Prevalence of Low Uptake of Prescribed Dosage of Adjunct Therapies among People Living with HIV / AIDS in Bugesera District in Rwanda

ABSTRACT

Globally, adjunct therapy uptake of correct and sufficient Prescribed Dosage, among People Living with HIV / AIDS, PLWHAs remain a big challenge and, varies, in the global regions, with high rates in the USA (70-85%), while Rwanda's overall viral load suppression rate is 76.0% (MOH, 2022). Despite progress, adherence challenges persist, particularly among adolescents and young adults, with notable regional and gender disparities in therapy uptake. Therefore, the study aims to assess the factors contributing to the low uptake of prescribed dosages of adjunct therapies among people living with HIV/AIDS in Nyamata Level II Teaching Hospital. Specifically, to determine the prevalence of prescribed dosage of adjutants and immunotherapy uptake among PLWHAs and lastly evaluate how knowledge, attitudes, and practices (KAP) contribute to immunotherapy non-adherence. The study intends to enable policymakers to provide insights and solutions via informed targeted interventions to enable improved adherence rates and overall health outcomes in population health. The study was mixed-methods, by descriptive cross-sectional cohort and triangulation designs. Quantitative data was collected using structured questionnaires on a survey of 280 PLWHAs. Qualitative data was collected by saturated, interviews of focus group discussions FGDs and key informant interviews KIIs guides. Data analysis by cross-tabulation of descriptive and inferential statistics and managed by SPSS version 27 software and Excel program. Ethical Approval School of postgraduate MKU, clearance from the MKU ethical committee and Nyamata Level II Teaching Hospital research committee. Results and findings opined that the majority of participants affected were Female participants 64.9% (182), and males were only 35.1 % (98), showing females had a higher health-seeking behavior compared to their male counterparts. Prevalence of adjutant uptake was only 55% with a significant standard deviation of (8.8 for males and 10.3 for females), suggesting consistent therapy uptake in the study area thus health education to improve the uptake to mediate the non-adherence rates in the community health in near future.

Keywords: adjuncts, immunotherapy, dosage, PLWHAs, community participation, non-adherence.

Material and Methods

1.0 Material

1.1 Introduction and Background Information

Global responses to HIV/AIDS have evolved significantly, with a 38% decrease in new HIV infections from 2.1 million in 2010 to 1.3 million in 2022 (UNAIDS, 2023). The widespread availability of Antiretroviral Therapy (ART) has been pivotal in this progress, reducing deaths from HIV/AIDS by 1.44 million in 2022 and shifting focus from crisis management to long-term

39 control (Eshun-Wilson *et al*., 2019). Despite these advancements, adherence to ART remains a

40 challenge, particularly in sub-Saharan Africa, where adherence rates range from 46% to 89%,

41 averaging 77% (Eshun-Wilson et al., 2019).

42 PLWAs occasionally have three or more comorbidities, which increase with the ages of the

43 patients making them more predisposed to conditions such as DM, HTN and CVS. The presence

44 of these comorbidities, present even tougher challenges to PLWAs. Due to , increased load of

45 medications, adherence, lifestyles and nutritional changes that patients have to endure which in

46 most cases lead to non-adherence to medications of these secondary conditions given the fact

47 that they too, are to be taken for a long period of time and , hence making PLWAs more likely to

48 die of these comorbidities conditions than HIV/AIDs. Due to adherence concerns, behavioral and

49 socioeconomic factors that they present(Monroe et al., 2013). PLWAs with comorbidities tend to

50 perceive adhering to only ARVs as most crucial and less attention is given to the

51 comorbidities(Gehi et al., 2005). Apart from the NCDs PLWAs disease may develop, diseases

52 like malaria can also pose a very big challenge, especially in Africa which still accounts for over

53 90% of malaria cases(*WHO, 2023*), since they would also require separate medications in

54 addition to ARV which would contribute to no adherence (Chukwuocha *et al.*, 2019). Highly

55 Active Antiretroviral Therapy has been a major key factor in prolonging the life expectancy of

56 PLWAs in addition to promoting their health. In order to achieve these results; PLWAs are

57 recommended to adhere to ARVs to at least 95% which still presents a challenge (Achappa et al.,

58 2013), with only an adherence rate of 76% globally(UNAID,2022). Nutritional supplements

59 enhance the acceptability and effectiveness of ART for HIV, improving outcomes for related

60 infections like tuberculosis and diarrhea. Vitamin A and zinc supplements have significantly

61 reduced mortality and morbidity in HIV-infected children, while multivitamins for pregnant

women have improved maternal and fetal health, reducing the risk of fetal deaths and preterm births. These supplements also help manage medication loads and costs (Fabusoro & Mejia, 2021).

The Joint United Nations Program on HIV/AIDs set the 90-90-90 goal by 2020 for HIV-affected countries of which Rwanda was able to achieve 92-87-80 displaying tremendous efforts towards ending the AIDs epidemic and hence, boasting one of the highest rates of ART coverage in Africa (Nsanzimana et al., 2022). PLWHAs are susceptible to other diseases just like anyone else. As a result, they may need to take medications other than ART to manage these opportunistic diseases or illnesses that are prevalent in the community. However, adding more medications to their existing regimen can be burdensome for the patients and may lead to poor adherence to or uptake of the prescribed medications. The uptake of these medications, also known as adjunct therapies among PLWHAs, may be affected by prevalence of dose uptake , as well as knowledge, attitudes, and practices (KAP) influence – all of which play critical roles in influencing health-seeking behavior among PLWHAs (Dawkins et al., 2021).

2.1. Prevalence of the Low Uptake of dosage described Adjunct Therapies among PLWHAs

The uptake of adjunct therapies among PLWHAs is a significant area of interest in medical research and treatment. Adjunct therapies, which are treatments that enhance or modify the immune system's ability to fight diseases, offer new hope for individuals with compromised immune systems due to HIV/AIDS. The effectiveness and safety of these therapies in the context of HIV-positive individuals are critical for improving health outcomes, particularly for those who are also battling cancers or other chronic conditions (Stasinopoulos, & Rigby, 2017).

