Relationship between mental health and unmet need for contraception and method type among women living with HIV in Kenya

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Abstract

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Introduction

Contraception is a cornerstone of efforts to prevent vertical HIV transmission for women living with HIV(WLWH), but contraceptive use may be impacted by depression and anxiety. We examined the relationship between depression, anxiety and unmet need for contraception and method type.

Methods

We conducted a cross-sectional survey at baseline among 3300Kenyan WLWH receiving routine HIV care participating in a cluster randomized clinical trial evaluating a reproductive health counselling intervention at 10 HIV clinics. Women who did not desire a pregnancy in the next two years or were not sexually active were ineligible for this analysis. Study staff administered surveys on depression, anxiety, stigma and social support. Participants used a tablet to self-administer a survey on family planning, which assessed fertility intentions and contraceptive use. We utilized univariable and multivariable generalized linear models to assess the relationship between depression, anxiety and unmet need for contraception and method type.

Results

Among 964 women eligible and enrolled, 10% had at least mild depression,14% had anxiety, 17% had either depression or anxiety, and 7% had both. Overall, 78% used a modern method of contraception and 10% had

an unmet need for contraception. Prevalence of unmet need was 18% among women who were depressed and 9% among women who were not depressed. Women with at least mild depression were twice as likely to have unmet need for contraception (PR 1.96[95%CI 0.95, 3.52]; aPR 2.32 [95%CI 1.47,3.67]) compared to women without depression. The most commonly used methods of contraception were implants (37%) and injectables (33%). Over one-third (34%) of contraceptive users were using dual methods. Proportion of anxious women who used long acting reversible contraceptive (LARC [intra uterine devices and implants) was 35% and 42% among women without anxiety. Among women with stigma the prevalence of LARC use as opposed to short acting methods (pills, condoms, injectables, fertility based, lactation amenorrhea) was 49% (PR 0.51, CI [0.36,0.71]) lower in depressed or anxious women compared to women without depression or anxiety, $p<0.001$.

Conclusion

Unmet need was higher, while LARC use lower, among women with either depression or anxiety compared to women without. Screening WLHIV for depression or anxiety may help identify women who have more difficulty using contraception, or have additional barriers to using LARC and who need better support to realize their reproductive health goals.

INTRODUCTION

Contraception is an important strategy to help women and girls prevent unintended pregnancies and reduce maternal and infant mortality. For women living with HIV (WLWH), contraception is also a cornerstone of prevention of vertical HIV transmission. Yet, in sub-Saharan Africa (SSA) where the HIV epidemic is concentrated, unmet need for contraception is high (SSA)(1) (2). Among Kenyan WLWH, 15% have unmet need (3)(4) and 35% report their prior pregnancy was unintended(3). WLWH who have unintended pregnancies are more likely to transmit HIV to their babies, and have higher risks of maternal and infant mortality.

Unmet need may be higher among WLHIV than women without HIV(3)(5) since both depression and anxiety are also disproportionately higher among WLHIV(6). Depressed women may lack self-efficacy or motivation to use contraception due to negative attitudes or beliefs about their own reproductive health or future prospects(7). In addition, women who are depressed may find it difficult to pro-actively seek contraception or talk with a provider about contraceptive methods. Similarly, women with anxiety may have heightened fears about risks of using contraception and side effects such as bleeding, mood changes and weight gain, which could impact their feelings towards using any contraceptive method(8). Women with anxiety may also lack the ability to make decisions necessary to select a method and use it consistently(8).

Furthermore, WLHIV with depression or anxiety who use contraception may select short-acting methods over long-acting reversible contraception (LARC; implants and intrauterine devices [IUDs]), which require more time for a provider to administer, and are relatively more invasive than other short-term methods. In Kenya, nearly one-quarter of WLHIV use LARC, the vast majority of which are implants(3)(4). Women with depression or anxiety may find it is easier to initiate short-acting than LARC methods as they may want to be more in control of their ability to continue or discontinue contraception. Strength of feelings about pregnancy prevention and fears of invasive procedures required for LARC may also differ between women who have depression or anxiety compared to those without these conditions.

