



Intersectional Axes of Masculinity and Facility-Level Factors Influencing Viral Load Suppression Among Adolescent Boys on HIV Treatment In Kenya

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Abstract

Access to healthcare among disadvantaged populations is influenced by interacting axes of disadvantages that escalate the inequalities in obtaining such services. Worldwide, adolescents aged 14-19 constituted 69% of HIV-related deaths, with boys on ART making up 68% of such deaths in areas such as Siaya County of Western Kenya in 2020. While intersections of masculinity and other social factors in health systems are the cause of men's low access to IV treatment, a dearth of literature however exist on whether the same is associated with non-suppression of VL among adolescent boys. This research paper sought to investigate how intersectional axes of masculinity and facility-level factors influence VL suppression among adolescent boys on ART in Kenya. This cross-sectional study used questionnaire and Focus Group Discussions to collect data from 263 adolescent boys on ART and healthcare practitioners respectively. The findings showed that the adolescent boys, most of whom are orphans, prioritize engaging in paid labour of different types to fend for their old grandparents over clinic appointments, thereby compromising their VL suppression. Intersections of Masculinity with hospital-level factors is found to have significant but negative influence ($B=-.376$; $p=0.000$) on viral load suppression among the boys. It is concluded that the intersection between masculinity and facility level factors has the potential to cause negative and significant unit changes in VL suppression among the adolescent boys. Gender sensitive interventions should be a major consideration in all healthcare systems to foster VL suppression among the adolescent boys.

Keywords: Adolescent Boys; Facility-level Factors; Intersectionality Theory; Masculinity; VL Suppression.

Introduction

Numerous recent research highlight that social circumstances where each person is born, grows, lives, works and ages influence the distribution of health inequalities, thus representing a major challenge for healthcare systems globally (Moreno-Juste et al, 2023; Opozda et al, 2024; Sabik, 2021; Wemrell, Bennet & Merlo, 2019). Such recent perspectives acknowledge the interwoven nature of social inequalities, and the non-uniform effects that the influencing context may have on populations' health (Moreno-Juste et al, 2024; Pedrós Barnils et al, 2020; Qureshi et al, 2022). Consequently, intersectionality theory, which takes into account such complexity of interacting inequalities and their underpinnings, has been advocated for as an important analytical framework for understanding distribution of health inequalities across different populations (Bowleg, 2012; Embleton et al, 2022; Larson, George, Morgan & Poteat, 2016; Opozda et al, 2024).

Intersectionality theory, founded by Kimberle Crenshaw (Crenshaw, 1989), views failure to access an essential service such as healthcare as the result of compounded systems of oppression working together at multiple levels of society to perpetuate these inequalities upon disadvantaged populations. Age, gender, geographic location and socio-economic circumstances have been documented as key stratifiers that intersect in mutually-constituting ways to produce disadvantages to particular people in health systems (Barasa & Virhia, 2022; McCollum et al, 2019). Such compounded systems of inequalities have been researched among type 2 diabetes (Wemrell et al, 2019), patients with multiple chronic conditions (Moreno-Juste et al, 2024), those with mental illness (Butler, Gott & Robinson, 2025), and persons with disabilities (Gréaux et al, 2023) using intersectionality framework particularly in developed nations. However, how intersectional axes of masculinity interact with such key stratifiers to influence viral load suppression among adolescent boys in high HIV prevalence areas especially in Africa remains understudied.

Masculinity norms, characterized by specific behavior expectations considered as socially appropriate for men, have been perceived as critical obstacles to seeking professional help including healthcare (Kim & Yu, 2023). Levant and Pryor (2020) defines masculinity as a set of thoughts, feelings and actions that are generally considered suitable for men, including behaviour considered inappropriate for men and “banned” as being opposing of masculinity. Such behaviour expectations exist in a hierarchy and range from the dominant ways of being male, such as being a “breadwinner” or “independent”, being tough, non-expression of emotions, and risk taking (Bryde Christensen et al, 2023; Eggenberger et al, 2021). Masculinity issue in healthcare is critical in as far as inequality in access is concerned, with the World Health Organization (WHO, 2021) stating that “health systems that are simply designed for everyone will be held back by being gender blind” (p. 4). According to Thorp et al (2022), men experience disproportionately high rates of morbidity compared to women in HIV and tuberculosis (TB) outcomes: in 2016, men accounted for only 40% of people living with HIV but represented 54% of those who died of AIDS. Recently, a number of studies have discussed masculinity in the healthcare, especially mental health (Dovel et al, 2021; Kim & Yu, 2023; Mokhelepa et al, 2025; Opozda et al, 2024). This notwithstanding, how masculinity factors intersect with other social factors such as demographic variables and facility level factors to influence viral load suppression among adolescent boys is still underexplored.

