

# **PSYCHOSOCIAL INTERVENTIONS IN ADHERENCE TO ANTI-RETROVIRAL MEDICATION AMONG ADULTS IN KAJIADO CENTRAL SUB-COUNTY, KAJIADO COUNTY, KENYA**

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## **ABSTRACT**

**Purpose of Study:** This study investigated the impact of psychosocial interventions on adherence to antiretroviral medication among adults in Kajiado Central Sub-County, Kenya. It specifically evaluated the effects of structured counseling, motivational enhancement, care coordination, and case management on ARV medication adherence.

**Problem Statement:** Non-adherence to Antiretroviral (ARV) medication presents a substantial challenge in HIV management globally, with Kajiado Central Sub-County in Kajiado County, Kenya, facing particularly severe issues.

**Methodology:** The research is grounded in the Theory of Coping, the Theory of Planned Behavior (TPB), and the Health Belief Model (HBM), employing a mixed-methods approach. The study targets adults living with HIV who access healthcare in public facilities in Kajiado Central Sub-County. A total of 384 respondents are surveyed, selected through stratified and purposive sampling from 23,080 individuals living with HIV in identified health facilities, based on Cochran's (1977) Formula for sample size determination. .

**Result:** The findings revealed that structured counseling significantly improves ARV adherence, with an overall effectiveness mean score of 3.99, though there is a need for better community-level counseling and infrastructure. Motivational enhancement shows positive results, with high mean scores of 4.24 for motivational measures provided by facilities and 4.22 for conversations with health officers. Care coordination enhances adherence, with 79.8% of respondents attending

monthly appointments and 40.1% agreeing on improved medication management. Case management addresses adherence barriers effectively, focusing on stigma (42.5%) and forgetfulness (40.1%), and suggests increasing ART site accessibility and mobile services to overcome financial and logistical challenges.

**Conclusion:** Effective ARV adherence is significantly supported by structured counseling, motivational enhancement, care coordination, and case management.

**Recommendation:** The study recommends expansion of counseling services, enhancing motivational support with personalized approaches and technology, improving care coordination with regular appointments and stigma reduction, and increasing ART site accessibility while addressing logistical challenges.

**Keywords:** *Psychosocial Interventions, Adherence, Anti-Retroviral Medication, Adults*

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## **INTRODUCTION**

Promoting medication adherence among individuals with HIV is crucial for managing the virus effectively and improving health outcomes. Adherence to Antiretroviral (ARV) medication plays a critical role in reducing HIV resistance, lowering mortality rates, and minimizing transmission risks. The World Health Organization's 3 by 5 initiative dramatically expands access to ART, with 9.7 million people receiving treatment by 2012, leading to a significant reduction in AIDS-related deaths and marking a transformative shift in HIV/AIDS care (WHO, 2017). Despite these advancements, ensuring consistent adherence remains a significant challenge due to various barriers and complexities.

Research in developed countries highlights the effectiveness of structured counseling, care coordination, and case management in improving ARV adherence, especially among adolescents (Chege, 2022). These studies demonstrate that targeted interventions can significantly enhance adherence rates and treatment outcomes. However, the reliance on limited sample sizes indicates a need for broader and more inclusive research to assess the effectiveness of these interventions in diverse settings. Personalized counseling and motivational strategies are essential in overcoming adherence barriers and ensuring optimal treatment outcomes (Stefanellah, 2020).

The COVID-19 pandemic further exacerbates challenges to ART adherence, introducing additional barriers such as memory loss, religious beliefs, and financial constraints (Iversen et al., 2021). Research in Pakistan and Vietnam underscores the critical need for tailored psychosocial interventions to address these barriers effectively. Structured counseling proves effective across

various cultural contexts, highlighting the importance of holistic approaches that consider both practical and psychosocial factors in improving adherence (Nguyen et al., 2019). These findings emphasize the need for adaptable interventions to meet diverse cultural and individual needs.

In Sub-Saharan Africa, ART adherence rates vary significantly, with some regions experiencing high non-adherence rates while others show relatively better adherence. Research in Tanzania and Uganda indicates that robust, customized care management systems are crucial for enhancing adherence and improving health outcomes. This points to the necessity for targeted, region-specific interventions to address local challenges and optimize ART adherence (Moucheraud, et al., 2020).

Kenya makes significant progress in increasing ART access, with coverage rising to 75% by 2018 (NASCO, 2019). However, disparities persist, particularly in Kajiado County, where ART coverage is lower than the national average at 53% (Kajiado County Government, 2018). This disparity impacts medication adherence and overall treatment efficacy. Addressing this issue requires focused research on psychosocial interventions tailored to low-ART contexts. Evaluating the effectiveness of structured counseling, motivational enhancement, care coordination, and case management in Kajiado Central Sub-County is crucial for addressing local challenges and improving ART adherence.

## **STATEMENT OF THE PROBLEM**

Non-adherence to Antiretroviral (ARV) medication presents a substantial challenge in HIV management globally, with Kajiado Central Sub-County in Kajiado County, Kenya, facing particularly severe issues. Psychosocial factors such as mental health problems, social stigma, insufficient social support, and economic hardships significantly undermine individuals' ability to adhere to their ARV regimens consistently (Mugoh, 2017). These barriers contribute to falling short of the 95% adherence rate needed for effective viral suppression and optimal health outcomes. In Kenya, ART adherence rates are notably low, with Kajiado Central Sub-County reporting just 53% coverage compared to the national average of 79% (NASCO, 2019). This shortfall reflects the compounded difficulties in accessing ART and supportive services, exacerbating the adverse health impacts of HIV/AIDS in the region.

The situation in Kajiado Central Sub-County is particularly alarming due to the interplay of limited ART access and a high burden of HIV/AIDS, which intensifies the struggles of affected

individuals. The inadequate availability of ART and support services in the region impedes medication adherence, leading to worsened health outcomes such as disease progression, increased morbidity, and mortality. Addressing these challenges is essential for improving health outcomes and advancing Sustainable Development Goal 3, which emphasizes health and well-being (Kioko & Pertet , 2017). While existing research has explored various factors affecting ARV adherence, including medication side effects, stigma, and socioeconomic issues, there is a lack of comprehensive understanding of how these factors interact, particularly in low-ART settings like Kajiado County (Kimemia, 2018). This study sought to fill this gap by investigating the impact of psychosocial interventions on ARV adherence in Kajiado Central Sub-County.