The prevalence of prescribed correct dosage of adjunct therapies uptake among PLWHAs is a crucial indicator for evaluating healthcare adherence and treatment effectiveness in managing

86 HIV/AIDS. It refers to the proportion of PLWHAs who consistently follow their prescribed

87 immunotherapy dosages, which include antiretroviral therapy (ART) and other medications, as

88 instructed by healthcare providers. Adherence rates are metrics that assess how well PLWHAs

89 adhere to their prescribed adjunct therapies over a specific period. These rates can be determined

90 through pharmacy refill records, pill counts, or self-reported assessments, reflecting the

91 consistency with which PLWHAs obtain and fill their prescriptions. Monitoring medication

92 adherence is essential for evaluating the extent to which PLWHAs adhere to their treatment

93 plans, encompassing aspects such as timing, frequency, and dosage, and can be evaluated using

94 various methods such as self-reporting, pill counts, electronic monitoring, or pharmacy records

95 (World Health Organization, 2018).

96 Clinical monitoring involves regular assessments of PLWHAs' health status and treatment

97 response, including viral load measurements, CD4 cell counts, and other relevant laboratory

98 tests. Monitoring these clinical parameters provides insights into the effectiveness of adjunct

99 therapies uptake in managing HIV infection. CD4 cell count improvement indicates the extent to

100 which immunotherapy contributes to immune system restoration among PLWHAs. This

101 indicator measures the change in CD4 T-cell counts over time, reflecting the immunological

102 benefits of adhering to the prescribed correct dosage of immunotherapy. Treatment interruptions

103 assess the frequency and duration of breaks in adjunct therapies among PLWHAs. High rates of

104 treatment interruptions may indicate challenges with medication adherence, side effects, or

105 access barriers, leading to suboptimal dosage uptake and potential risks of treatment failure or

106 drug resistance (Mills *et al*., 2016).

107 The inclusion rate of HIV-positive individuals in clinical trials for adjunct therapies is a critical

108 indicator of uptake, reflecting the growing acceptance and application of these treatments.

109   Historically, this group was often excluded from trials due to concerns about compromised

110   immune systems and potential interactions with antiretroviral therapies (ART). However, as

111   researchers increasingly recognize the importance of understanding how adjunct therapies work

112   in HIV-positive populations, the inclusion rate has risen. This shift is crucial, as it ensures that

113   clinical findings apply to this demographic, allowing them to benefit from advancements in

114   treatments for cancer and chronic diseases (Zhang et al., 2021).

115   **2.1.1 Uptake of Prescribed Adjunct Therapies among PLWHAs**

116   The prescription and administration rates of adjunct therapies to HIV-positive patients serve as

117   additional vital indicators of uptake (Tan et al., 2017). These metrics reflect the frequency with

118   which healthcare providers recommend and administer these treatments, suggesting that adjunct

119   therapies are becoming a standard part of care, especially for those with conditions that these

120   therapies can address. High prescription rates indicate a broader integration of these treatments

121   into routine clinical practice. Furthermore, the access and availability of these therapies, along

122   with supportive healthcare services such as counseling and follow-up care, are essential for

123   ensuring that HIV-positive individuals can fully benefit from these innovations (Wang et al.,

124   2019).

125   Factors influencing the prevalence of prescribed correct dosage of adjunct therapies uptake

126   among PLWHAs are multifaceted. These include individual-level factors such as socio-

127   economic status, education level, mental health, substance abuse, and social support networks.

128   Additionally, healthcare system-related factors such as accessibility of healthcare services,

129   availability of medications, quality of care, and patient-provider communication play significant

130   roles in determining adherence levels (Bangsberg *et al*., 2021). Interventions aimed at improving

131   the prevalence of prescribed correct dosage of adjunct therapies uptake among PLWHAs focus

132   on addressing these multi-level factors. Strategies may include patient education and counseling

133   on the importance of medication adherence, implementation of reminder systems (e.g., pillboxes,

134   mobile phone reminders), integration of mental health and substance abuse treatment services

135   into HIV care, and provision of social support programs (Nachega *et al*., 2019).

136   Regular monitoring and evaluation of the prevalence of prescribed correct dosage of adjunct

137   therapies uptake among People Living with HIV/AIDS (PLWHAs) is crucial for assessing the

138   impact of adherence interventions and pinpointing areas requiring improvement. Continuous

139   surveillance of adherence rates enables healthcare providers and policymakers to customize

140   interventions that address the unique challenges faced by PLWHAs, thereby enhancing treatment

141   outcomes within the HIV/AIDS population (Stasinopoulos & Rigby, 2017).

142   Smith et al. (2018) did a cross-sectional study to assess the prevalence of prescribed correct

143   dosage uptake among PLWHAs in urban and rural areas of the USA. Surveying 900 participants,

144   they found an overall adherence rate of 70%. Analysis of three key indicators, including

145   frequency of medication intake, appointment attendance, and self-reported side effects, revealed

146   variations in adherence levels. The study identified a research gap in understanding the impact of

147   stigma on medication adherence. Recommendations included interventions to reduce stigma and

148   enhance social support networks, aiming to improve adherence rates among PLWHAs. Sharma

149   et al. (2019) investigated a cross-sectional study aiming to investigate the prevalence of

150   prescribed correct dosage immunotherapy uptake among PLWHAs in rural India. Surveying 600

151   participants, they reported an adherence rate of 55%. Statistical analysis of adherence levels

152   across demographic variables, medication side effects, and access to healthcare facilities

153   highlighted disparities in medication uptake. The study identified a research gap related to

154   healthcare access barriers and stigma. Recommendations focused on improving healthcare

155 infrastructure, addressing cultural beliefs, and implementing community-based interventions to

156 enhance medication adherence. Tan et al. (2018) did a retrospective cohort study to examine the

157 prevalence of prescribed correct dosage uptake among PLWHAs in urban Singapore. Analyzing

158 medical records of 500 participants, they found an adherence rate of 65%. Statistical analysis

159 revealed correlations between medication adherence and variables such as income level,

160 education, and healthcare accessibility. The study identified a research gap concerning the

161 impact of medication costs on adherence. Recommendations included were policy interventions

162 to reduce out-of-pocket costs and enhance healthcare affordability for PLWHAs.