According to UNAIDS (2022), HIV viral load suppression is the most important indicator of successful antiretroviral therapy in the AIDS treatment continuum. Viral load suppression, attained when a patient’s VL counts falls below the detectable threshold of <1,000 copies/mL of HIV, is noted on improved prognosis evident in reduced rate of disease occurrence and progression as well as mortality (Jared, Oyore & Nyamache, 2024; Waju, Dube, Ahmed & Assefa, 2021). Concerted attention should be directed at VL suppression among adolescent because globally, approximately 150 of this population die daily due to AIDS-related ailments (Bulage et al, 2017; Oryokot et al, 2020). Described as individual aged between 10 and 19 years (WHO, 2017), adolescence is a critical formative stage when harmful gender attitude that shape adult life of people are entrenched, potentially putting them at different risks such as behavioural changes that might interrupt

ART adherence (Dara & Arora, 2023). It would therefore be critical to understand whether and how enactment of masculinity traits has influenced VL suppression among adolescent boys, particularly in high prevalence areas such as Siaya County of Kenya.

Siaya County in Kenya witnessed the highest HIV-related deaths among adolescent boys on ART during 2015 - 2021, probably due non-viral load suppression. The Kenya Population-based HIV impact Assessment (KENAPHIA, 2022), the body responsible for monitoring HIV and AIDS-related cases including VL status among patients, reports that Siaya County was one of the areas with the very high HIV prevalence in the country at 15.3% by end of 2022. This was substantially higher than the national estimate of 4.9% (Awuoche et al, 2024). The statistics (KENAPHIA, 2022) further shows that the gender differences between youths who succumb to HIV and AIDS complications despite being on ART is higher in Siaya in favour of females as compared to other counties with reported high HIV and AIDS prevalence. The report additionally highlights that as at December 2020, under 14 – 19 HIV positive cases were 1641 (Females=846; Males=795) and 248 HIV related deaths. The purpose of this study was therefore to analyse how intersectional axes of masculinity, demographic and facility-level factors influence VL suppression among adolescent boys on ART in Kenya. Specific question was that:

How does masculinity axes intersect with demographic and facility level factors to influence VL suppression among adolescent boys on ART in Siaya County of Kenya?

Theoretical Framework

This study was guided by intersectionality theory founded by Black feminist legal scholar Kimberlé Williams Crenshaw in 1989 (Crenshaw, 1989). Intersectionality recognises that people's lives are shaped by their identities, relationships and social factors (Griffith, 2012). These combine to create intersecting forms of privilege and oppression depending on a person's context and existing power structures such as patriarchy, ableism, political leadership, nepotism, discrimination and tribalism, among others (Atewologun, 2018). Key tenets of intersectionality recognized by various scholars include constructed identities, relationships, and context-based social factors (Barasa & Virhia, 2022; Else-Quest & Hyde, 2016; Kong, 2023; McCollum et al, 2019).

Constructed identities recognises that people are characterized simultaneously by their membership in multiple social categories (e.g., gender, ethnicity, religion, sexual orientation, able-bodiedness, etc.) and by awareness that these categories are intertwined such that the experience of one social category is linked to their membership of other categories (Mezzadra, 2021). For relationships, a dynamic related to power and power interrelations is embedded within each socially constructed category or identity, shaping people and the social norms through which their lives are governed within households and communities (Bohren et al, 2024). The social factor tenet of intersectionality view constructed identities as having individual and contextual facets to them: that is, social categories are intrinsically linked to wider geographical, institutional processes/practices and structural systems (Atewologun, 2019). According to Else-Quest and Hyde (2016), multiple social categories intersect and are constructed by and within power relations and groups to transcend the constraints imposed upon them by those categories and linked inequities.