Studies conducted in the US have shown higher contraception non-use and discontinuation among those with depression and anxiety than those without depression or anxiety(8)(9) Young women with depression and stress symptoms were more likely to use less effective methods such as oral contraception, condoms and

withdrawal compared to LARC(10). However, the relationships between depression and anxiety and contraceptive use has not been well characterized in SSA, nor among WLHIV. We examined these relationships among Kenyan WLWH receiving routine HIV care and participating in a cluster randomized clinical trial (cRCT) evaluating a reproductive health counselling intervention.

METHODS

Study design

We utilized baseline data from a cross-sectional survey administered to WLHIV enrolled in a cluster randomized controlled trial (cRCT) of a digital reproductive health counseling intervention, a tablet-based decision aid delivered at enrollment and follow-up short message service (SMS) sent over a two-year period, versus the standard of care.

Site and population

The study was conducted at 10 HIV clinics located in four counties- Kisumu, Homa Bay, Siaya and Nairobi. The 10 facilities (Bondo sub-County Hospital, Lumumba sub-County Hospital, Rachuonyo District Hospital, Siaya District Hospital, Kisumu District General Hospital, Mathare North Health Center, Riruta Health Center, Kenyatta National Hospital, Kangemi Health Centre and Dandora Health Center) have high HIV patient volumes with >1000 female clients on antiretroviral therapy (ART) per year and represent rural and urban settings. Five facilities were randomized to the intervention and five to control.

The cRCT enrolled 330 WLHIV in each facility, for a total of 3300 women. To be included in the cRCT, women were of reproductive age (18-45; 14-17 if emancipated minors); had daily access to a mobile phone (own phone or shared) with a Safaricom SIM; planned to receive HIV care at the enrollment facility for 2 years; spoke English, Kiswahili, or Luo; and were literate or comfortable with someone reading study SMS. Pregnant women were ineligible for enrollment. In addition, WLWH were excluded from unmet need analysis if they had no intention to become pregnant within the next two years.

Data collection procedures and measures

WLWH attending routine HIV care at the HIV clinics located at each site were invited to participate and recruited by study nurses into the cRCT if they met eligibility criteria and provided written informed consent.

Baseline demographic surveys were administered to WLWH after obtaining consent for study participation, and a subsequent visit was scheduled that aligned with their next HIV care visit to complete enrollment in order to have had sufficient time to deliver the intervention. At the next scheduled visit when enrollment was completed, study staff administered surveys on depression, anxiety, stigma and social support. Participants used a tablet to self-administer the family planning survey, which assessed fertility intentions and contraceptive use. All surveys were administered in a private area within each facility in English or in a local language (Kiswahili or Dholuo) as preferred.

Depression was assessed using a two-step process. First, WLHIV were screened with the PHQ-2(11), an instrument that consists of 2 questions with scores ranging from 0-6; a score ≥3 is suggestive of depression. WLHIV with scores ≥3 on PHQ-2 were further evaluated using PHQ-9(12), which consists of 9 questions. PHQ-9 scores of 5, 10, 15, and 20 represent thresholds for mild, moderate, moderately severe, and severe depression, respectively. Anxiety was assessed using GAD-7(13), which consists of 7 questions and scores ranging from 0-15. Scores of 5, 10, and 15 were used as cut-off points for mild, moderate and severe anxiety, respectively.