163 Okafor et al. (2017) conducted a cross-sectional study to investigate the prevalence of prescribed

164 correct dosage of adjunct therapies uptake among PLWHAs in Nigeria. Surveying 700

165 participants, they reported an adherence rate of 50%. Statistical analysis of adherence patterns

166 across demographic variables, medication regimens, and healthcare utilization highlighted

167 disparities in adherence levels. The study identified a research gap related to medication cost as a

168 barrier to adherence. Recommendations included policy interventions to subsidize medication

169 costs and improve access to affordable healthcare services for PLWHAs. Macharia et al. (2019)

170 investigated the prevalence of prescribed correct dosage of adjunct therapies uptake among

171 PLWHAs in peri-urban areas of Kenya through qualitative interviews with 200 participants.

172 Findings revealed varied adherence rates, with statistical analysis showing associations between

173 adherence and variables such as social support, medication side effects, and healthcare provider

174 communication. The study identified a research gap concerning communication barriers between

175 healthcare providers and patients. Recommendations included training healthcare providers in

176 effective communication strategies and implementing patient-centered care approaches to

177 enhance medication adherence.

2.2   Knowledge, Attitudes, and Practices (KAP) Affect the Uptake of Adjunct Therapies.

Knowledge, attitudes, and practices (KAP) significantly influence the dosage uptake of adjunct therapies among People Living with HIV/AIDS (PLWHAs). First, knowledge about HIV/AIDS, its transmission, and treatment options plays a pivotal role in determining drug uptake. An adequate understanding of the benefits of antiretroviral therapy (ART) in suppressing the virus, improving immune function, and prolonging life expectancy is essential for motivating PLWHAs to initiate and adhere to medication regimens. Conversely, misinformation, misconceptions, or lack of awareness about HIV/AIDS treatment may lead to skepticism, fear, and reluctance to engage with medical care, resulting in suboptimal drug uptake (Remien *et al*., 2021).

Attitudes towards HIV/AIDS and its treatment play a crucial role in influencing PLWHAs' willingness to adhere to essential drug regimens. Positive attitudes, including confidence in antiretroviral therapy (ART), trust in healthcare providers, and a belief in the importance of treatment adherence, linked to higher rates of drug uptake. In contrast, negative attitudes, such as stigma, fear of side effects, or fatalistic views about AIDS, can undermine motivation to start or continue medication. Addressing these attitudes through targeted education, counseling, and psychosocial support is vital for promoting treatment adherence among PLWHAs (Rosen et al., 2017).

Medication adherence practices are equally critical in determining drug uptake. Adherence to prescribed ART is essential for achieving viral suppression and preventing drug resistance, yet challenges like forgetfulness, pill fatigue, and competing life priorities can hinder consistent medication use (Sharma *et al*., 2019).   Additionally, awareness of adjunct therapies, understanding their significance, and receiving accurate information from reliable sources are crucial for effective HIV management. Healthcare providers, educational programs, and support

202 groups play a significant role in enhancing this awareness and correcting misinformation

203 (Adeyemi et al., 2018). Strengthening communication and support systems can improve

204 adherence behaviors, leading to better health outcomes for PLWHAs (Singh et al., 2019)

205 In a study by Smith et al. (2020), the authors examined how knowledge, attitudes, and practices

206 (KAP) affect the uptake of adjunct therapies among PLWHAs in urban Canada. Conducting a

207 mixed-methods research approach with 600 participants, they investigated factors such as

208 HIV/AIDS education, stigma perception, and medication adherence behaviors. Findings revealed

209 that 65% of participants had adequate knowledge about HIV/AIDS medications, 40%

210 experienced stigma-related barriers to treatment, and 30% reported non-adherence due to

211 medication side effects. Chi-square analysis showed significant associations between medication

212 adherence and stigma perception ($\chi^2 = 14.56$, $p < 0.001$) and knowledge level ($\chi^2 = 9.78$, $p <$

213 0.01). Ordinal regression models indicated that higher levels of stigma perception were

214 predictive of lower medication adherence ($\beta = -0.28$, $p < 0.01$). The study identified a research

215 gap in understanding the role of social support networks in medication adherence and

216 recommended tailored interventions to address KAP barriers.

217 Research by Wang et al. (2019) examined the KAP affecting the uptake of adjunct therapies

218 among PLWHAs in rural China. The study aimed to assess individuals' knowledge of

219 HIV/AIDS, attitudes towards medication, and adherence practices. Employing a quantitative

220 survey with 800 participants, the research found that 60% of respondents had adequate

221 knowledge about their prescribed drugs, 35% expressed positive attitudes towards medication,

222 and 25% reported consistent adherence practices. Chi-square analysis revealed significant

223 associations between adherence and knowledge level ($\chi^2 = 15.89$, $p < 0.001$), attitude towards

224 medication ($\chi^2 = 8.76$, $p < 0.01$), and self-reported adherence practices ($\chi^2 = 7.54$, $p < 0.05$).

225 Ordinal regression models demonstrated that higher levels of knowledge and positive attitudes

226 were predictive of better adherence ($\beta = 0.22$, $p < 0.01$). The study identified a research gap in

227 understanding the influence of healthcare provider-patient communication on medication

228 adherence and recommended interventions to improve patient education and communication

229 strategies.

230 Research by Ndlovu et al. (2018) explored the KAP affecting the uptake of adjunct therapies

231 among PLWHAs in urban South Africa. The study aimed to assess individuals' knowledge of

232 HIV/AIDS, attitudes towards medication, and adherence practices. Using a mixed-methods

233 approach with 700 participants, the research found that 55% of respondents had adequate

234 knowledge about their prescribed drugs, 30% expressed positive attitudes towards medication,

235 and 25% reported consistent adherence practices. Chi-square analysis revealed significant

236 associations between adherence and knowledge level ($\chi^2 = 14.32$, $p < 0.001$), attitude towards

237 medication ($\chi^2 = 8.98$, $p < 0.01$), and self-reported adherence practices ($\chi^2 = 6.21$, $p < 0.05$).