Intersectionality has emerged more recently in quantitative

research across disciplines, including epidemiology and public health (Bauer et al, 2021; Gross & Goldan, 2023). The theory as also appeared as a theoretical framework for understanding complex and social axes causing inequities in public health care provision (Bowleg, 2012; Larson et al, 2016; Embleton et al, 2022). McCollum et al. (2019) argue that age, gender, geographic location and socio-economic circumstances are key stratifiers, intersecting in mutually-constituting ways to produce vulnerability in health. For instance, geographic location influences people's exposure to environmental risk, access to infrastructural services (roads, clinic services), and political exclusion (Barasa & Virhia, 2022; McCollum et al, 2019). Similarly, construction of identities such as race, ethnicity, and other traits that have significant social, political, economic, and cultural significance influence men's lives and health (Griffith, 2012; Mezzadra, 2021). Structured views of masculine identity such as being male and endorsement of gender roles, heterosexual behavior, such as having multiple sexual partners, and the acceptability of different interventions based on constructed cultural orientations often overlap (Exner-Cortens, Wright, Claussen & Truscott, 2021). However, how such overlap or intersections influence drug adherence and VL test uptake among men and adolescent boys in particular, must be taken into account when discussing men's health. Similarly, it is important to highlight how socio-economic factors such as age, distance to the health facility, stigma and mode of service delivery as well as family income level moderates the relationships between masculinity factors and viral load suppression among adolescent boys.

Methods and Materials

Research Design

The study used cross-sectional survey design with mixed-methods involving collection and analyses of both quantitative and qualitative data. This design enabled the researchers to use quantitative approach to measure particular aspects of the phenomenon under study and qualitative methods for others. This had the advantage of providing complementarity in data collection, analysis and interpretation.

Study Setting

Table 1: Distribution of Sample Size

Sub County	Population	Sample Size	Percent
Alego -Usonga	118	40	15
Bondo	188	63	23.8
Gem	92	31	11.7
Rarieda	227	76	28.7
Ugenya	92	31	11.7
Ugunja	78	27	10.1
Total	795	265	100

Instrumentation, Validity and Reliability

Structured questionnaire as well as in-depth interviews and Focused Group Discussions (FGDs) guide were used to collect data from the sampled adolescent boys. In addition, interview schedule as well as FGD guide was also used for gathering information from care-givers, being comprehensive care-in charge (CCC) and Public Benefit Organizations (PBO) officials, as well as government officials in charge of HIV and AIDS treatment in the County: the

Six medical facilities in Western Kenya—Ambira, Bondo, Yala, Madiany, Ukwala, Got-Agulu, and Siaya County—were used for the study. This region is inhabited by an ethnic minority whose cultural customs, like wife inheritance and disco Matanga (nighttime music parties at funerals), are often seen as harmful to health in light of the HIV and AIDS pandemic (Oluoch & Wesonga, 2013; Perry et al, 2014). According to Kayongo-Male and Onyango (1984), adolescents are required by the community's cultural norm to sleep at a residence apart from their parents, either inside or outside the immediate family homestead. Most people believe that this puts teenagers at risk for HIV and AIDS (Juma et al., 2014). The culture also socialises the adolescent boys to be tough, strong, and not to fear challenging situations such as venturing unknown places even at night (Ocholla-Ayayo, 1976).

Study population and sampling strategy

Target population comprised of 795 adolescent boys with high viral load aged 14 – 19 years, alongside seven comprehensive care-in-charge (CCC), the County AIDS/HIV and STI Coordinator (CASCO), 6 Sub County AIDS Coordinators (SCACOs), and fourteen Public Benefit Organizations (PBO) officials. To obtain the sample size of adolescent boys, this study adopted Yamane's (1967) formula as:

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

Where:

n = the sample size,

N = the population size, and

e is the level of precision (0.05).

The calculated sample size for adolescent boys with high viral load on ART was 265. Using stratified proportional technique, the adolescent boys were distributed in each of the six sub-counties based on each administrative unit's population (of the adolescent boys under ART) as illustrated in Table 1. Similarly, the study purposively selected healthcare practitioners and government officials for interviews and Focus Group Discussions until saturation was attained.

County AIDS/HIV and STI Coordinator (CASCO), Sub County AIDS Coordinators (SCACOs).