### **OBJECTIVES OF THE STUDY**

- (i) Establish the effects of structured counseling on adherence to ARV medications in Kajiado Central Sub-County, Kenya.
- (ii) Examine the influence of motivational enhancement on adherence to ART medication in Kajiado Central-Sub-County
- (iii) Determine the impact of care coordination on adherence to ART medication in Kajiado Central Sub-County
- (iv) Assess the influence of case management on adherence to ARV medication in Kajiado Central Sub-County.

### **LITERATURE REVIEW**

#### **Theoretical Review**

The study on ART adherence in Kajiado Central Sub-County, Kenya, was informed by the Theory of Coping, the Health Belief Model (HBM), and the Theory of Planned Behavior (TPB). Lazarus and Folkman's Theory of Coping (1984) guided the study by emphasizing the role of interventions like structured counseling and case management in helping individuals develop effective coping strategies for adherence challenges. Rosenstock's HBM (1974) focused on enhancing adherence by addressing perceptions of susceptibility, severity, benefits, and barriers through education and support services. Ajzen's TPB (1985) provided a framework for understanding how attitudes, subjective norms, and perceived behavioral control influence adherence intentions and behaviors.

These theories collectively informed the development and evaluation of interventions aimed at improving ART adherence by addressing both individual and contextual factors.

## **Empirical Review**

### **Structured Counseling and its Effects on Adherence to Medication**

Structured counseling has been shown to significantly enhance medication adherence through improved communication between healthcare providers and patients. Sherin et al. (2017) highlight that structured counseling creates a strong connection between patients and providers, leading to better adherence outcomes. Supporting evidence from studies at Ohio State University and Jung (2021) underscores the impact of counseling on adherence rates, despite some methodological issues. The New England Healthcare Institute (2021) also points to economic benefits of optimal medication adherence facilitated by counseling, although specific details on non-adherence causes are lacking. Further research, including Berger's (2019) UK study and Sherai's (2017) findings, confirms that counseling improves adherence but notes limitations such as potential bias and inconsistent quality. The current study sought to address these gaps by providing empirical data on the effectiveness of structured counseling for HIV/AIDS patients in Kajiado Central Sub-County. It considers various confounding factors and employs robust measurement methods to offer a comprehensive understanding of counseling's impact on adherence, aiming to enhance adherence rates and health outcomes in this context.

### **Motivational enhancement and Adherence to Medication**

Motivational enhancement (ME) is a counseling approach designed to bring about behavioral changes by assisting individuals in examining and addressing conflicting feelings or uncertainties. This method involves techniques such as open-ended questions, reflective listening, summaries, affirmations, and eliciting self-motivation statements. According to Cori (2022), ME has been effective in various areas, including smoking cessation, eating disorder management, and diabetes care. However, Cori's study, which reported lower discontinuation rates in a multiple sclerosis intervention group, is limited by its U.S. context, differing healthcare systems, and focus on a specific condition, making its applicability to HIV/AIDS adherence uncertain. Furthermore, the study does not explore the broader impacts of ME, highlighting the need for more comprehensive research on its effectiveness in other settings and conditions.

Chege's (2022) study in Kenya aimed to evaluate the effectiveness of Music-Based Intervention (MBI) in enhancing treatment motivation among clients in substance use disorder treatment centers. The quasi-experimental study found significant improvements in treatment motivation among participants who received MBI compared to a control group. Despite its promising findings, the study's small sample size, focus on a specific disorder population, and quasi-experimental design limit its generalizability. To fill these gaps, the present study sought to evaluate the effectiveness of ME in improving adherence to ARV treatment among individuals living with HIV/AIDS in Kajiado Central Sub-County, Kenya. By employing a larger and more diverse sample of 384 participants, this study aimed provide robust empirical data on the broader applicability of motivational enhancement interventions, addressing the limitations of previous studies and offering actionable insights for improving medication adherence in this context.

### **Care Coordination and adherence to Medication**

Katie (2020) highlights the lack of a universally agreed-upon definition for care coordination, with a systematic review identifying over 40 varied definitions. Despite attempts to consolidate common elements, there remains no comprehensive consensus. According to the Agency for Healthcare Research and Quality (AHR, 2020), care coordination involves the intentional organization of patient care activities among multiple participants to facilitate appropriate healthcare delivery. This definition underscores the potential impact on medication adherence, yet the literature fails to address how variations in care coordination practices may affect adherence outcomes. Therefore, the present study sought to elucidate specific components or approaches to care coordination that optimize medication adherence, aiming to provide valuable insights for enhancing patient care and treatment outcomes.

Berger (2019) offers a healthcare professional perspective, describing care coordination as a patient- and family-centric, team-based effort to meet patient needs and assist them in navigating the healthcare system efficiently. This involves making decisions about the patient's care steps, transferring necessary information among healthcare entities, and managing accountability across all healthcare professionals. While highlighting the significance of care coordination in improving patient outcomes, Berger also notes challenges such as multidisciplinary teamwork difficulties and structural healthcare system issues. Stefanellah (2020) asserts the need for discrete healthcare

entities for effective coordination, identifying them based on patient, family, and professional perspectives. The present study sought to address these gaps by assessing the impact of care coordination on adherence to ART treatment and providing empirical data to support its efficacy and applicability in real-world settings, thereby enhancing understanding of the interdependencies within the healthcare ecosystem.

### **Case Management and Medication Adherence**

Lukersmith et al. (2016) describe case management as a crucial, integrated approach to managing complex health conditions, evolving from its origins in the 1960s due to de-institutionalization and rising healthcare costs. Despite its expansion across various settings by the 1990s, there remains a lack of standardization, impacting quality analysis and policy development. Perera and Dabney (2020) identified gaps between patient expectations and perceptions of healthcare, particularly in reliability and empathy, which affected patient satisfaction but did not establish causation between these factors and patient outcomes. Their study underscored the need for a comprehensive understanding of how interpersonal care impacts patient adherence. Overall, while existing research shows a link between psychosocial support and medication adherence, most studies are from contexts outside Kajiado Central Sub-County, Kenya. This study aims to fill this gap by providing localized insights into the impact of care management on medication adherence, considering the unique socio-cultural and healthcare context of the region.