HIV-related stigma was assessed using the short version of the Berger HIV stigma scale (HSS), the HSS-12(14). The scale assesses personalized stigma, disclosure concerns, negative self-image and concern with public attitudes with items on the scale rated 1 (strongly disagree) to 4 (strongly agree) for total scores between 12 and 48. Higher scores designate a greater level of perceived HIV-related stigma. The World Health Organization Violence Against Women (WHO-VAW) scale(15) (16) was used to assess intimate partner or gender-based violence. The scale assessed physical (6 questions), sexual (3 questions) or psychological violence (4 questions) using yes or no responses. An affirmative response in any of the questions indicates the kind of violence experienced. Social support was assessed using the Medical Outcomes Study (MOS) social support scale(17)(18). The 19-item scale comprises four subscales (emotional/informational support, tangible support, affectionate support, positive social interaction) and one overall summary index. Scores range 18-90 with higher scores indicating greater social support and scores in each sub-scale specifying the kind of support received.

Statistical analysis

Unmet need for contraception was defined as the percentage of women who are sexually active and do not desire a pregnancy in the next two years, and are not using any modern method of contraception (19)(20). Modern contraceptive methods include LARC, short-acting contraceptive methods (condoms, pills, injectables, vaginal ring, lactation amenorrhea [LAM], fertility awareness methods, emergency contraception) and permanent methods (tubal ligation, vasectomy).

Women were categorized as having at least mild depression if the PHQ-9 was ≥5; sensitivity analyses were conducted to assess specific categories of depression. Similarly, women with GAD-7 ≥5 were classified as having anxiety, and sensitivity analyses were also conducted to assess specific categories of anxiety.

We constructed separate univariable generalized linear models with a log-link function to examine the relationship between depression, anxiety or both and unmet need, as well as use of LARC (versus short acting methods). This model is appropriate for non-rare binary outcomes (21)(22). We adjusted a priori for age, marital status and gravidity in multivariable models. Variables significant at $p \leq 0.1$ in univariable analysis were included in multivariable models. We also tested to see if age and stigma were effect modifiers in each model. In addition, we checked for collinearity in multivariable models using variance inflation factor (VIF) with values > 5 indicative of collinearity. We had 80% power at an $\alpha=0.05$ to detect at least a 1.39-fold higher risk of unmet need among women with depression and at least a 1.25-fold higher risk of use of short acting methods than LARC use. R studio version 4.2.2 was used for all analysis.

Ethical consideration

The study procedures were approved by the University of Washington Human Subjects Division, Kenyatta National Hospital-University of Nairobi Ethics Review Committee, (KNH-UoN ERC), and the National Commission for Science, Technology and Innovation (NACOSTI).

RESULTS

Demographic and clinical characteristics

We recruited participants between December 5, 2022 and June 16, 2023. Among 2567 women screened, 413 (16%) were ineligible, 131 (5%) declined participation, and 964 (38%) were eligible and enrolled (Figure 1). The median age was 33 (interquartile range [IQR]:27-37) and most (63%) women were married or cohabiting (Table 1). The median number of pregnancies was 3 (IQR 2-4). Nearly all women were on antiretroviral therapy (ART) (99%) and the median time since HIV diagnosis was 7 years (IQR 4-12). The majority (92%) disclosed their HIV status to their partner. Overall, 99%, reported having social support, while 91% reported experiencing stigma and 8% experienced either psychological, physical or sexual violence. Based on self-reported symptoms, 10% of WLWH had at least mild depression (Figure 2), 14% had anxiety, 17% had either depression or anxiety, and 7% had both.

Half of women (50%) who were sexually active had no desire to have a child in the future and 5% wanted to delay pregnancy for at least two years. Among women who did not desire pregnancy, significantly more women with anxiety (58%) did not desire pregnancy compared to women without anxiety (49%) (p= 0.01). Nearly half (56%) of women discussed contraception with a provider last year. Among, women with anxiety (43%) were significantly less likely to discuss contraception with a provider than women without anxiety (58%) (p=<0.01).