238 Ordinal regression models demonstrated that higher levels of knowledge and positive attitudes

239 were predictive of better adherence ($\beta = 0.20$, $p < 0.01$). The study identified a research gap in

240 understanding the influence of socioeconomic factors on medication adherence and

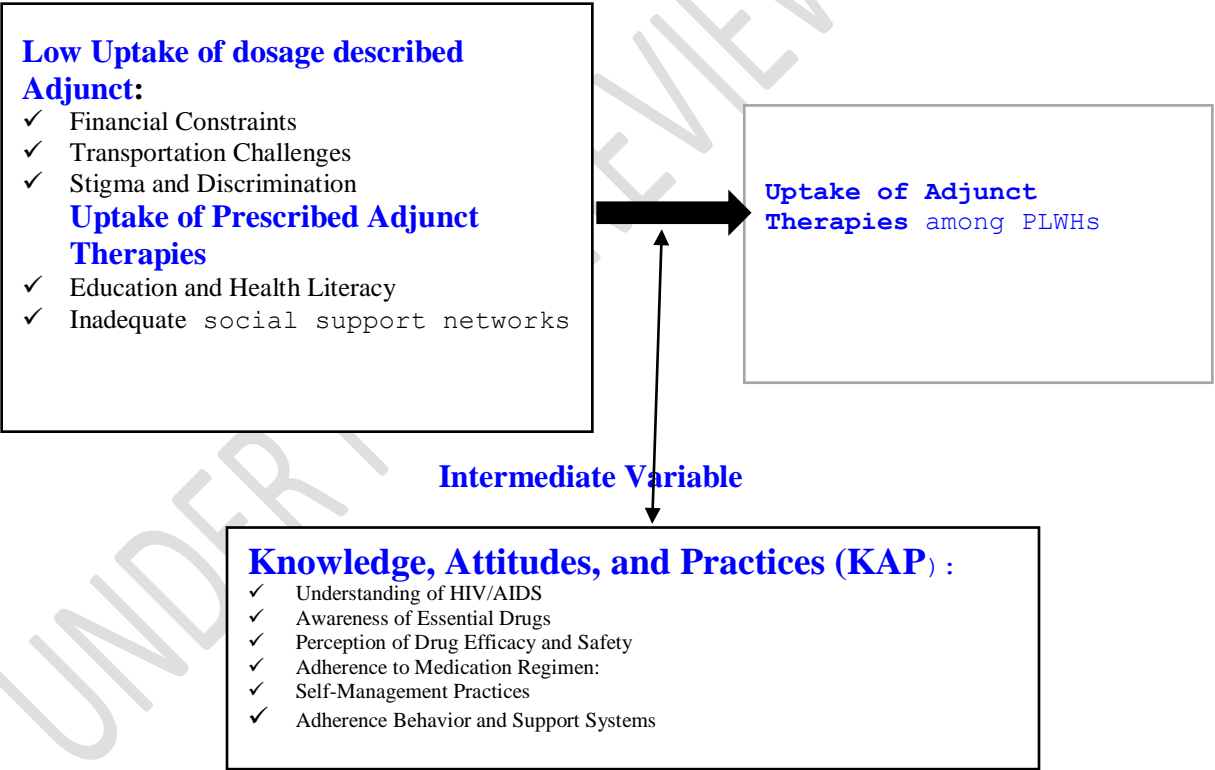241 recommended interventions to address these barriers among PLWHAs.

242 A study by Uwimana et al. (2020) investigated the KAP affecting the uptake of essential drugs

243 among PLWHAs in rural Rwanda. The purpose was to assess individuals' knowledge of

244 HIV/AIDS, attitudes towards medication, and adherence practices. Conducting qualitative

245 interviews with 400 participants, the study found that 65% of respondents had adequate

246 knowledge about their prescribed drugs, 40% expressed positive attitudes towards medication,

247 and 35% reported consistent adherence practices. Chi-square analysis revealed significant

248 associations between adherence and knowledge level ($\chi^2 = 16.45$, $p < 0.001$), attitude towards

249 medication ($\chi^2 = 10.76$, $p < 0.01$), and self-reported adherence practices ($\chi^2 = 8.54$, $p < 0.05$).

250 Ordinal regression models demonstrated that higher levels of knowledge and positive attitudes

251 were predictive of better adherence ($\beta = 0.23$, $p < 0.01$). The study identified a research gap in

252 understanding the influence of community stigma on medication adherence and recommended

253 community-based interventions to address stigma and promote medication adherence among

254 PLWHAs

255 **2.3. Conceptual framework**

256 **Background Variable**   **Out Come Variable**

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258

Low Uptake of dosage described Adjunct:
- ✓ Financial Constraints
- ✓ Transportation Challenges
- ✓ Stigma and Discrimination

Uptake of Prescribed Adjunct Therapies
- ✓ Education and Health Literacy
- ✓ Inadequate social support networks

Uptake of Adjunct Therapies among PLWHs

266   **Intermediate Variable**

Knowledge, Attitudes, and Practices (KAP) :
- ✓ Understanding of HIV/AIDS
- ✓ Awareness of Essential Drugs
- ✓ Perception of Drug Efficacy and Safety
- ✓ Adherence to Medication Regimen:
- ✓ Self-Management Practices
- ✓ Adherence Behavior and Support Systems

271   *Figure 2.1*: Conceptual framework Silali *etal* (2024)

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3.0 METHODS

This study will employ a mixed-methods research design including descriptive cross-sectional design by integrating both qualitative and quantitative approaches used in investigating the factors associated with low uptake of adjunct therapies among people living with HIV/AIDS in Nyamata level II Teaching Hospital. Qualitative methods such as interviews or focus groups was used to help in exploring individual perspectives, attitudes, and experiences related to adjuncts sufficient correct immunotherapy uptake. Quantitative methods like surveys or retrospective chart reviews was used to provide numerical data on demographic characteristics, treatment adherence, healthcare access, and clinical outcomes, allowing for statistical analysis to identify correlations and patterns. This all-encompassing strategy would provide a complete understanding of the problem and direct the creation of focused actions to support this population's means of subsistence. Structured questionnaires, focus groups, and key informant interviews was used to gather information in order to ascertain the frequency and contributing causes to the poor immunotherapy adoption among PLWHAs at Nyamata level II Teaching Hospital in Rwanda's Eastern Province. Data managed by SPSS Version 27, analysis by cross-tabulating descriptive and inferential statistics; data presented using pie charts and bar graphs. This technique is crucial for assessing a population's present and future health and spotting any trouble spots for people in the veterinary and cattle industries:

$$n = \frac{N}{1 + N(e)^2}$$

The study used Slovin's Formula, to determine the sample size that was used in data collection because of the lager population size where 926 people living with HIV have been prescribed adjunct therapies alongside ART registered at Nyamata level II Teaching Hospital.