### **METHODOLOGY**

This study was based on a mixed-methods approach. The study surveyed 384 participants, chosen from a population of 23,080 individuals accessing public healthcare facilities, using stratified and purposive sampling as per Cochran's (1977) formula. Data were collected through semi-structured questionnaires designed to meet the study's objectives. Quantitative data were analyzed with SPSS, employing descriptive statistics and visual aids to present the results, while qualitative data were examined using thematic analysis and presented in narrative form. Ethical considerations were strictly adhered to: approvals were secured from the SPU Ethical Review Board, the Board of Postgraduate Studies, and NACOSTI. The study ensured respondent confidentiality and privacy by assigning unique codes and storing data securely, thus upholding high ethical standards throughout the research process.



## **FINDINGS AND DISCUSSIONS**

A breakdown of the respondents' demographic profile who participated in the study is given in this section. Comprehending these attributes is crucial for placing the results in perspective and conducting an efficient analysis of the data. Demographic results revealed that most respondents are aged 31 to 35 (40.1%), followed by those aged 25 to 30 (29.8%), with individuals above 35 constituting 19.9% and those below 25 making up 10.2%. The higher representation of the 31-35 age group may be due to increased engagement with healthcare services and HIV awareness. The lower proportions of younger individuals could be attributed to barriers in accessing healthcare or lower rates of diagnosed HIV, while the smaller number of older respondents might indicate long-term HIV management. Majority of respondents have completed secondary education, comprising 55.5% of the sample. A smaller proportion of respondents hold tertiary education (15.2%) or have attended primary school (15.4%). Only 0.5% of respondents have university-level education, while 13.4% have never attended school. The high percentage of respondents with secondary education may reflect the accessibility and completion rates of secondary schooling within the study area. The lower percentages for tertiary and university education could indicate limited access to higher education opportunities or economic barriers that prevent further educational attainment. The presence of individuals who have never attended school highlights significant educational gaps that could impact their health literacy and engagement with treatment.

The educational distribution indicates that most respondents have secondary education, which may offer a basic understanding of health information and engagement with ARV treatment. However, the limited number of respondents with higher education suggests potential challenges in accessing advanced health resources. The presence of individuals with minimal or no education points to the need for targeted educational interventions to enhance health literacy and treatment adherence among those with less formal education. The study further found that 29.1% of respondents have lived with HIV for less than 3 years, 51% for between 3 and 6 years, and 19.9% for more than 6 years.

Majority of respondents have been living with HIV for a moderate period of 3 to 6 years. The relatively high percentage of individuals in this category may suggest that many respondents have had sufficient time to experience and adjust to the challenges associated with long-term HIV



management. The smaller proportion of respondents with less than 3 years of experience reflects recent diagnoses, which might be linked to their initial stages of treatment and adaptation. Conversely, the 19.9% of respondents who have lived with HIV for over 6 years likely represents individuals who have undergone significant adjustments and have possibly developed more advanced coping mechanisms and adherence routines. Overall, the distribution highlights varying lengths of experience with HIV among respondents, which can influence their responses to psychosocial interventions and adherence to ARV medication. Understanding these durations can help tailor interventions to different stages of the HIV experience, ensuring that support and treatment strategies are appropriately aligned with the respondents' needs and experiences.

### **Effect of Structured Counseling on Adherence to ART Medication**

#### ***Whether Respondents have attended any Counseling Services***

When asked whether they had ever attended any counseling services, all respondents (100%) confirmed that they had participated in such services. This finding indicates that every participant in the study has engaged with counseling at some point. The uniformity in responses might reflect widespread access to and utilization of counseling services in the study area, or it could suggest that individuals who had not received counseling were not part of the study sample.

The fact that all respondents have attended counseling services highlights the high level of engagement with psychosocial support in the context of HIV management. This background provides a solid basis for evaluating the effectiveness of various psychosocial interventions on adherence to ARV medication. It suggests that the study sample is well-acquainted with counseling, which could influence their responses to questions about the impact and effectiveness of these services.

#### ***Duration of Counseling***

Understanding the typical duration of counseling sessions attended by respondents provides insight into the extent and depth of the psychosocial support they receive. Table 1 shows the distribution of respondents based on the duration of their counseling sessions:

**Table 1: Duration of Counseling Sessions**

<b>Duration</b>	<b>Frequency</b>	<b>Percent</b>
0-30 min	57	14.9
30-1 hr	209	54.7
Above 1 hr	116	30.4
<b>Total</b>	<b>382</b>	<b>100</b>

The data shows that most respondents (54.7%) experience counseling sessions lasting between 30 minutes and 1 hour, with a notable portion (30.4%) receiving sessions that extend beyond 1 hour, and a smaller group (14.9%) having sessions of 30 minutes or less. This distribution suggests that while the 30-minute to 1-hour range is common and likely sufficient for many, extended sessions are available for those needing more intensive support. The lower percentage of brief sessions might indicate that shorter counseling may not always meet the needs for comprehensive HIV support. These findings align with previous research by Ault et al. (2019), which highlights that longer sessions often provide more effective psychosocial support, reflecting a balance between efficiency and depth in counseling practices.

***Structured Counseling and Adherence to ARV Medication***

Table 2 indicates that the statement “counseling has helped me to fully adhere to medication” received the highest mean score of 3.99, with 24.9% of respondents Strongly Agreeing (SA) and 59.9% Agreeing (A). This suggests that counseling is perceived as highly effective in promoting full adherence to ARV medication. The statement "Structured counseling has helped me develop practical strategies to overcome challenges in adhering to my ART medication" also shows a high mean score of 3.70, with 69.9% Agreeing (A), indicating the utility of counseling in developing actionable strategies. "I have found the structured counseling sessions helpful in addressing any concerns or fears I have about my ART medication" follows with a mean score of 3.55, where 59.9% Agree (A) and 15.2% Disagree (D), showing that counseling effectively addresses concerns but with a smaller margin of dissent. The statement "After being counseled, I am more encouraged to take my medicine as according to the doctor’s instructions" received the lowest mean score of

3.40, with 55.0% Agreeing (A) and 25.1% Disagreeing (D), reflecting a generally positive but slightly less pronounced impact on encouragement to adhere to medication.

