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Factors Contributing to Domestic Violence Among HIV-Discordant Couples in Kicukiro District, Rwanda

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Abstract

Background

Domestic violence among HIV discordant couples poses significant public health challenges, affecting treatment adherence and HIV transmission risks. This study examined factors contributing to domestic violence among HIV discordant couples in Kicukiro District, Rwanda.

Methods

A cross-sectional study was conducted among 384 HIV discordant couples from eleven health centers using stratified systematic sampling. Data were collected through structured face-to-face interviews and analyzed using descriptive statistics and bivariate analysis.

Results

Domestic violence prevalence was 41.1% physical violence, 34.2% sexual coercion, and 52.3% emotional abuse. Key socio-demographic risk factors included female gender (56% vs. 29% males, $p<0.001$), older age (61% in ≥55 years vs. 32% in 18-24 years, $p=0.004$), unemployment (55% vs. 34% formal employment, $p=0.014$), and financial hardship (63% vs. 25% comfortable situations, $p=0.002$). Behavioral factors included alcohol use (58% vs. 38%, $p=0.021$), substance abuse (62% vs. 35%, $p<0.001$), and poor conflict resolution (72% vs. 25%, $p<0.001$). Contextual factors like hostile HIV disclosure reactions (68% vs. 34%, $p<0.001$) and HIV-related stigma (60% vs. 35%, $p<0.001$) significantly increased violence risk.

Conclusions

Domestic violence among HIV discordant couples is multifactorial, driven by socio-economic, behavioral, and HIV-related factors. Integrated interventions addressing economic empowerment, conflict resolution skills, stigma reduction, and couple-centered counseling are urgently needed.

Introduction

Domestic violence is a pervasive global public health and social challenge, profoundly affecting the well-being of millions, especially women [1,2].

According to the World Health Organization, nearly one in three women worldwide experiences domestic violence, with significant variations driven by economic, cultural, and social contexts [3]. In this study, domestic violence refers specifically to physical, sexual, psychological, and economic abuse occurring between intimate partners in marital or cohabiting relationships, significantly impacting physical and mental health, social stability, and economic productivity.

Domestic violence is particularly problematic in relationships affected by HIV, notably among serodiscordant couples' partnerships [4], where one partner is HIV-positive and the other is HIV-negative. In such relationships, domestic violence risk is heightened by stigma, fear, mistrust, and economic pressures associated with HIV status disclosure and disease management [5]. Domestic violence in these contexts not only harms individual well-being but also undermines adherence to antiretroviral therapy (ART) and increases HIV transmission risks [6,7].

While domestic violence among HIV-discordant couples is a concern globally, its prevalence and severity are more pronounced in low- and middle-income countries due to limited resources, pervasive HIV stigma, and socioeconomic hardships[8]. In sub-Saharan Africa, approximately 40% of women living with HIV experience domestic violence, often exacerbated by entrenched gender inequalities, economic vulnerability, and inadequate healthcare infrastructure [3,7,9]. For instance, studies from Uganda and Kenya indicate domestic violence prevalence rates between 35-45% among HIV-discordant couples, highlighting how traditional gender roles, economic pressures, and stigma significantly influence domestic violence occurrence[4,5].

In Rwanda, significant strides have been made in addressing both HIV and domestic violence, yet challenges remain substantial, particularly among HIV-discordant couples. Nationally, approximately 12% of couples are HIV-discordant, with about 35% reporting experiences of domestic violence[10,11]. Contributing factors in Rwanda include persistent HIV stigma, gender inequality, and economic hardship, especially in rural settings[10,12]. Although national and community-level interventions have been implemented to address domestic violence and HIV stigma, targeted approaches addressing the specific vulnerabilities of HIV-discordant couples remain limited [13].

In Kicukiro District, Kigali City, approximately 6.5% of couples are HIV-discordant, with around 37% reporting domestic violence experiences [14]. Stigma surrounding HIV, coupled with financial difficulties, insufficient support systems, and traditional gender norms, exacerbates vulnerability to domestic violence in this district[15,16]. The consequences of domestic violence are profound, adversely affecting family dynamics, HIV treatment adherence, mental health, and overall quality of life. While local initiatives such as counselling, stigma reduction programs, and economic empowerment are operational, there remains a critical need to understand the determinants of domestic violence specifically among HIV-discordant couples in this setting.