Unmet need

Among sexually active women, 78% use a modern method of contraception to delay or prevent pregnancy while 10% had an unmet need for contraception. Unmet need was 7% lower among women who had a longer time since their HIV diagnosis (prevalence ratio [PR] 0.93 for each additional year, 95% confidence interval (CI) 0.88,0.97, p=<0.01), 44% lower among women who disclosed their HIV status (PR 0.56[CI 0.44,0.80], p<0.001), 70% lower among women who were married or cohabiting (PR 0.30 [CI 0.19, 0.48], p<0.001) and 52% lower among women with higher gravidity(PR 0.59 [CI 0.48,0.72] p<0.001) than women one year less since their HIV diagnosis, who had not disclosed their HIV status, who were neither married nor cohabiting and who had lower gravidity. This effect was maintained in multivariate models. There were no significant associations between unmet need and stigma, violence or prior discussion with provider (Table 2).

Prevalence of unmet need was 18% among women who were depressed and 9% among women who were not depressed. Women with at least mild depression were twice as likely to have unmet need for contraception (PR 1.96, [95% CI 0.95,3.52]) compared to women without depression, p value 0.04 which was similar in multivariate models (aPR 2.32[CI 1.47, 3.67], p value <0.001) adjusted for age, marital status, gravidity, time since HIV diagnosis and disclosure of HIV status.

The relationship between anxiety and unmet need was not significant at 95% confidence interval. However, women with either depression or anxiety were 80% more likely to have an unmet need for contraception (aPR 1.80[CI 1.11, 2.92], compared to women with neither depression nor anxiety p value 0.02 in multivariate models. The relationship between unmet need and depression, or anxiety, did not differ by age or stigma.

Contraceptive method use

The most commonly used methods of contraception were implants (37%) or injectables (33%), followed by condoms only (15%), oral contraception (9%) and IUDs (3%). Less than 1% of women used LAM, fertility awareness methods, tubal ligation and withdrawal (each) (Figure 2). Over one-third (34%) of contraceptive users were using dual methods: 40% of dual users used implants, 3% used IUDs, 12% used oral contraceptives, 40% injectables and 2% each used withdrawal and tubal ligation. Dual method use was lower among women with anxiety compared to women without anxiety (19% vs 36%, p<0.001).

Overall, LARC use was 40%. Older women were less likely to use LARC than short acting methods (PR 0.98 for each year increase, [95% CI 0.97,0.99] p=0.004). This older age remained significantly associated with LARC use in multivariate models (aPR 0.97, [95%CI 0.96,0.99], p=<0.01). There were no significant associations between LARC use and marital status, gravidity, duration of HIV diagnosis, stigma, violence or prior discussion with provider (Table 3).

The association between depression or anxiety was dependent on stigma. In comparing LARC use among those with depression and those without depression considering the presence of stigma, the findings suggest among women with stigma the prevalence of LARC use is 45% (PR 0.55, CI [0.38,0.80]) lower in depressed women compared to women without depression, p 0.002 not significant for women without stigma. LARC

use among anxious and non-anxious women also differed by stigma. Anxious women who experienced stigma were 52% less likely to use LARC (PR 0.48[CI 0.33,0.68]) compared to women without anxiety, p <0.001 similar to depressed or anxious women with stigma (PR 0.51[CI 0.36,0.71]) compared to women without anxiety or depression p <0.001 not significant for women without stigma. These effect sizes were maintained in multivariate models (Table 3). Age did not moderate the relationship between depression and/or anxiety and use of LARC among WLHIV.

DISCUSSION

In our cohort of Kenyan WLHIV, we found that unmet need for contraception was twice as high among women with either depression and/or anxiety compared to women without depression or anxiety. Women were sexually active(73%) and 50% did not desired any more children but 10% overall, 18% depressed and 15% anxious and/or depressed women did not use contraception. Our estimates of unmet need are consistent with another Kenyan study among WLHIV that found unmet need was 8% in integrated facilities and 15% in HIV facilities that had not integrated family planning in a cohort of more than 4000 WLHIV (3).