**Table 2: Impact of Structured Counseling on Adherence to ARV Medication**

Statement	SD	D	Neural	A	SA	Mean	Std. Deviation
After being counseled , I am more encouraged to take my medicine as according to the doctor’s instructions	-	96 (25.1%)	57 (14.9%)	210 (55.0%)	19 (5.0%)	3.40	0.919
I have found the structured counseling sessions helpful in addressing any concerns or fears I have about my ART medication.	-	58 (15.2%)	76 (19.9%)	229 (59.9%)	19 (5.0%)	3.55	0.808
Structured counseling has helped me develop practical strategies to overcome challenges in adhering to my ART medication	-	39 (10.2%)	57 (14.9%)	267 (69.9%)	19 (5.0%)	3.70	0.719
Counseling has helped me to fully adhere to medication	-	39 (10.2%)	19 (5.0%)	229 (59.9%)	95 (24.9%)	3.99	0.842

The study highlights the effectiveness of structured counseling in improving ARV medication adherence, with respondents generally perceiving counseling as beneficial in terms of adherence encouragement and practical support. The standard deviations of 0.842 for "Counseling has helped me to fully adhere to medication" and 0.919 for "After being counseled, I am more encouraged to take my medicine as according to the doctor’s instructions" indicate relatively consistent positive perceptions, but also greater variability in the latter statement. This aligns with Berger (2019), who found counseling significantly improved medication adherence among hyperlipidemia patients, and contrasts with Abiolu et al. (2021), who noted that while Enhanced Adherence Counseling (EAC) was beneficial, only 51% of patients achieved viral load suppression, highlighting

limitations in adherence measurement. These findings affirm the positive impact of counseling but also emphasize the need for continuous refinement in counseling strategies and adherence measurement to better meet individual needs and enhance treatment outcomes.

To enhance structured counseling in health facilities, several key themes were identified from the qualitative data. It emerged from the responses that empowering CHPs to offer counseling services at the community level is crucial. By decentralizing these services, patients can access counseling more easily and consistently, reducing the burden of travel and increasing the likelihood of adherence to Antiretroviral Therapy (ART). One respondent suggested,

*"CHP's to be empowered to offer the service at the community level,"*(R 023)

Another emphasized,

*"CHP's to offer the service at the community* (R 043)

These statements imply several important points. Empowering Community Health Providers (CHPs) to offer counseling services within the community ensures that patients receive the necessary support without the burden of long-distance travel. This increased accessibility not only enhances regular attendance at counseling sessions but is also crucial for maintaining adherence to Antiretroviral Therapy (ART). As CHPs are familiar with local culture and challenges, they can build trust and rapport with patients, leading to more effective and personalized counseling. Furthermore, decentralizing services helps optimize healthcare resources by allowing for early detection and intervention of adherence issues. CHPs can also play a key role in community education, reducing stigma and misinformation. This approach aligns with patient-centered care principles, ultimately improving health outcomes and making more efficient use of healthcare resources.

Lack of dedicated infrastructure for counseling also emerged as considerable barrier. Establishing specific rooms or facilities for counseling within health centers would provide a confidential and comfortable environment for patients. The following are some of the responses:

*"Conducive room for counseling to be introduced."* (R 044)

*"Counseling rooms are not available, I suggest that the government construct big health facilities for all services to be offered easily without missing any,"* (R 143)

*"They should build a specific place for counseling and employ more personnel"*(R 100)

*"More space for counseling to be provided"* (R 201)

These statements collectively highlight a significant concern regarding the infrastructure for counseling services. They imply a need for dedicated and adequately equipped spaces to conduct counseling. Respondents suggest that constructing large, well-designed health facilities specifically for counseling, with ample space and additional personnel, is essential for providing comprehensive and accessible support. This infrastructure improvement is crucial to ensure that counseling services are not only available but also effectively meet the needs of patients, facilitating better engagement and adherence to treatment.

Group counseling was also mentioned as a beneficial practice that should be enhanced. "Group counseling to be enhanced" was a recurrent suggestion. Group sessions allow patients to share their experiences and challenges, creating a supportive community. One respondent shared,

*"I would like the facility to enable us to engage more in group counseling to share experiences and challenges with other patients like me."*

This peer support is crucial for maintaining adherence to ART, as it helps individuals realize they are not alone in their journey. The communal aspect of group counseling can significantly bolster the motivation and emotional well-being of participants.

The study also revealed a need to increase the number of counselors. *"More counselors to be employed"* and *"More counselors to be provided"* were common suggestions. With more counselors, patients can receive timely and personalized support, addressing their fears and anxieties more effectively. One respondent vividly explained,

*"I would like the number of counselors to be increased so that the number of people in counseling centers can address their fears and anxiety with ease because when we attend counseling meetings, we are many."* (R 301)

Adequate staffing ensures that counseling sessions are not overcrowded, allowing for more focused and individualized care. This increase in counseling personnel is essential for providing the necessary support to improve adherence to ART.

Enhancing the frequency and duration of counseling sessions was another common theme. For instance:

*"Increase counseling sessions and book appointments for clients who need counseling services"*(R 344)

More frequent and longer sessions can better address individual patient needs, providing comprehensive support. The introduction of virtual counseling was also suggested:

*"Virtually counseling to be introduced,"* (R 238)

Offering additional flexibility and accessibility, particularly for those who may struggle to attend in person in importance. This approach ensures continuous support, which is fundamental for maintaining adherence.

Involving People Living with HIV (PLWHIV) in the counseling process was highlighted as highly effective. "PLWHIV to be part of the counseling team" and "PLWHIV to counsel their colleagues" were recommendations emphasizing peer support. PLWHIV can offer unique insights and empathy, having experienced similar challenges. This peer-led counseling approach can enhance the relevance and relatability of the support provided, thereby improving adherence to ART. Their involvement ensures that the counseling is grounded in real-life experiences, making it more impactful.

These qualitative data underscore the critical need for comprehensive and accessible counseling services within health facilities. Implementing these changes can lead to a more supportive and effective healthcare system that not only improves adherence to ART but also enhances the overall well-being of patients. By addressing these themes, health facilities can create a more holistic and patient-centered approach to HIV care, ultimately contributing to better health outcomes and a stronger public health infrastructure.