Thus, this study aims to bridge this knowledge gap by assessing the prevalence of domestic violence and identifying the socio-economic, behavioural, and contextual factors contributing to domestic violence among HIV-discordant couples in Kicukiro District. The findings of this research are expected to inform targeted interventions, policy formulation, and integrated support services, ultimately improving health outcomes and enhancing the resilience of affected populations.

Methods

Study design and setting

We performed a facility-based cross-sectional study in Kicukiro District, Kigali, Rwanda, from February to April 2025. Eleven health centers providing HIV care were included.

Participants and sampling

The target population was HIV-discordant married or cohabiting couples (one partner HIV-positive, the other HIV-negative) enrolled in care at these centers. Based on district surveillance data, we estimated ~2,344 discordant couples in Kicukiro. Using Fisher's formula (assuming 50% violence prevalence, 95% confidence, 5% margin of error), the required sample was 384 couples.

Stratified systematic sampling was employed across eleven health centers providing HIV care in Kicukiro District. The sample was proportionally allocated based on the number of discordant couples registered at each facility. Eligible participants were HIV discordant couples (one HIV-positive, one HIV-negative partner) who were married or cohabiting and provided informed consent.

Data collection

Trained interviewers administered a pre-tested structured questionnaire during face-to-face interviews with the HIV-positive partner (ensuring privacy). The questionnaire collected information on socio-demographic factors, relationship characteristics, and experiences of domestic violence in the past year (physical, sexual, and emotional). Emotional abuse was assessed by questions on insults, humiliation, and controlling behaviors. We also asked about behavioral factors (alcohol/substance use, jealousy, conflict resolution style) and contextual factors (reaction to HIV disclosure, perceived stigma, social support, access to care). Data collection took place in a private room at each facility.

Variables and definitions

The primary outcome was any domestic violence, categorized by type (physical, sexual, emotional). Key exposures included gender, age, education, employment, financial status, substance use, and contextual variables as above.

Data analysis and ethical approval

Data analysis was performed using Stata version 19.5 (StataCorp LLC, College Station, Texas, USA). The following analytical approaches were adopted:

Descriptive Analysis

Participant characteristics, including socio-demographic (age, gender, education level, employment status), economic factors (household income, financial difficulty), behavioral factors (alcohol and substance use), and contextual factors (reaction to HIV disclosure, stigma, social support), were summarized using frequencies, percentages, means, and standard deviations where appropriate. The prevalence of domestic violence was presented separately for physical, sexual, and emotional abuse, using percentages with 95% confidence intervals (CIs).

Bivariate Analysis

Chi-square tests were utilized to identify statistically significant associations between domestic violence types (physical, sexual, emotional) and each independent variable. Variables considered potentially significant were those with a p-value less than 0.05. These variables were retained for further analysis in the multivariate regression model to control for potential confounding factors.

Ethics

Ethical approval was obtained from Mount Kigali University Ethics Committee and Kigali City authorities. Written informed consent was secured from all participants, with emphasis on confidentiality and voluntary participation. Referral mechanisms were established for participants requiring support services.

Results

Participant Characteristics

A total of 384 HIV discordant couples participated in the study (Table 1). The sample included 197 females (51.3%) and 187 males (48.7%). The largest age group was 35-44 years (34.4%), followed by 25-34 years (31.8%). Most participants had completed secondary education (41.9%) or primary education (32.3%), while 9.9% had no formal education. Nearly half (47.4%) were in informal employment, while 27.6% were unemployed and 25.0% in formal employment. Regarding financial status, 43.2% described their situation as somewhat difficult, and 23.2% as very difficult. Most participants (71.9%) were formally married, while 28.1% were cohabiting.