Women with depression or anxiety may lack self-efficacy for childbirth or parenting which may be a source of added stress due to increased responsibility(23)(24) hence less desire for pregnancy compared to women without depression or anxiety. Despite this, depressed women may remain sexually active but not use a contraceptive method. Depression is characterized by persistently low mood and low energy which may contribute to women seeking care(7) or information about contraceptive. Women may lack the cognitive ability to prioritize their sexual and reproductive health needs, especially when there are other things they may be preoccupied with, including coping with a recent HIV diagnosis. In contrast, women who are anxious may find it overwhelming to select from a range of contraceptive options, leading to contraceptive non-use (25)(9). Contraceptive use may be higher for women who are married or cohabiting as married or cohabiting women may have more frequent sexual activity due to the nature of their relationships, which could lead to a higher perceived need for contraception to prevent unwanted pregnancies. On the other hand, unmarried women may not feel the same urgency if their sexual encounters are less frequent. Married or cohabiting women may also have support from partners to seek contraceptive services that positively influences them to seek

contraception. Partner support has previously been cited as being important in influencing a woman's decision to take up contraception(26). In a large cohort of more than 2000 women and their partners in Nigeria, men who were aware of female contraception were 3 times more likely to have spouses who desired to use contraception and men who showed support for their spouses' use of contraception were over 5 times more likely to have spouses who indicated a desire to use modern contraceptive methods(27).

Unmet need was lower among women who had disclosed their HIV status to their partner than women who had not disclosed their HIV status. Communication of one's HIV status may lead one to better communicate pregnancy intentions and need for contraception. Prior studies have demonstrated higher uptake of modern contraception including dual use among women who have disclosed their HIV status(28)(29). Unmet need may also be lower among women who have disclosed their HIV status to their partner due to psychosocial support that may result from the disclosure. This is especially true if the partner is supportive and there is a shared goal of reducing chances of vertical transmission. Our findings are similar to a large cohort of 1100 HIV infected individuals in Uganda that found women who did not disclose their HIV status to sexual partners were less likely to use modern family planning methods(28). In addition, disclosure helps counter stigma by being open to other people apart from partners including providers when seeking services such as contraception. WLHIV may thus find more support and will be better able to advocate for contraception following disclosure. Women who have lived with HIV for a longer period may find it easier to disclose their status as they may have normalized living with HIV and had more chances of finding support. Women who are newly diagnosed with HIV may not have the capacity to prioritize their reproductive health and use of contraception as they may be grappling with the realities of the new diagnosis.

Women may be more proactive in seeking contraceptive services to prevent another pregnancy if they have previously been pregnant and desire birth spacing. Increase in gravidity status may thus drive the lower unmet need among women with higher parity status for each additional pregnancy. Women may also have already reached their desired number of children and thus be more receptive to use of contraception(30).

Overall, 15% of WLHIV used condoms alone, which while provides protection against sexually transmitted infections (STIs) and HIV transmission to partners, offer substantially lower contraceptive effectiveness than

other modern methods of contraception(31). As a result, national Kenyan guidelines recommend dual method use for WLHIV(32). Dual method use in our study was 34%, which is similar to a prior study among WLHIV in the same setting(4). However, dual method use was significantly lower among women with anxiety than women without anxiety(19% vs 36%, $p<0.001$). Women with anxiety may have fears negotiating condom use with their male sexual partners. Lack of partner support and inability to negotiate for use of condom especially among young women has both been cited as barriers to dual method use among WLWH in prior studies(33)(34).

LARC require more time for a provider to administer, and are relatively more invasive than other short-term methods. Anxious women may harbor fears of initiating LARC as it may represent a lack of control or autonomy to switch whenever they feel like. LARC use also requires pro-activeness from women to go and seek information and the contraceptive services from the provider more than most of short acting methods. Women with depression may thus prefer to use the more accessible short acting methods that don't require as much energy to access. However, if women perceive stigma, it may further hinder their efforts to seek and use LARC. Stigma including at the healthcare setting has been negatively associated with delay in seeking care and negative health outcomes (35)(36). Stigma adds another layer of barrier to access of LARC that depressed or anxious women may not have the ability or self-efficacy to navigate.