### **Influence of Motivational on Adherence to ART Medication**

Table 5 summarizes the influence of motivational enhancement on adherence to antiretroviral therapy (ART) medication among the respondents. Encouragement showed a mean score of 3.6571 (SD = 0.66419), with 59.2% of respondents agreeing. Motivational strategies had a mean score of 3.6387 (SD = 0.67218), while discussions with healthcare providers received a mean score of

3.7068 (SD = 0.63816) and 64.9% strong agreement. The role of counselors was highlighted with a mean score of 3.9869 (SD = 0.62941), and the necessity of motivation scored 3.9476 (SD = 0.87387). Conversations with health officers and motivational measures provided by facilities received high ratings, with mean scores of 4.2173 (SD = 0.67378) and 4.2435 (SD = 0.6568), respectively.

**Table 3: Levels of agreement on the effect of Motivational Enhancement on Adherence to ARV Medication**

Statement	D	Neutral	A	SA	Mean	SD
The encouragement I received helped me stick to take my ART medication as prescribed	19 (5.0%)	115 (30.1%)	226 (59.2%)	22 (5.8%)	3.6571	0.66419
Motivational Enhancement has increased my motivation to adhere to my ART medication regimen	23 (6.0%)	115 (30.1%)	229 (59.9%)	19 (5.0%)	3.6387	0.67218
The discussions with my healthcare provider made me more determined to follow my treatment plan	18 (4.7%)	96 (25.1%)	248 (64.9%)	20 (5.2%)	3.7068	0.63816
The counselor plays an important role in ensuring that I adhere to medication	13 (3.4%)	39 (10.2%)	270 (70.7%)	60 (15.7%)	3.9869	0.62941
Without motivation, I would have stopped taking the medications	40 (10.5%)	36 (9.4%)	210 (55.0%)	96 (25.1%)	3.9476	0.87387
I found myself more committed to taking my medication as prescribed after our conversations with the health officers	18 (4.7%)	-	245 (64.1%)	119 (31.2%)	4.2173	0.67378
The facilities provide motivational measures that enhance my adherence to antiretroviral therapy (ART) medication	14 (3.7%)	5 (1.3%)	237 (62.0%)	126 (33%)	4.2435	0.6568

These results align with Palacio (2016), demonstrating that motivational enhancement, originally developed for alcohol dependence, is effective in improving medical adherence across various contexts, including HIV treatment. The findings highlight the importance of motivational interventions but also suggest the need for further refinements, such as empowering Community Health Promoters and improving counseling facilities, to optimize ART adherence.

Effect of Care Coordination on Adherence to ART Medication.



**Frequency of Healthcare Appointments for ART Medication**

Figure 1 reveals that 79.8% of respondents attend healthcare appointments related to their ART medication once a month, indicating a strong preference for frequent visits. In contrast, 9.4% attend every two months, and 10.7% attend quarterly.

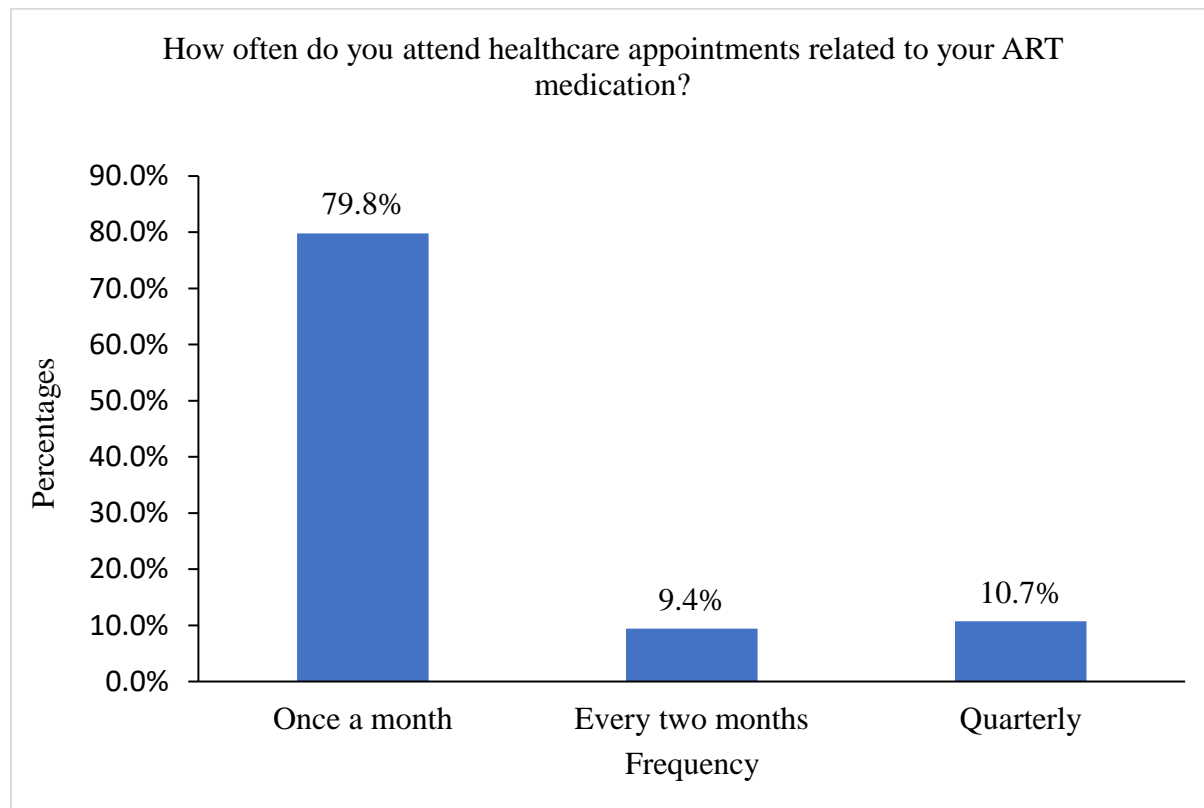


Figure 1: Frequency of Attendance at Healthcare Appointments for ART Medication

The high rate of monthly appointments underscores their importance for effective ART management, as they facilitate close monitoring of health status, adherence to medication, and prompt resolution of issues. The lower attendance rates for bi-monthly and quarterly appointments suggest these less frequent visits may offer inadequate oversight or reflect individual challenges, emphasizing the need for regular healthcare engagement to support optimal health outcomes.