Table 1. Socio-demographic characteristics of HIV-discordant couples (N=384)

Variable	Category	Frequency (n)	%
Age Group	18 – 24 years	45	11.7
	25 – 34 years	122	31.8
	35 – 44 years	132	34.4
	45 – 54 years	60	15.6
	55 years and above	25	6.5
Gender	Male	187	48.7
	Female	197	51.3
Education Level	No formal education	38	9.9
	Primary school	124	32.3
	Secondary school	161	41.9
	Higher education	61	15.9
Employment Status	Unemployed	106	27.6
	Informal employment	182	47.4
	Formal employment	96	25.0
Household Financial Situation	Very difficult	89	23.2
	Somewhat difficult	166	43.2
	Comfortable	98	25.5
	Very comfortable	31	8.1
Primary Provider of Income	You	117	30.5
	Your partner	93	24.2
	Both equally	152	39.6
	Other	22	5.7
Access to Own Money	Yes, freely	144	37.5
	Yes, with restrictions	108	28.1
	No	132	34.4
Marital Status	Married	276	71.9
	Cohabiting/Partner	108	28.1

Prevalence of Domestic Violence

The study revealed a high prevalence of domestic violence among HIV discordant couples (Table 2). Overall, 42.7% of participants (164 out of 384) experienced domestic violence in the past year. When examining specific types of violence, physical violence was reported by 41.1% of participants (158 individuals: 13.5% experienced it often, 27.6% sometimes), sexual coercion by 34.1% (131 participants: 8.9% experienced it often, 25.3% sometimes), and emotional abuse by 52.3% (201 participants: 20.3% experienced it often, 32.0% sometimes). Additionally, 36.2% reported that their partner controlled their social interactions, and 34.9% reported partner control over mobile phone or internet use.

Regarding frequency patterns, 11.5% experienced violence frequently, 27.6% occasionally, 23.2% rarely, and 37.8% never experienced violence in the past year. The study also revealed that 42.4% had experienced partner violence in previous relationships, and 35.7% witnessed violence during childhood. Most participants (58.1%) reported having access to social support networks.

Table 2. Domestic Violence Experience

Variable	Category	Frequency (n)	%
Distribution of Respondents by Experience of Domestic Violence			
Physically harmed by partner	Yes, often	52	13.5
	Yes, sometimes	106	27.6
	No	226	58.9
Forced into unwanted sexual acts	Yes, often	34	8.9
	Yes, sometimes	97	25.3
	No	253	65.9
Insulted or humiliated by partner	Yes, often	78	20.3
	Yes, sometimes	123	32.0
	No	183	47.7
Partner controls social interactions	Yes	139	36.2
	No	245	63.8
Frequency of violence in the past year	Frequently	44	11.5
	Occasionally	106	27.6
	Rarely	89	23.2
	Never	145	37.8
Distribution of Respondents by History of Violence and Support Systems			
Experienced partner violence before	Yes	163	42.4%
	No	221	57.6%
Witnessed violence during childhood	Yes	137	35.7%
	No	247	64.3%
Has a support/social network	Yes	223	58.1%
	No	161	41.9%

Behavioral Characteristics and Contextual Factors

Table 3 presents the behavioral characteristics and contextual factors among study participants. Regarding alcohol consumption, 49.5% never consumed alcohol, 37.0% consumed occasionally, and 13.5% frequently. Substance use other than alcohol was reported by 16.7% of participants. For conflict resolution methods, 37.2% discussed issues calmly, 44.0% used shouting or arguing, and 18.8% resorted to physical confrontation. Decision-making in households was shared equally by 49.0% of couples, while 27.3% reported that their partner made most decisions and 23.7% made decisions themselves. Partner jealousy or accusations were experienced by 45.3% of participants, and 38.0% reported that