298 Where n is the sample size, N is the population size=926, and e is the level of precision= 5%.

299
$$n = \frac{926}{1 + 926(0.05)^2} == 279.33 \approx 280$$

300 There 280-sample size of people livings with HIV prescribed on adjunct therapies alongside

301 ART registered at Nyamata level II Teaching Hospital was used via the following calculation

302 **Table 1: Target Population Sample Size**

PLWHIV prescribed adjunct therapies in Nyamata level II Teaching Hospital	Population size	Target / Sample size
Males	428	$\frac{428 \ x \ 280}{926} = 129$
Females	498	$\frac{498 \ x \ 280}{926} = 151$
Total	926	280

303

304 Ethical clearance sought at Mount Kenya School of Postgraduate and its ethical clearance in

305 Nyamata level II Teaching Hospital.

4.0 Results and Findings
4.1.0 Demographic Profile

310 The majority of respondents fell within the age groups of 25-34 years (35.0%) 98 respondents

311 and the least cohort of participants were aged 55-64 years accounting for 15.0%. (42) O.

312 Younger PLWHAs might struggle with treatment adherence due to lifestyle factors, lack of

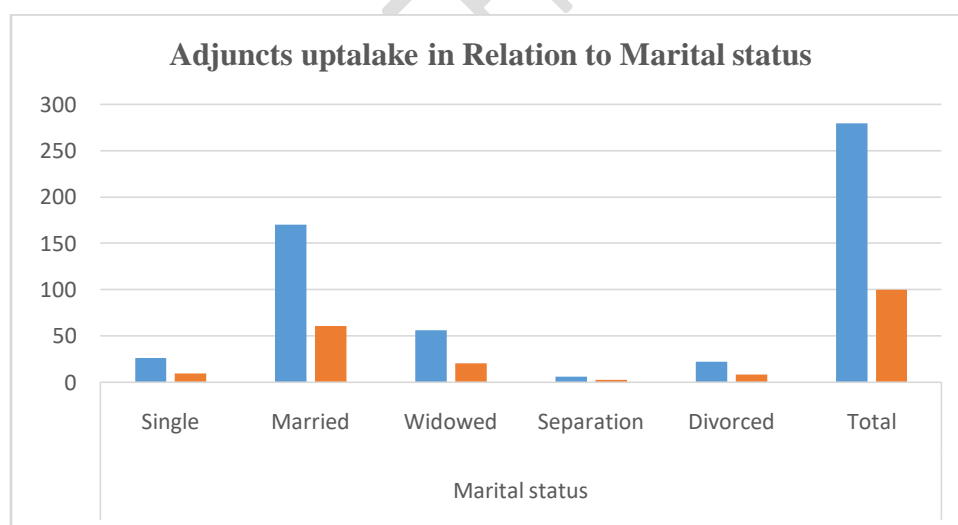313 family support, or a perceived sense of invulnerability.

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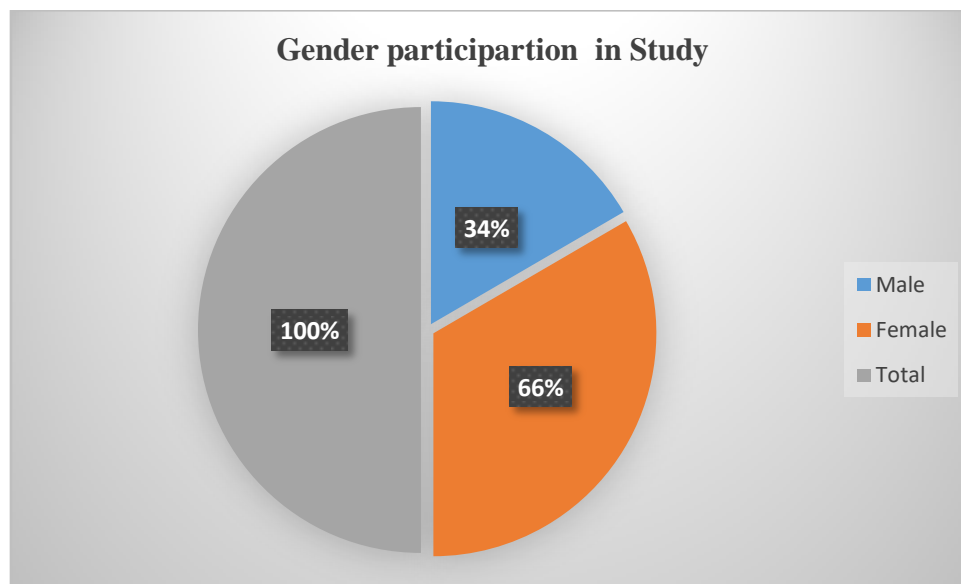
Figure 4.1 Gender Participation in the uptake of adjunct therapies

The study opined that the marital status of the respondents included, 60.7% were married, while 20.0% were widowed.