**Perception on Care Coordination's effects on Adherence to ART Medication**

The influence of care coordination on adherence to antiretroviral therapy (ART) medication was assessed through several statements rated on a Likert scale. Table 6 reveals that a significant

portion of respondents (40.1%) finds collaboration with their healthcare team beneficial for managing antiretroviral therapy (ART) medication, evidenced by a mean score of 2.95 and a standard deviation (SD) of 0.97. This suggests that effective teamwork enhances patient understanding and management of their treatment plans, creating a supportive environment that aids adherence. However, the moderate mean score indicates that while many patients benefit, there is room for improvement, as reflected in the moderate variability of responses. The study reveals that care coordination significantly improves ART adherence, with 50.0% of respondents benefiting from better appointment management (mean score 3.10, SD 0.99) and 55.0% reporting timely medication refills (mean score 3.30, SD 0.84). Additionally, 49.7% felt better supported in overcoming adherence challenges (mean score 3.50, SD 0.93). These results align with Berger (2019), emphasizing the positive impact of structured care coordination on adherence.

Table 4: **Influence of Care Coordination on Adherence to ART Medication**

Statement	SD	D	Neutral	A	SA	Mean	SD
Working together with my healthcare team has improved my overall experience in managing my ART medication.	19 (5.0%)	134 (35.1%)	76 (19.9%)	153 (40.1%)	-	2.95030	0.97478
The coordination of healthcare appointments related to my ART medication has become more efficient due to care coordination	19 (5.0%)	115 (30.1%)	57 (14.9%)	191 (50.0%)	-	3.09948	0.99634
Care coordination has facilitated timely refills of my ART medication prescriptions	-	96 (25.1%)	76 (19.1%)	210 (55.0%)	-	3.29840	0.84490
I feel more supported in addressing personal challenges that may affect my adherence to ART medication through care coordination	77 (20.2%)		76 (19.9%)	190 (49.7%)	39 (10.2%)	3.50000	0.92714
I am more aware of the available support services for adherence to ART medication due to care coordination.	-	55 (14.4%)	116 (30.4%)	172 (45.0%)	39 (10.2%)	3.51050	0.86255

Qualitative data further supports these findings, showing that care coordination enhances patients' ability to establish better medication routines and responsibilities. One participant noted:

*"I no longer forget my drug taking time as it was before," while another shared, "Taking drugs is now my responsibility unlike before." (R 022).*

Participants also expressed that care coordination contributed to a reduction in stigma and discrimination, which previously affected their adherence. One participant stated,

*"Stigma has reduced," indicating that the support and understanding from healthcare personnel helped them overcome societal and self-imposed barriers to adherence. (R 031).*

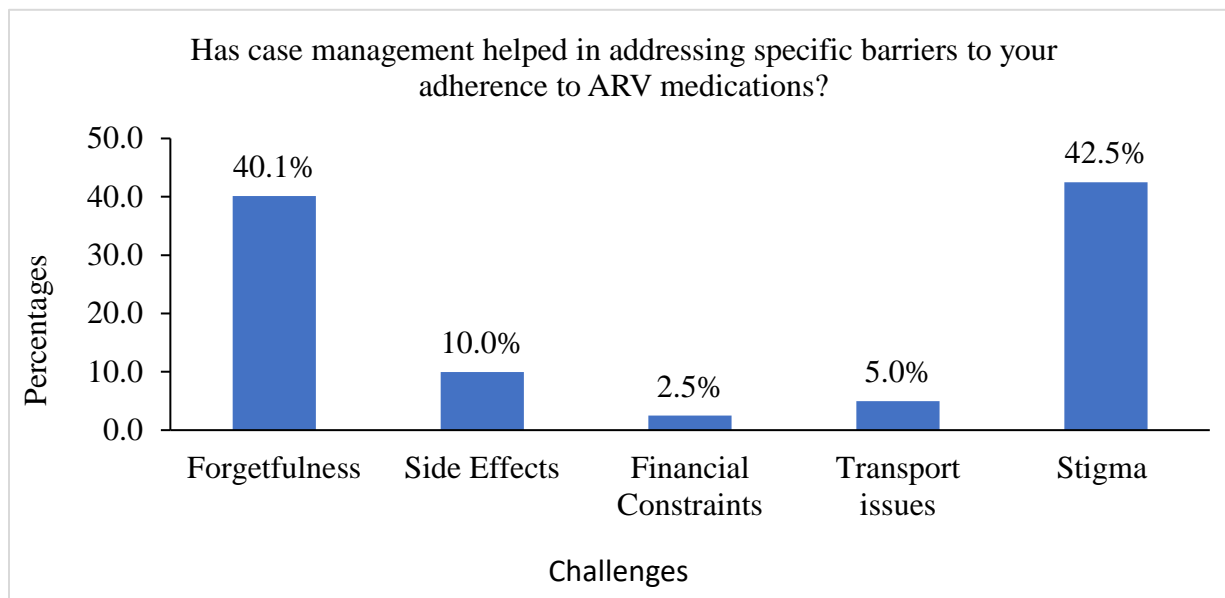
The data also reveals the importance of support and communication from healthcare providers. Participants appreciated the proactive engagement from their healthcare teams. For example, one participant mentioned,

*"When the healthcare personnel do make phone calls and make me get to know that they do care for me," (R 022).*

The integration of qualitative and quantitative data underscores the significant impact of care coordination on ART adherence. Regular check-ins and expressions of care from healthcare providers markedly enhance patient adherence, with 40.1% of respondents noting improved management experience and 49.7% feeling better supported in overcoming personal challenges. Qualitative insights reveal that care coordination improves medication schedule adherence, responsibility, and reduces stigma, aligning with Stefanellah (2020), which highlights its role in establishing consistent medication routines. These findings demonstrate that effective care coordination not only enhances individual patient outcomes but also benefits public health by reducing HIV transmission risk and streamlining healthcare operations, ultimately improving patient quality of life and reducing costs.

### **Effect of Case Management on Adherence to ART Medication**

Figure 2 shows the impact of case management on addressing specific barriers to ARV medication adherence.



