 | 0.497 |
| Travelling | 15 | 7.6 | 0.420 |
| Pill burden | 10 | 5.1 | 0.516 |
| Work schedule | 5 | 2.5 | 0.369 |

Participants identified diverse factors that prevented them from adhering to HIV medication schedules, with disclosure issues being the most frequently cited barrier at 45 (22.8%), followed by side effects at 38 (19.3%) and forgetfulness at 29 (14.7%). Travelling was mentioned by 15 (7.6%) participants, while economic reasons affected 12 (6.1%) of the respondents. Pill burden was reported by 10 (5.1%) participants, and alcohol use hindered adherence for 8 (4.1%) of those surveyed. Emotional issues also affected 8 (4.1%) participants, while prayers and religious beliefs were cited by 7 (3.6%) as factors interfering with medication adherence. Distance to the facility was a barrier for 6 (3.0%) participants, work schedules affected 5 (2.5%), and feeling well led 4 (2.0%) participants to skip medications. Stigma was experienced by 4 (2.0%) participants, missed appointments affected 2 (1.0%), and staff attitude was problematic for 2 (1.0%) respondents. Additionally, lack of food was mentioned by 1 (0.5%) participant, and intimate partner violence was reported by 1 (0.5%) as a barrier to adherence. Although these factors were not statistically significant, they hold clinical significance because all participants had been flagged for adherence counselling, indicating that adherence was a substantial issue requiring intervention for optimal treatment outcomes.

These findings align with research by Madsalae et al. (2022) in Thailand, who found that 6.23% of patients missed ART doses during travel and over 60% acknowledged missing at least one dose due to forgetfulness, while Aye et al. (2017) in Myanmar reported an 84% adherence rate with travel, busyness, and forgetfulness being the most common reasons for missed doses. The

results underscore that adherence is not solely an individual behavioural responsibility but a multidimensional challenge shaped by biomedical, psychosocial, and structural variables, where familial kinship networks and social welfare systems play vital roles in ensuring food access and indirectly sustaining adherence, particularly for women and children.

## CONCLUSION

Antiretroviral medication adherence is a multidimensional phenomenon shaped by psychological, physical, and social factors. The study demonstrates that barriers to adherence among people living with HIV/AIDS at Kenyatta and Mbagathi hospitals encompass disclosure issues, side effects, forgetfulness, economic constraints, and various lifestyle factors including travel, work schedules, and emotional challenges. Despite the lack of statistical significance, these factors are clinically significant as they collectively impede treatment outcomes and require comprehensive intervention strategies. Continuous support and individualized medication plans that fit patients' unique lifestyles are recommended to enhance adherence outcomes in this population.

## RECOMMENDATIONS

Diverse nature of factors influencing adherence as reported verbatim by patients' needs comprehensive customized care models that will equip the PLWHA with skills to maintain adherence in order to obtain optimum clinical outcome.

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