Table 3. Behavioral Characteristics, Contextual Factors and HIV Status

Variable	Category	Frequency (n)	%
Behavioral Characteristics			
Alcohol Consumption	Never	190	49.5
	Occasionally	142	37.0
	Frequently	52	13.5
Use of Other Substances	Yes	64	16.7
	No	320	83.3
Conflict Resolution Method	Discuss calmly	143	37.2
	Shouting/Arguing	169	44.0
	Physical confrontation	72	18.8
Decision-Making in Household	You	91	23.7
	Your partner	105	27.3
	Both equally	188	49.0
Partner Jealousy/Accusation	Yes	174	45.3
	No	210	54.7
Partner Allows Social Activities	Yes	238	62
	No	146	38
Partner Controls Mobile/Internet Use	Yes	134	34.9
	No	250	65.1
Use of Religious Beliefs in Conflict Resolution	Yes	178	46.4
	No	206	53.6
Contextual Factors and HIV Status			
Disclosed HIV status to partner	Yes	341	88.8
	No	43	11.2
Partner's reaction to disclosure	Supportive	259	67.4
	Hostile	71	18.5
	Indifferent	54	14.1
Faced stigma due to HIV status	Yes	132	34.4
	No	252	65.6
Access to HIV care services	Yes	361	94
	No	23	6

their partner did not allow social activities. Religious beliefs were used in conflict resolution by 46.4% of participants.

Concerning HIV-related factors, 88.8% of participants had disclosed their HIV status to their partner. Among those who disclosed, 67.4% received supportive reactions, 18.5% faced hostile reactions, and 14.1% received indifferent responses. HIV-related stigma was experienced by 34.4% of participants, while 94.0% had access to HIV care services.

Factors Associated with Domestic Violence

Socio-demographic Factors

Bivariate analysis revealed significant associations between various socio-demographic factors and domestic violence experience (Table 4). Gender was strongly associated with violence, with women experiencing significantly higher rates (56%) compared to men (29%) ($p<0.001$). Age showed a progressive increase in violence prevalence, from 32% in the 18-24 age group to 61% among those ≥55 years ($p=0.004$). Education level was inversely associated with violence, with 53% of those with no formal education experiencing violence compared to 29% with higher education ($p=0.034$).

Employment status significantly influenced violence risk, with unemployed participants experiencing the highest rates (55%) compared to those in formal employment (34%) ($p=0.014$). Financial situation was a strong predictor, with those in very difficult financial situations reporting 63% violence preva-

Table 4. Association Between Socio-Demographic Variables and Domestic Violence Experience

Variable	Category	Total (n)	Experienced DV (n, %)	Did Not Experience DV (n, %)	P-val.
Age Group	18–24 years	45	14 (32%)	31 (68%)	0.004
	25–34 years	122	46 (38%)	76 (62%)	
	35–44 years	132	59 (45%)	73 (55%)	
	45–54 years	60	32 (53%)	28 (47%)	
	55+ years	25	15 (61%)	10 (39%)	
Gender	Male	187	54 (29%)	133 (71%)	0.0000
	Female	197	110 (56%)	87 (44%)	
Education Level	No formal	38	20 (53%)	18 (47%)	0.034
	Primary education	124	61 (49%)	63 (51%)	
	Secondary	161	61 (38%)	100 (62%)	
	Higher education	61	18 (29%)	43 (71%)	
Employment Status	Unemployed	106	58 (55%)	48 (45%)	0.014
	Informal employment	182	87 (48%)	95 (52%)	
	Formal employment	96	33 (34%)	63 (66%)	
Financial Situation	Very difficult	89	56 (63%)	33 (37%)	0.002
	Somewhat difficult	166	78 (47%)	88 (53%)	
	Comfortable	98	32 (33%)	66 (67%)	
	Very comfortable	31	8 (25%)	23 (75%)	
Income Provider	You	117	44 (38%)	73 (62%)	0.016
	Your partner	93	52 (56%)	41 (44%)	
	Both equally	152	62 (41%)	90 (59%)	
Access to Own Money	Yes, freely	144	43 (30%)	101 (70%)	0.001
	With restrictions	108	49 (45%)	59 (55%)	
	No access	132	74 (56%)	58 (44%)	

lence versus 25% among those financially comfortable (p=0.002). Economic dependency patterns showed that participants whose partners were primary income providers experienced higher violence rates (56%) compared to those who earned equally (41%) or were self-reliant (38%) (p=0.016). Access to personal money was protective, with those having free access experiencing 30% violence compared to 56% among those with no access (p=0.001).