**Figure 2: Impact of Case Management on Addressing Barriers to Adherence to ARV Medications**

The findings reveal that stigma (42.5%) and forgetfulness (40.1%) are the primary barriers to ART adherence addressed by case management, which provides effective support through strategies and reminders. While less frequently cited, side effects (10.0%), transport issues (5.0%), and financial constraints (2.5%) still impact adherence. These results align with Ramesh et al. (2019), highlighting the importance of case management in reducing stigma and offering tailored support. Effective case management should balance emotional support, such as stigma reduction, with practical assistance, including reminders, while also addressing less prominent logistical barriers to ensure comprehensive ART management and improved patient outcomes.

Table 7 highlights the significant impact of case management on ART adherence, showing that it effectively addresses major barriers like stigma (42.5%) and forgetfulness (40.1%), while less frequently tackling side effects (10.0%), transport issues (5.0%), and financial constraints (2.5%). The results indicate that case management notably increases information-seeking behavior, with 70.2% of respondents agreeing (mean score 3.52, SD 0.84), and reinforces belief in long-term adherence benefits, with 69.9% agreeing (mean score 3.69, SD 0.79). However, confidence in managing the regimen (45.8%, mean score 3.23, SD 0.85) and addressing specific challenges (54.7%, mean score 3.30, SD 0.90) received lower scores.

**Table 5: Statements on the Impact of Case Management on Adherence to ARV Medication: Likert Scale Responses**

Statement	SD	D	Neutral	A	SA	Mean	SD
I feel more confident in managing my ARV medication regimen after participating in case management sessions	15 (3.9%)	58 (15.2%)	134 (35.1%)	175 (45.8%)	-	3.2277	0.84677
Case management has addressed specific challenges I face in adhering to my ARV medication	19 (5.0%)	58 (15.2%)	96 (25.1%)	209 (54.7%)	-	3.2958	0.9014
I am more likely to seek information related to my ARV medication after participating in case management	16 (4.2%)	39 (10.2%)	59 (15.4%)	268 (70.2%)	-	3.5157	0.84089
Case management has positively influenced my belief in the long-term benefits of adhering to my ARV medication	19 (5.0%)	3 (0.8%)	74 (19.4%)	267 (69.9%)	19 (5.0%)	3.6911	0.79293
Overall, I believe that case management has had a positive impact on my adherence to ARV medications	20 (5.2%)		76 (19.9%)	267 (69.9%)	19 (5.0%)	3.6937	0.79229

These findings align with Berger (2019), reinforcing the role of effective case management in improving ART adherence by enhancing information-seeking, long-term adherence belief, and patient confidence. For healthcare systems, this underscores the importance of robust case management programs and addressing gaps in medication management to improve health outcomes and HIV care.

In terms of the challenges encountered in engaging with case management for medication adherence, the qualitative data reveal several recurring themes. Participants reported financial barriers as a major issue. Responses such as "*Financial constraints in accessing the services*" and "*Financial challenges in accessing the services*" highlight the economic difficulties faced by

individuals. This indicates that the costs associated with case management, including transportation and service fees, pose a substantial obstacle.

Transport-related difficulties were also mentioned, with quotes like

*"Long distance in reaching the ART sites"* (R 011)

*"Transport challenges reaching the health facilities."* (R021)

One participant noted,

*"Yes, concerning transport I do find it difficult since sometimes I lack fare."* (R102)

These comments underscore the challenges related to traveling to healthcare facilities, particularly when affordable transportation is not available. The availability of services in convenient locations was another barrier. For example, one of the respondents remarked that:

*"Services are not offered in schools"* (R113).

This reflects the limited reach of case management services, which are not always accessible in key locations such as educational institutions.

The findings highlight that financial constraints and transport issues are significant barriers to engaging with case management for medication adherence. Costs related to transportation and service fees can be prohibitive, while long distances, poor road conditions, and limited service availability exacerbate the problem. These qualitative insights are consistent with quantitative data, emphasizing the need for targeted interventions. Addressing these barriers through financial support for transportation, improving infrastructure, and expanding service accessibility is crucial for enhancing engagement with case management and improving adherence to ART medication. This approach will ultimately lead to better health outcomes by effectively supporting individuals in managing their medication.

In terms of what improvements could be made to case management services to better support individuals in adhering to their ARV medications, the qualitative data reveal several recurring themes. Several responses emphasized the importance of empowering CHPs to offer services directly within the community. For instance, one participant noted, *"CHP's to be empowered to offer the services"* (R001), while another suggested, *"CHP's to offer the services to reduce the transport costs"* (R203).

This implies a need for CHPs to be given the authority and resources to provide essential services locally, which can make accessing care more convenient and cost-effective for patients.

The need to reduce transport costs and bring services closer to patients emerged as a significant theme. Participants advocated for the introduction of more ART sites in the community:

*"More ART sites to be introduced at the community level" (R100)*

*The is need for establishment of mobile ART sites (R143).*

Additionally, suggestions were made for increasing outreach efforts: One of the respondent indicated that

*"Outreaches to be conducted at the community level" (R201).*

These responses highlight a clear demand for improved accessibility to ART services to minimize travel burdens and ensure that care is available where it is most needed.

Respondents also highlighted the necessity of improving the infrastructure for counseling and related services. Suggestions included:

*"I suggest for constructing larger health facilities to accommodate all services" (R143).*

These statements reflect a need for better-designed and adequately resourced facilities to enhance the quality and accessibility of counseling services.

There was a call for initiating group counseling and fieldwork to promote the importance of ART adherence: One of the respondents suggested:

*"I would like them to initiate group counseling and sometimes carry out fieldwork to teach people the importance of undergoing and taking their ARV" (R203).*

The qualitative data highlights the need for expanding ART sites, mobile services, empowering CHPs, and providing financial support to improve accessibility and adherence to ART, emphasizing community-based education and support.