Content validity index (CVI) was utilised to check the validity of the study instruments. In this regard, ratings of four experts based on item relevance were used to measure constructs of the study variables. The ratings adopted a 4-point ordinal scale of 1 – 4 for not relevant to highly relevant using the formula of Item Content Validity Index (I-CVI) stipulated by Davis (1992):

$I-CVI = (\text{agreed item}) / (\text{number of expert})$

The calculated rating of the four experts generated a CVI of 0.88. This was considered to be highly relevant by the researchers.

Similarly, data was collected from a pilot study involving randomly selected 79 adolescent boys on ART who were thereafter excluded from the main study to check reliability of the study instrument. With the aid of Statistical Package for the Social Sciences (SPSS) version 21 tool, Split-half method was used to calculate correlation coefficients of 0.87, 0.83 and 0.84 for demographic factors, masculinity factors, and facility-related factors respectively. The instrument was therefore considered as reliable in collecting the required data since the reliability coefficient surpassed the threshold of 0.70 (Nunnally, 1978).

Data Analysis and Presentation

Data obtained using questionnaire was analyzed via descriptive and inferential statistics with the aid of SPSS version 25. Descriptive statistics enabled generation of frequencies and percentages which was essential for interpretation of quantitative results. On the other hand, regression analysis was used to analyse the intersectional axes of demographic, masculinity, and facility-level factors influencing viral load suppression. Similarly, thematic analysis

was used to analyze qualitative data obtained from open ended questions in the questionnaire, interviews and Focus Group Discussions.

Ethical Considerations

For ethical reasons, the researchers sought approval to perform the field study from Maseno University Scientific and Ethics Review Committee (MUSERC) and the National Commission for Science, Technology and Innovation (NACOSTI). The teenage boys under the age of eighteen created and signed an assent form, and their parents or guardians signed consent forms. Participants were asked not to remove their identities from the research equipment in order to maintain anonymity.

Results

Demographic Characteristics of the respondents

Out of the anticipated 265 questionnaires from the sampled teenage boys, the researchers were able to process 263 that were fully completed. Of these, 23.1% of the boys were 14 years old, 18.9% were 15, 18.6% were 16, and 14.4% were 17. The remaining 25% were in the 18–19 age range. The sampled teenage boys' demographic data is shown in Table 1.

Table 1: Demographic Information of Respondents

Demographic Characteristics	Frequency	Percent
Age	14 - 15	111
	16 - 17	87
	18 - 19	65
	Total	263
Mode of HIV Infection	Perinatally Infected Adolescent	227
	Behaviourally Infected Adolescent	11
	Don't Know	25
	Total	263
How long on ART	For the last 3 months	1
	Last 1 year	32
	More than 1 year	230
	Total	263
Parents present	Both parents	122
	One parent (mother)	69
	One parent (father)	24
	Total orphan	48
	Total	263
Whom do you live with	Both parents	112
	One parent (Mother)	70
	One parent (Father)	17
	Grand Mother	40
	Others	24
	Total	324

Results presented in Table 1 illustrate that of the boys who participated in the study, most (42.2%; n=111) were 14-15 years old while 33% (n=87) were 16-17 years old. In a similar vein, the socio-demographic data results show that 86.3% and 87.5% (n=230) of them had been taking ART for longer than a year. The majority of the sampled teenage boys, 53.6% (n=141), had lost one or both parents, according to other findings. Of these, 18.3% (n=48) have lost both parents, and only 9.1% (n=24) have fathers; 26.2% (n=69) have lost their fathers and are only living with their mothers. The Table also demonstrates that majority (57.4%; n=151) of the adolescent males do not live with both parents,

having lost either the mother or the father. Of them, 15.2% (n=40) reside with their grandmothers and 26.6% (n=70) with their moms. The dominance or presence of women in the lives of the sampled young adolescents was also highlighted in an FGD done with selected boys, where a 15-year-old boy said:

It was my mother who told me my status. She told me that I had the illness from birth and that I would quickly recover if I took these medications consistently. My mother and grandmother often encourage me to be fearless and remain strong as a man (15-year-old boy FGD discussant).

The 15-year-old kid's comment illustrates the emotional

commitment that mothers and grandmothers have to a relevant family issue: the presence of a sick child (an HIV-positive boy) who needs vital assistance in obtaining medical care.