**Figure 4.2** Demonstrate distribution of the marital status among the Adjuncts Respondents

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## 4.1. Prevalence of Prescribed Dosage of Adjunct Therapy Uptake among PLWHAS

Results and findings opined that majority of participants affected were Female participants 64.9% (182), and males were only 35.1 % (98). These results are critical for evaluating the effectiveness of HIV treatment programs and identifying potential barriers that may affect the adherence to adjunct therapies based on the prescribed dosage and offers insights into improving adherence strategies for PLWHAs. This results demonstrated a higher health-seeking behaviors among women, targeted interventions for pregnant women, or stigma-related barriers that discourage men from seeking treatment with, significant standard deviations for both male and female of (standard deviation = 8.8) and (standard deviation = 10.3) respectively.
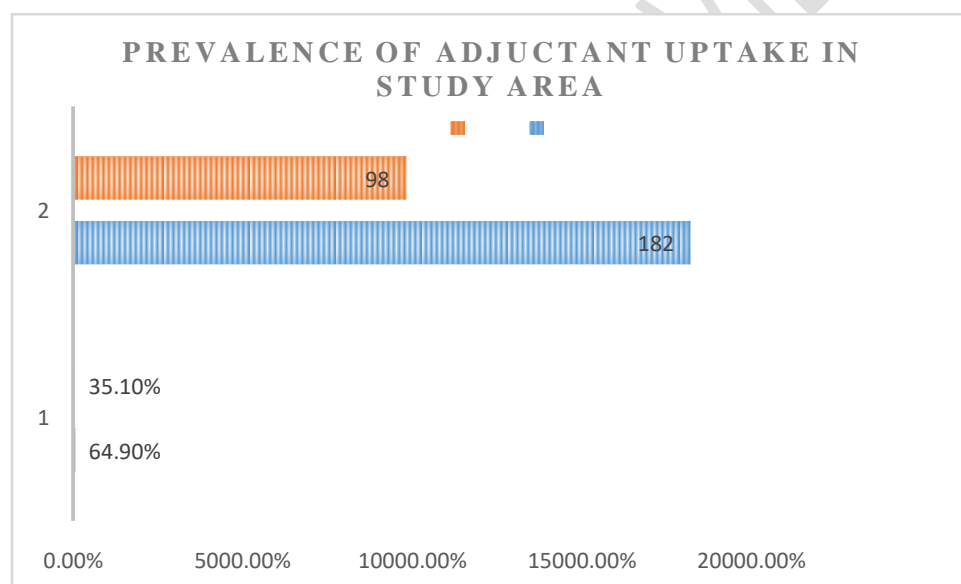
i.   **Figure 4.3** Demonstrate Prevalence of Adjunct Therapies Uptake In The \Study Area

The figure below outlines the frequency of adherence to prescribed adjunct therapy medication, with 46.4% of respondents indicating that they often adhered to their prescribed medication. A significant proportion, 25.4%, reported rarely adhering to their therapy, while 16.1% stated that

336 they always adhered to the medication. Only 12.1% of respondents reported sometimes adhering

337 to the therapy.
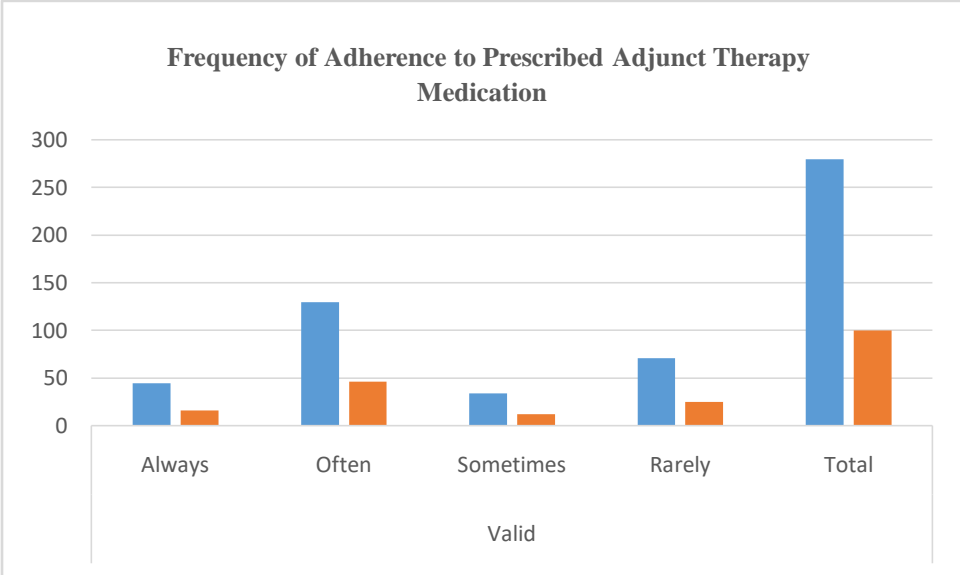
Figure 4.4 Demonstrates frequency adherence to prescribed adjunct therapies Among the Respondents in the study area

Figure 4.6 below opines factors contributing to Non-adherence to the medication schedule among respondents. A substantial 37.5% of participants identified side effects as a major barrier to adherence, followed by 32.1% who reported forgetfulness as a key factor. A smaller proportion, 19.6%, indicated that a busy schedule interfered with their ability to adhere to the medication regimen.

Factors Contributing to Non Adherence adjunct therapies medications Schedule

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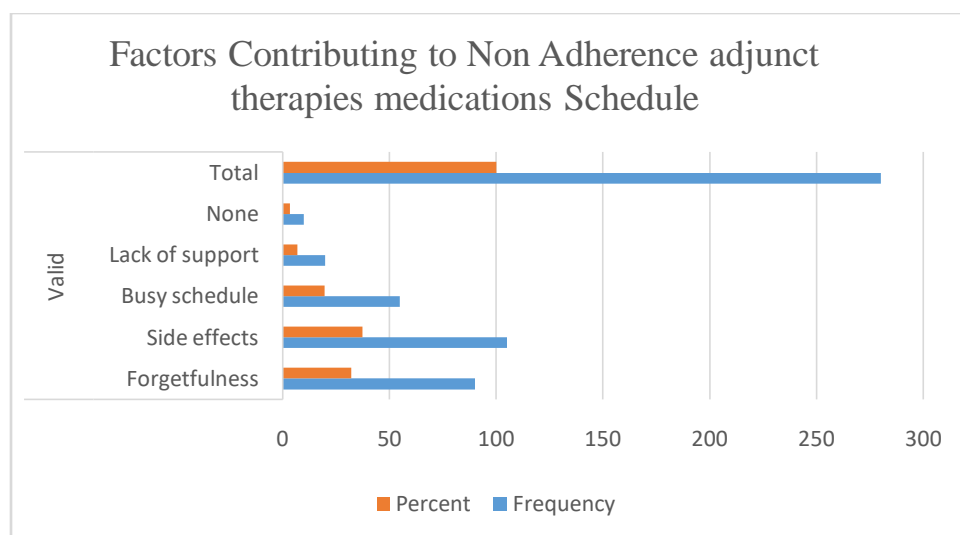
Figure 4.5 Opines factors contributing to Non-adherence to the medication schedule among respondents