Behavioral Factors

Table 5 demonstrates significant associations between behavioral characteristics and domestic violence. Alcohol consumption showed a dose-response relationship, with frequent drinkers experiencing 58% violence prevalence versus 38% among non-drinkers (p=0.021). Substance use other than alcohol was strongly associated with violence, with users reporting 62% prevalence versus 35% among non-users (p<0.001). Conflict resolution methods were critical predictors, with violence highest among those using physical confrontation (72%), followed by shouting/arguing (51%), versus calm discussion (25%) (p<0.001).

Decision-making patterns significantly influenced violence risk, with those in relationships where the partner made most decisions experiencing 52% violence compared to 37% when respondents made decisions themselves and 43% with shared decision-making (p=0.034). Partner jealousy or accusations were strongly predictive, with affected participants reporting 63% violence prevalence versus 29% without such behaviors (p<0.001). Control behaviors showed similar patterns, with social activity control associated with 61% versus 27% violence prevalence (p<0.001), and mobile/internet control linked to 59% versus 34% violence rates (p<0.001). Notably, religious coping appeared protective, with those using religious beliefs in conflict resolution experiencing lower violence rates (27%) compared to those who did not (54%) (p<0.001).

Table 5. Association Between Behavioral Characteristics and Domestic Violence Experience

Variable	**Category**	**Experienced DV**		**P-val.**
		Yes(n, %)	**No(n, %)**	
Alcohol Consumption	Never	72 (38%)	118 (62%)	0.021
	Occasionally	64 (45%)	78 (55%)	
	Frequently	30 (58%)	22 (42%)	
Substance Use (other than alcohol)	Yes	40 (62%)	24 (38%)	0.000
	No	112 (35%)	208 (65%)	
Conflict Resolution Method	Discuss calmly	36 (25%)	107 (75%)	0.000
	Shouting/Arguing	86 (51%)	83 (49%)	
	Physical confrontation	52 (72%)	20 (28%)	
Household Decision-Making	You	34 (37%)	57 (63%)	0.034
	Your partner	55 (52%)	50 (48%)	
	Both equally	81 (43%)	107 (57%)	
Partner Jealousy or Accusation	Yes	110 (63%)	64 (37%)	0.000
	No	61 (29%)	149 (71%)	
Control of Social Activities	Yes	85 (61%)	54 (39%)	0.000
	No	66 (27%)	179 (73%)	
Control Over Mobile/ Internet Use	Yes	79 (59%)	55 (41%)	0.000
	No	85 (34%)	165 (66%)	
Use of Religious Beliefs in Conflict	Yes	48 (27%)	130 (73%)	0.000
	No	111 (54%)	95 (46%)	

Table 6. Association Between Contextual Factors and Domestic Violence Experience

Variable	Category	Total (n)	Experienced DV (n, %)	Did Not Experience DV (n, %)	P-Val
Disclosure of HIV Status	Yes	341	191 (56%)	150 (44%)	0.000
	No	43	18 (42%)	25 (58%)	
Partner's Reaction to Disclosure	Supportive	259	88 (34%)	171 (66%)	0.000
	Hostile	71	48 (68%)	23 (32%)	
	Indifferent	54	24 (45%)	30 (55%)	
HIV-Related Stigma	Yes	132	79 (60%)	53 (40%)	0.000
	No	252	88 (35%)	164 (65%)	
Access to HIV Care Services	Yes	361	148 (41%)	213 (59%)	0.000
	No	23	12 (52%)	11 (48%)	

HIV-related Contextual Factors

Table 6 reveals significant associations between HIV-related factors and domestic violence. Paradoxically, HIV status disclosure was associated with higher violence risk, with those who disclosed experiencing 56% violence prevalence compared to 42% among those who had not disclosed ($p<0.001$). Among those who disclosed, partner reactions were critical determinants of violence risk. Hostile reactions were associated with 68% violence prevalence, compared to 34% for supportive reactions and 45% for indifferent reactions ($p<0.001$).

HIV-related stigma was a strong predictor of violence, with affected participants reporting 60% violence prevalence versus 35% among those without stigma experiences ($p<0.001$). Access to HIV care services also influenced violence risk, with those having limited access experiencing higher rates (52%) compared to those with access (41%) ($p<0.001$). These findings highlight the complex interplay between HIV-related stressors and domestic violence in discordant relationships.