Masculinity Factors

To establish the masculinity axes socialized by the society and

Table 2: Masculinity Behaviour expectations

Behaviour Expectation	N	Yes (%)	No (%)	Mean
Being told to be tough	263	208 (79.1)	55 (20.9)	1.21
Being told to be fearless	263	206 (78.3)	57 (21.7)	1.22
Being told to avoid expressing pain or emotions	263	154 (58.6)	109 (41.4)	1.41
Being told to be others (e.g. rough, strong, etc.)	263	61 (23.2)	202 (76.8)	1.77

Table 2 shows that adolescent men are frequently taught to adopt rough and bold behaviors. Similarly, the boys are also being encouraged to avoid expressing pain or emotions. Additional investigation using an open-ended questionnaire showed that the majority of the teenage boys were close to the following people on a daily basis:

My mother, father, grandma, uncle, caregiver, and the person giving me ARVs

Adolescent boys, as illustrated by results from open-ended

Table 3: Facility-Related Factors

ratified by the adolescent boys, the study enquired from the respondents whether they have ever been called upon to behave in certain ways to be viewed as real men in the society. Table 2 summarizes the computed results.

questions, often receive masculinity messages from their families, particularly from their mothers and grandmothers.

Facility-Related Factors

The facility-related factors assesses concerned the process through which healthcare services are delivered at different hospitals. These include the boys' encounters with other patients at the facility who are also seeking medical attention, as well as the queuing procedures. Table 3 shows the effects of facility-related characteristics on adolescent males' healthcare seeking.

Perceptions of Masculine Identity	Yes	No	N	M	SD
Long queuing at the facility makes me skip honoring appointments	72.6	16.8	10.6	3.93	1.142
Queuing with women and small children at the facility makes me skip Drug/VL test appointments	76.5	16.8	6.8	3.85	1.115
Queuing with younger boys at the facility makes me skip honoring appointments	52.5	41.4	6.1	2.95	1.584
Queuing at the facility with older men makes me skip makes me skip honoring appointments	51.7	36.9	11.4	3.13	1.413
The discomfort I get from being served by female nurses at the facility makes me skip honoring appointments	52.9	33.4	13.7	3.20	1.230
The discomfort I get from being served by male nurses at the facility makes me skip Drug/VL test honoring appointments	25.4	42.3	32.3	2.72	1.304
Being seen picking drugs from facility closer to my home makes me skip honoring appointments	84.3	7.3	8.4	4.19	.957
Overall Mean Facility-related Factors				3.42	1.249

According to Table 3's Likert scale assessment, the adolescent boys in the sample did not agree or disagree that the facility-related factor (M=3.42; SD=1.249) had an impact on their VL suppression. According to the table, 72.6% of the sampled boys believe that waiting in line for medical services at the facility causes them to miss appointments (M=3.93; SD=1.142), and 76.5% believe that waiting in line with women and young children at the facility causes them to miss several drug/VL test appointments (M=3.85; SD=1.115). Furthermore, 84.3% of them report that they

occasionally miss drug/VL test sessions due to the distress they have when they witness their village neighbors obtaining drugs from a facility nearer to their homes (M=4.19; SD=.957).

Several methods for getting past perceived facility-related obstacles were discussed during focus group discussions (FGD) with a subset of teenage boys. One 16-year-old FGD participant said that:

The presence of women and young girls on the queue makes lining up to seek medication a big challenge. For instance, you might be

afraid to seek help until they are all gone if you get to the facility early in order to leave in time to take care of things at home. Most of us resort to play football at open grounds in the facility until the queue is reduced and faces whom we can identify have all disappeared, that is when we line up to access our medications (a 16 year-old FGD participant).

From the verbatim quote of the 16 year-old FGD participant, the boys have developed various perseverance measures to overcome stigma related to their status being exposed due to participating in long queues at the facility.