**Table 4.1: Regularity of CD4 Cell Count Monitoring Visits**

		Frequency	Percent
Valid	As scheduled every time	64	22.9
	Most of the time	101	36.1
	Occasionally	90	32.1
	Rarely	15	5.4
	Never	10	3.6
	Total	280	100.0

Table 4.1 outlines the regularity of CD4 cell count monitoring visits among respondents. The majority of participants, 36.1%, reported attending their monitoring visits most of the time, while 32.1% stated they attended occasionally. A smaller proportion, 22.9%, adhered to their visits as scheduled every time. However, 5.4% of respondents attended rarely, and 3.6% never attended their CD4 cell count monitoring visits.

Figure 4.7 below provides an overview of the viral load status among people living with HIV/AIDS (PLWHAs), in the study area with an increasing significant improvement, in the

358 percentage of patients with undetectable viral loads, for the last 3 years. Rising from 92% in

359 2020 to 98% in 2023. Marked increasing percentage of patients with low viral loads decreased

360 from 6% in 2020 to 1.5% in 2023, while those with high viral loads remained low, dropping

361 from 2% in 2020 to 0.5% in 2023.
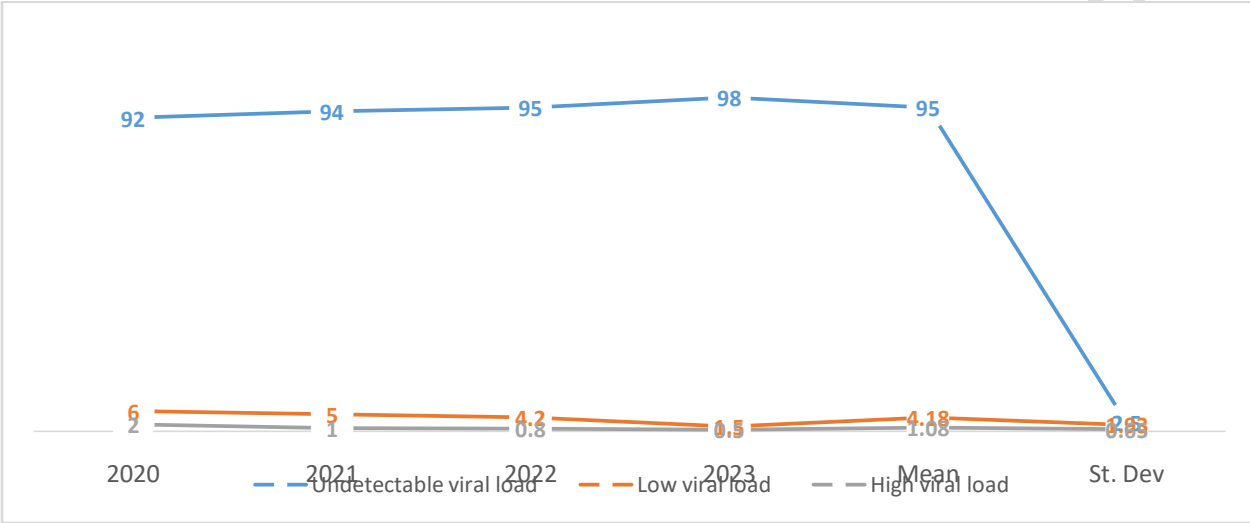
363 **Figure 4.6** Increasing Standard deviation of viral load and Adjunct therapies Uptake or the last 3
364 years among PLWHAs in the Study area

365 The results opined numerous types of side effects experienced by patients undergoing adjunct

366 therapy for HIV/AIDS treatment. Among the 243 patients who reported side effects, the most

367 common was fatigue, affecting 63.8% of patients, followed by nausea at 14.4%. Other side

368 effects included headache (7%), fever (9.5%), and rash (5.3%). As demonstrated in the figure

369 below

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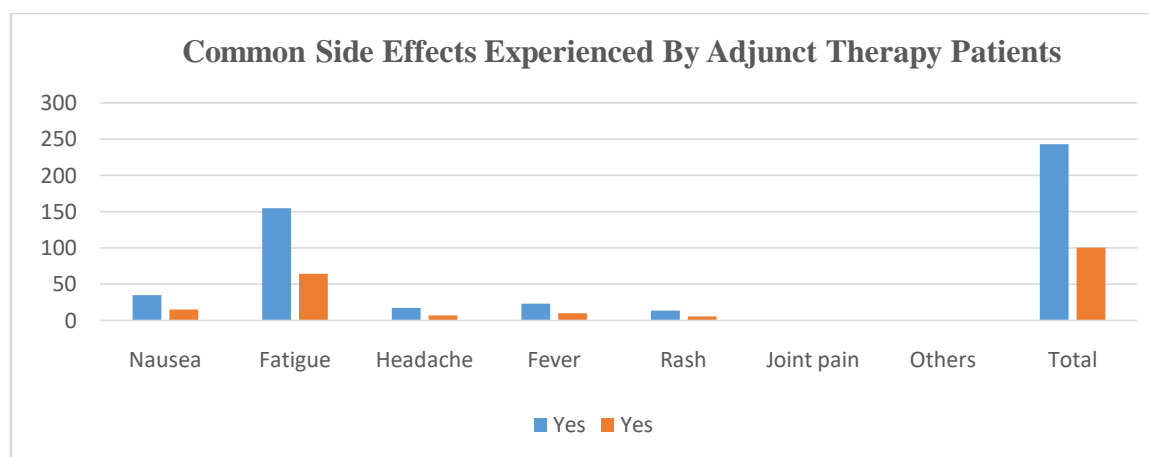
Figure 4.8: Common Side Effects Experienced By Adjunct Therapy Patient