Discussion

This study revealed alarmingly high rates of domestic violence among HIV discordant couples in Kicukiro District, with 42.7% experiencing some form of abuse in the past year. While emotional abuse was most prevalent (52.3%), substantial proportions also experienced physical violence (41.1%) and sexual coercion (34.1%). These prevalence rates substantially exceed many national estimates and reflect the complex intersection of HIV-related challenges with broader socio-economic vulnerabilities.

The pronounced gender disparity, with women experiencing nearly twice the violence rate of men, reflects entrenched patriarchal norms and power imbalances common in sub-Saharan Africa[5,7]. This finding aligns with regional studies demonstrating women's heightened vulnerability in HIV discordant relationships, where HIV status may further compromise their position within relationships[13].

The inverse relationship between education and violence suggests that education serves as a protective factor, potentially through enhanced self-advocacy skills, rights awareness, and economic opportunities [17]. Similarly, employment and financial security appeared protective, highlighting how economic dependency creates vulnerability to abuse. The finding that economic autonomy significantly reduces violence risk underscores the importance of financial empowerment in violence prevention[8,12].

The progressive increase in violence prevalence with age may reflect cumulative relationship stressors, entrenched conflict patterns, or longer exposure to abusive dynamics. This contrasts with some studies

showing higher violence among younger couples but aligns with research indicating persistent abuse in long-term relationships[7].

The strong associations between substance use and domestic violence support established literature linking alcohol and drug use to impaired judgment and increased aggression[18]. The finding that conflict resolution methods strongly predicted violence outcomes underscores the critical importance of communication skills in relationship dynamics and the potential for intervention through couples counseling and communication training.

Partner jealousy and controlling behaviors emerged as powerful predictors, reflecting the role of coercive control in domestic violence. These psychological abuse patterns often escalate to physical violence and significantly impact mental health and autonomy [8,19]. The finding that religious coping appeared protective requires careful interpretation, as religious frameworks may promote both conflict resolution and, in some contexts, tolerance of abuse.

The association between HIV disclosure and increased violence risk highlights a critical dilemma in HIV care. While disclosure is essential for treatment adherence and transmission prevention, it may expose individuals to blame, rejection, or retaliation[18]. This paradox underscores the need for comprehensive pre-disclosure counseling and partner preparation strategies.

Partner reactions to disclosure emerged as a crucial determinant, with hostile responses associated with doubled violence risk. This emphasizes the importance of couple-centered approaches to HIV counseling that prepare both partners for disclosure and promote supportive responses [13]. The strong association between HIV-related stigma and violence reflects how internalized and enacted stigma create relationship stress and reduce empathy between partners.

Conclusions

Domestic violence among HIV discordant couples in Rwanda is driven by a complex interplay of socio-economic, behavioral, and HIV-related contextual factors. Women, economically dependent partners, and those experiencing stigma or hostile partner reactions to HIV disclosure face vulnerability. The high prevalence of violence across multiple domains underscores the urgent need for comprehensive, integrated interventions that simultaneously address HIV care and violence prevention.

Healthcare providers should incorporate routine domestic violence screening into HIV services, while policymakers must invest in economic empowerment, stigma reduction, and community education initiatives. Only through addressing the multiple intersecting vulnerabilities can we effectively reduce domestic violence and improve health outcomes for HIV discordant couples.

The cross-sectional design limits causal inference about relationships between risk factors and violence. Social desirability bias may have affected reporting of sensitive behaviors, potentially leading to underestimation of violence prevalence. The study focused on couples receiving care, potentially missing those avoiding services due to violence or other barriers. Future longitudinal studies are needed to establish temporal relationships and assess intervention effectiveness.

Abbreviations

ART: Antiretroviral therapy

DV: Domestic violence

HIV: Human immunodeficiency virus

RDHS: Rwanda Demographic Health Survey

SD: Standard deviation

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Mount Kigali University Ethics Committee and Kigali City authorities. Written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

NU conceived and designed the study, collected and analyzed the data, and drafted the manuscript. MM and OR supervised the study design, methodology, and analysis, and critically reviewed the manuscript. JDH provided technical input and reviewed the final manuscript. All authors read and approved the final manuscript.

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