During an interview with one comprehensive care-in-charge (CCC) from a facility within the study area, a statement pertinent to the 16-year-old boy's feelings was collected. The CCC clarified that:

Loss to follow-up is one of the main issues we have been dealing with when it comes to providing healthcare to many teenage males in the neighborhood. Many of them are started on

Table 4: Degree of Viral Load Suppression

Viral Load Suppression Level	N	Yes	No	N/A	M	SD
VL sensitization and awareness					2.78	1.176
I often get educated/sensitized on VL issues by caregivers	263	73.4	16.7	9.9	3.83	1.163
I frequently get my VL counts tested and measured	263	27.4	50.5	22.1	2.54	1.262
I understand the importance of knowing my VL counts	263	31.6	52.9	15.6	2.59	1.277
I am always ready to honour appointments for VL testing	263	7.6	67.3	25.1	2.16	1.000
Level of VL Suppression					2.60	.891
I have never suffered from any other opportunistic diseases since my initiation to ART	263	5.7	83.3	11	1.76	.929
My VL count has improved since ART initiation	263	7.2	41	51.8	2.55	.840
I am satisfied with the support I receive from care-givers concerning my HIV treatment	263	42.2	9.1	48.7	3.37	.828
I am satisfied by the current VL testing process	263	9.2	35.7	51.1	2.39	.969
Overall Mean	263				2.69	1.034

The adolescent boys did not agree or disagree that they had achieved VL suppression, as shown by the data in Table 2 (M=2.69; SD=1.034). They disputed that they are pleased with the existing VL testing procedure (M=2.39; SD=.969), even though they specifically agreed (73.4%) that they frequently receive instruction or sensitization on VL issues from caregivers (M=3.83; SD=1.066). Additionally, they disagreed that they are always prepared to keep VL test appointments (67.3%; M=2.16; SD=1.00). The results indicate that most of the teenage boys in the sample do not always show up for their scheduled VL tests since the testing procedures implemented by the healthcare facility do not work in their favor. This is true even though VL monitoring is crucial for identifying those who are not virologically suppressed. Qualitative data from IDIs with a portion of the boys supported this conclusion, with a 16-year-old boy saying:

VL testing appointments are sometimes difficult to honour. The institution has lengthy lines, and standing in line can take an entire day. You are offered another appointment to come for your results after the test. Along with youngsters and young girls, this will also entail standing in line with elderly men and women. Simultaneously, my buddies would occasionally ask me to go on a *ywayosut* (fishing trip) or *mjengo* (manual labor at a building site). In order to perform some manual labor, which is frequently essential for subsidizing family food supplies,

ART, and after attending four to six drug and VL testing sessions, they vanish after repeatedly interacting with acquaintances in line. In the process of being disoriented and shifting from one facility to the other, they barely take medication seriously (CCC Interviewee).

The 16-year-old FGD participant's feelings and the CCC interview raise two concerns. First, the teenage boys in this study avoid standing in line at the facilities because of concern that they will be perceived as ill.

Degree of Viral Load Suppression

The dependent variable, the degree of viral load suppression among the sampled adolescent boys on ART, was then analyzed. To determine the degree of viral load suppression, the adolescent boys were asked questions about aspects of HIV and AIDS treatment that are intended to achieve VL suppression; the summarized answers regarding the degree of VL suppression are shown in Table 4.

I would forego some of these VL testing appointments (a 16-year-old IDI Interviewee).

This IDI highlights patient-related and facility-level social factors as major obstacles to VL testing uptake among ART-treated adolescent boys. Even if the boys are ill and orphans, they are expected to fulfill the gender duties of finding food and supporting their families, but they also have to wait in long lines at the medical facilities.

Table 4 further shows that just 31.6% of the teenage boys recognized the significance of knowing their VL numbers, whereas 52.9% of them did not. Similarly, 15.6% of the boys said they only partially understood the significance of knowing their VL counts, neither agreeing nor disagreeing. The migration of teenage boys to other fishing beaches after form four for fishing expeditions was one of the reasons given for the low awareness of the significance of knowing VL counts. Boys still do not consider VL testing to be important because they are either naive or believe it to be less important in their lives. The majority of teenage boys who have been started on ART rarely show up for their prescription appointments, according to discussions with several government officials in the study area. Rather, they participate in a variety of revenue-generating enterprises, particularly on the county's fish landing beaches. A male Sub County AIDS Coordinator (SCACO) said:

Most adolescent boys often get lost from treatment cascades. Most of them barely show up for VL testing visits, and often fail to pick up their medications from the clinics. After passing the KCPE exam in class 8, the majority of the boys would begin going on fishing trips. These youngsters are motivated to engage in income-generating activities because poverty is pervasive in their homes. Most of these boys have lost their parents and live with their grandparents who are old and poor. Conversely, the community expects the sons to look after the elderly grandparents. Accordingly, such circumstances jeopardize the