**Table 4.2: Available Strategies used for managing side effects**

		Frequency	Percent
Valid	Medications	86	30.7
	Counseling	134	47.9
	Support groups	60	21.4
	Total	280	100.0

Table above presents the strategies used for managing side effects among patients undergoing adjunct therapy for HIV/AIDS treatment. The most commonly employed strategy was counseling, reported by 47.9% of the respondents. Medications were utilized by 30.7% of patients, while 21.4% used support groups to manage their side effects. These findings are consistent with those of previous studies, such as Johnson et al. (2021), which highlighted counseling as a primary method of addressing the psychological and emotional side effects of HIV/AIDS treatment. Also opined during the discussion held in an interview

"*This would make a huge difference in increasing uptake because it provides both emotional support and health education*," KII discussion held on 15 February 2025.

4. 5 Knowledge Attitude and Practices KAP Contributing To Community Participations in Uptake and Access Adjunct Therapies for PLHAS

The opined that KAP Contributing to Community Participations in Uptake and Access Adjunct Therapies for PLHAS, was also clearly discussed in series of FGDs in the study area with following findings at saturated agreements below captions,

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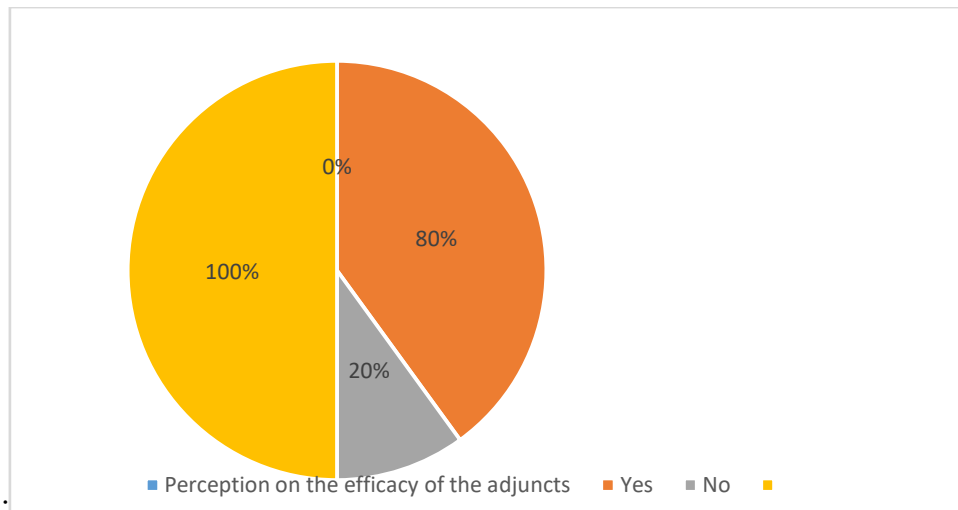
Figure 4. 11 : Contribution of Attitude/perception on the uptake of Adjunct therapies among people living with HIV AIDS in the study

 "We need to actively involve local leaders, elders, and religious groups in promoting the acceptance of HIV/AIDS treatment. They have significant influence over community behavior."

FGDs, discussion, held on 17th of February 2025

"Many patients don't consistently follow the treatment regimen due to fear of side effects and misinformation. This is exacerbated by a lack of proper follow-up care after the initiation of adjunct therapies." KII held on 12 of February 2025

398

5.0 Conclusions and Recommendations

The study concluded that there is a stable pattern of uptake of adjunct therapies among people living with HIV/AIDS (PLWHAs) at Nyamata Level II Teaching Hospital with female patients showing higher adherence compared to males

Need for synergistic sector-wide approaches to address the uptake of adjunct therapies among people living with HIV/AIDS (PLWHAs) to improve uptake of adjunct therapies among people living with HIV/AIDS (PLWHAs) at Nyamata Level II Teaching Hospital

Need to impress, Public-private partnerships PPP) Are (essential) for the prevention and control uptake of adjunct therapies among people living with HIV/AIDS (PLWHAs), at large due to existing limited resources. The private sector, particularly pharmaceutical companies, to promote responsible antimicrobial use. Engaging the private sector in these efforts will help bridge resource gaps, improve the accessibility of veterinary services, and foster a more sustainable approach to managing AMR. Through joint initiatives, public-private collaboration can strengthen the overall effectiveness of AMR interventions and promote healthier communities and ecosystems in Rwanda.

Need for Further Studies Further study in the role of global health in enabling accessible, affordable, and sustainable Adjunct therapies among people living with HIV AIDs

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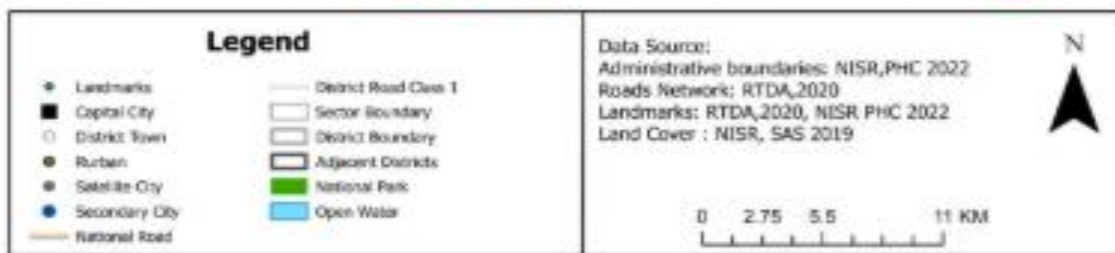
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APPENDIX MAP; DISTRIBUTION BOUNDARIES OF BUGESERA DISTRICT RWANDA

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