## **SUMMARY AND CONCLUSION**

The study revealed that psychosocial interventions, including structured counseling, motivational enhancement, care coordination, and case management, positively impacted ARV medication



adherence. It disclosed that the majority of respondents were aged 31-35 years, with diverse educational backgrounds. Structured counseling was effective overall, with a mean score of 3.99, though it showed potential for improvement in encouraging adherence, scoring 3.40. Motivational enhancement significantly improved adherence, with a mean score of 3.6571, and discussions with healthcare providers further supported adherence, reflected by a mean score of 3.7068. The study showed that care coordination improved medication management and reduced stigma, with 79.8% of respondents attending monthly appointments. Case management addressed key barriers such as stigma (42.5%) and forgetfulness (40.1%), although challenges related to financial constraints and service accessibility were noted. Recommendations include increasing ART site availability, introducing mobile services, and enhancing community outreach to address these challenges. The study concludes that while the interventions positively impacted ARV adherence, ongoing improvements are necessary to address barriers and enhance health outcomes.

Based on the findings and conclusions, the following recommendations are made:

- (i) Increase the duration and frequency of counseling sessions, create dedicated counseling spaces, and enhance group sessions. Train Community Health Promoters to provide effective community-level support.
  - (ii) Use personalized encouragement and motivational techniques in patient interactions, standardize motivational measures, and incorporate technology like mobile apps and telehealth for continuous support.
  - (iii) Ensure regular, efficient healthcare appointments and timely medication refills. Focus on reducing stigma and improving patient-provider interactions to optimize ART adherence.
- Expand ART site access, introduce mobile services, and empower community health providers. Implement regular outreach to address financial, transport, and logistical barriers to enhance ART adherence.

## REFERENCES

- Abiolu, J., Moradeyo, M., Olaniyi, O., & Awolude, O. A. (2021). Virologic Outcomes Following Enhanced Adherence Counselling among Treatment Experienced HIV Positive Patients at University College Hospital, Ibadan, Nigeria. *International STD Research & Reviews*, 10(1), 53-65.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl , & J. Beckmann (Eds.), *Action Control: From Cognition to Behavior* (pp. 11-39). Springer.
- Ajzen, I., & Schmidt, P. (2020). Changing behavior using the theory of planned behavior. *The handbook of behavior change*, 17-31.
- Becker , M. H. (1974). The Health Belief Model and personal health behavior. *Health Education Monographs*, 2:324–508.
- Boadu, I., Manu, A., Aryeetey, R. N., Kesse, K. A., Abdulai, M., Acheampong, E., & Akparibo, R. (2023). Adherence to antiretroviral therapy among HIV patients in Ghana: A systematic review and meta-analysis. *PLOS Global Public Health*, 3(11), e0002448.
- Chege, A. (2022). *Effectiveness of music-based intervention in enhancing treatment motivation among clients in a selected substance use disorders treatment centre in Kenya* . Doctoral dissertation, Kenyatta University.
- Cochran, W. G. (1977). *Sampling Techniques*. 3rd ed. New York: John Wiley & Sons.
- Cori, H. (2022). Supporting Medical Healthcare with motivational interviewing. *International Journal of Pharmaceutical practice*, Vol 46:(2).
- Damulak, P. P., Abdul , M. R., Mohd Said, S., & Agbaji, O. (2021). Interventions to Improve Adherence to Antiretroviral Therapy (ART) in Sub-Saharan Africa: An Updated Systematic Review. *Int. J. Environ. Res. Public Health*, 18, 2477.
- Gupta, A., & Gupta, N. (2020). *Research methodology*. SBPD Publications.
- Herlihy, B., & Corey, G. (2016). *Boundary issues in counseling: Multiples roles and responsibilities (3rd ed.)*. Alexandria, VA: American Counseling Association.
- IFRC. (2018). *Psychological interventions*. Copenhagen: A handbook.
- Iversen, J., Zafar, M., Busz, M., & Maher, L. (2021). Adherence to antiretroviral therapy among HIV positive men who inject drugs in Pakistan. *International Journal of Drug Policy*, 96, 103281.
- Kimemia, C. (2018). *ART adherence and its determinants in adolescents in Kajiado County*. Unpublished Phd Thesis, University of Nairobi.
- Kioko, M. T., & Pertet , A. M. (2017). Factors contributing to antiretroviral drug adherence among adults living with HIV or AIDS in a Kenyan rural community. *Afr J Prm Health Care Fam Med*, 9(1),1-7.

- Lowe, N. K. (2019). What is a pilot study? *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 48(2), 117-118.
- Lukersmith, M. S., Millington, M., & Salvador-Carulla, L. (2016). What is case management? A scoping and mapping review. *International journal of integrated care*, 16(4).
- Miyada, S., Garbin , A., Gatto , R., & Garbin , C. (2017). Treatment adherence in patients living with HIV/AIDS assisted at a specialized facility in Brazil. *Rev Soc Bras Med Trop*, 50(5):607–612.
- Moucheraud, C., Amy , F. S., Ismail, A., Nsubuga-Nyombi, T., Monica , M. N., Mvungi, J., & Ssensamba, J. (2020). Can Self-Management Improve HIV Treatment Engagement, Adherence, and Retention? A Mixed Methods Evaluation in Tanzania and Uganda. *AIDS Behav*, 24, 1486–1494.
- Mugoh, E. K. (2017). *Factors influencing adherence to antiretroviral therapy in Embu teaching and referral hospital, Embu County, Kenya*. Nairobi: Unpublished Master Thesis, Kenyatta University.
- NASCOP. (2019). *Kenya Ministry of Health. Kenya HIV Estimates Report 2018/2019*. Retrieved November 2023, from <https://nacc.or.ke/wp-content/uploads/2018/11/HIV-estimates-report-Kenya-20182.pdf>
- Nguyen, T. S., Nguyen, T. L., Van Pham, T. T., Hua, S., Ngo, Q. C., & Li, S. C. (2019). Impact of pharmaceutical care in the improvement of medication adherence and quality of life for COPD patients in Vietnam. *Respiratory medicine*, 153, 31-37.
- Perera, S., & Dabney, B. W. (2020). Case management service quality and patient-centered care. *Journal of Health Organization and Management*, Vol. 34 No. 5, pp. 551-568.
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2, 328–335.
- Stefanellah, P. (2020). Psychosocial interventions to improve HIV treatment adherence: A systematic Review. *Journal of Medicine*, Vol 3:4.
- Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: what it is and what it could be. *Theory and Society*, 48, 193-216.
- WHO. (2017). *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach*. Geneva: World Health Organization.