Table 5: Regression Analysis

Mode	R	R Square	Adjusted R Square	Std Error of the Estimate	R Square Change	Change Statistics			
						F Change	df 1	df 2	Sig F Change
1	.521 ^a	.272	.263	.538	.272	32.220	3	259	.000

a. Predictors: (Constant), demographic factors, masculinity factors, facility-related factors

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	3.170	.286			11.075	.000
	Intersectional axes of masculinity, demographic, and facility-related factors	-.376	.044	-.452		-8.449	.000

a. Dependent Variable: VL suppression

a. Predictors: (Constant), demographic factors, masculinity factors, facility-related factors

If intersectional axes are kept constant, Table 4 shows that there is a constant 3.170 units of viral suppression. But when we include our independent variable (intersectional axes), this is no longer the case. With a p value of .000, each intersecting component causes a decrease in VL suppression of -.376. This suggests that intersectional axes significantly alter viral load suppression in a negative way; that is, the more intersectional axes there are, the lower or worse the VL suppression.

With an R^2 of .272, it can be concluded that intersectional axes or factors under investigation are responsible for the 27.2% change in VL suppression among teenage boys on ART in Siaya County. Other factors beyond the scope of this study may be responsible for the remaining 72.8% of the change in VL suppression among the teenage boys on ART.

Discussion

Findings on demographics of the adolescent boys illustrate that majority of them are orphans, most of them having lost their fathers and are living either with their mothers or grandmothers. This outcome illustrates the emotional commitment that mothers and grandmothers have to a relevant family issue, unlike their male counterparts. Women's role as care-givers to children as underscored by masculinity constructions is henceforth illustrated in this finding, as have been highlighted by gender protagonists (Kim & Yu, 2023; Levant & Pryor, 2020; Robb, 2020). Additionally, it is worth noting that most of the boys have lost their fathers and are remaining with their mothers, further demonstrating the disproportionately high rates of morbidity compared to women in HIV outcomes as previously revealed by Thorp et al (2022). Results further indicate that majority of adolescent boys who took part in this research have not attained VL suppression 12 months

boys' health and education because they will be less likely to attend school and stick to their medication regimens (male Sub County AIDS Coordinator [SCACO]),

Influence of intersectional axes of demographic, masculinity, and facility-level factors on viral load suppression

The association between intersectional axes (demographic factors, masculinity factors, and facility-based factors) and viral load suppression among the sample's teenage boys was ascertained by the researcher using regression analysis. The regression analysis is shown in Table 5.

after initiating ART. Indeed, socio-economic conditions associated with living under the care of a widow is one of the social circumstances that influence the distribution of health inequalities and chronicity, a view strongly supported by Moreno-Juste et al (2024). Health outcomes of adolescent boys under the current study should therefore be analysed in terms of intersections of their socio-demographic variables and treatment efforts.

The current study also reveals that adolescent boys are frequently taught to adopt rough and bold behaviors, and to avoid expressing pain or emotions. These orientations are performed by persons closest to the adolescent boys, such as mothers, fathers, grandmothers, caregivers, and uncles. Indeed, a number of renowned scholars in the Luo community (the context where the current research was done) have articulated how adolescent boys (and girls) were socialized to follow specific behaviour so as to be seen as future men (Juma et al., 2014; Kayongo-Male & Onyango, 1984; Ocholla-Ayayo, 1976). In the healthcare landscape, traditional masculinity has been noted to inform the interpretative repertoires that male patients apply to describe their preconceptions of treatment (Bryde Christensen et al, 2023). Being orphans and leaving wit mothers or grandmothers whose income is probably very low, adolescent boys on ART under the current study appear to be exposed to intersecting disadvantages worsened by masculinity socialization.

The study's findings also show that the teenage boys don't want to be seen standing in line with ladies and kids at the medical facility. This issue even played a role in their drug and VL test session absconding. Adolescent boys who are stigmatized by HIV appear to avoid standing in lines with people they know, and ideas of masculinity prohibit showing signs of weakness by lining up with women and children for medical care. A number of factors therefore seem to intersect and act like barriers to medication for

the sampled adolescent boys. These boys appear to experience certain dangers that intersectionality theorists have identified as significant variables influencing equality in healthcare access, in addition to the social reality of being young and orphaned (Jackson-Best & Edwards, 2018; Mburu et al, 2014). The findings of this study are in line with previous research (Van Wyk & Davids, 2019), which found that long wait times and lineups are significant barriers to teens' adherence to ART in the Cape Metropole, South Africa. One of the main obstacles to ART adherence and, consequently, VL suppression is lengthy wait times in public facilities where the teenage boys in the study area are offered medical visits.

Because they are afraid of being seen as sick, the teenage boys in this study avoid waiting in line at the facilities. Because illness is associated with weakness and fragility (Courtenay, 2003), the teenage boys in this study feel stigmatized because they can't attain the ideal masculine traits of toughness and power by standing in line for medication. This result is in line with a previous study carried out in Western Kenya by Ochieng-Ooko et al. (2010), which also demonstrated that stigma associated with inadvertently disclosing HIV positive status is a significant determinant of loss to follow up among men in a study that looked at the impact of gender on the same (loss to follow up). According to some earlier studies (see Amin et al., 2018; Kågesten et al., 2016), teenage boys are also trained to uphold emotional stoicism-related masculine norms, like not acting like girls or showing vulnerabilities.

The results also indicate that most of the teenage boys in the sample do not always show up for their scheduled VL tests since the testing procedures implemented by the healthcare facility do not work in their favor. Instead, they prefer attending to income generating activities such as *ywayo sut* (fishing expeditions) or *mjengo* (manual labor) that bring food to the family. This is mainly due to intersectional axes of various disadvantages facing the boys (Vohra-Gupta et al, 2023). While the boys are ill and orphaned, they are expected to fulfill the gender duties of finding food and supporting their families, but they also have to wait in long lines at the medical facilities. These lads appear to have accepted the responsibility of providing for their families financially, but they are also required to keep their doctor's appointments. These boys bear several social identities at the same time, which interact with the disadvantages associated with male adolescence that permeate health systems, particularly in underdeveloped nations like Kenya (Larson et al., 2016).

According to this study, teenage boys' adoption of VL testing is hampered by a number of identities, including being young and inexperienced, having HIV, which is stigmatized in society, having to support the construction of a true "man" by supporting their families, and having to wait in long lines at the medical facility. As a result, intersectionality theory should be applied to analyze the circumstances surrounding these teenage boys' access to VL testing (Embleton et al., 2022). In reality, prior research conducted in Kenya has shown that adolescents' use of VL findings is still inadequate when compared to other populations (see Dougherty et al, 2022). Another study conducted in the same area by Adino (2020) also highlighted how Siaya County's ongoing poverty prevents patients from successfully accessing a variety of HIV and AIDS treatment cascades.

Conclusion

It is concluded that mothers and grandmothers of adolescent boys

on ART in the study area illustrate immense emotional commitment to them in the wake of their ailment, unlike their male counterparts. This displays women's role as care-givers to children as underscored by masculinity constructions. Additionally, it is concluded that most of the boys have lost their fathers and are remaining with their mothers, further demonstrating the disproportionately high rates of morbidity compared to women in HIV outcomes. The study also concludes that majority of adolescent boys who took part in this research have not attained VL suppression 12 months after initiating ART, due to multiple socio-economic factors simultaneously facing them.

The study additionally conclude that rather than attending to medical appointments, most adolescent boys under the current study prefer attending to income generating activities such as *ywayo sut* (fishing expeditions) or *mjengo* (manual labor) that bring food to the family. It is further concluded that the boys are faced with multiple intersecting axes of disadvantages: the boys are ill and orphaned, they are expected to fulfill the gender duties of finding food and supporting their families, but they also have to wait in long lines at the medical facilities.

Recommendations

- i. The study recommends that caregivers including mothers and grandmothers should shift from passing masculinity that put adolescent boys under unnecessary pressure to be men, and adopt a balanced socialization so as to improve medical-seeking behaviour among this cohort.
- ii. The study further recommends that design of healthcare systems should consider social determinants of access to treatment for adolescent boys, rather than infrastructural design alone.
- iii. It is additionally recommended that there should be a cultural change from masculinity socialization that places heavy responsibilities such as breadwinner roles on boys.

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