Our study contributes to the understanding of the relationship between depression, anxiety and unmet need for contraception and method type among WLHIV in SSA exploring factors unique to this population such as HIV stigma. Screening for depression using PHQ2 and PHQ 9 provided an opportunity to only evaluate further those likely to have depressive symptoms an approach that can be used where resources are limited. Though the study was conducted in multiple different sites (10) in high burden HIV centers and used a large sample size of 3300 WLHIV, our findings may not be generalizable as it was conducted within a clinical trial setting. Selection bias may occur because cRCT recruitment may systematically exclude women who may not have met the cRCT inclusion criteria including women who did not have access to mobile phone. In addition, the cross-sectional study design limits assessment of the temporal relationship between exposure (depression and anxiety) and outcome (unmet need and method type).

Unmet need was higher, while LARC use lower, among women with either depression or anxiety compared to women without. Screening WLHIV for depression or anxiety may identify women who have more difficulty using contraception, or have additional barriers to using LARC and who need better support to realize their reproductive health goals.

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TABLES AND FIGURES

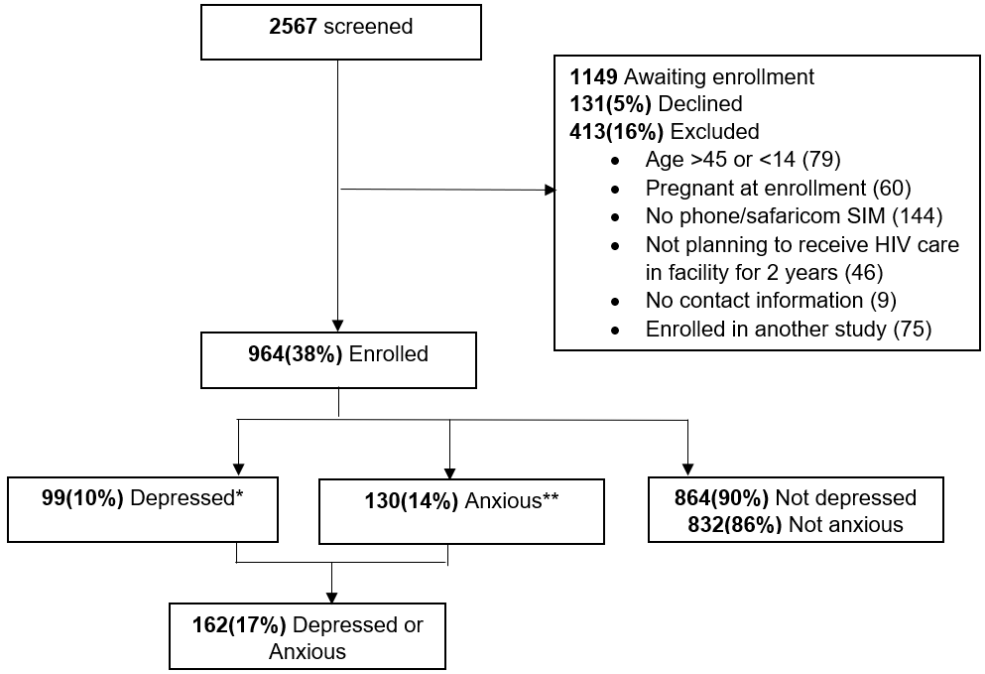

Figure 1: WLHIV attending HIV care and treatment centres in Kenya enrolled in the study

*Depressed- Patient Health Questionnaire 9 ≥5
**Anxious- Generalized anxiety disorder 7 ≥5

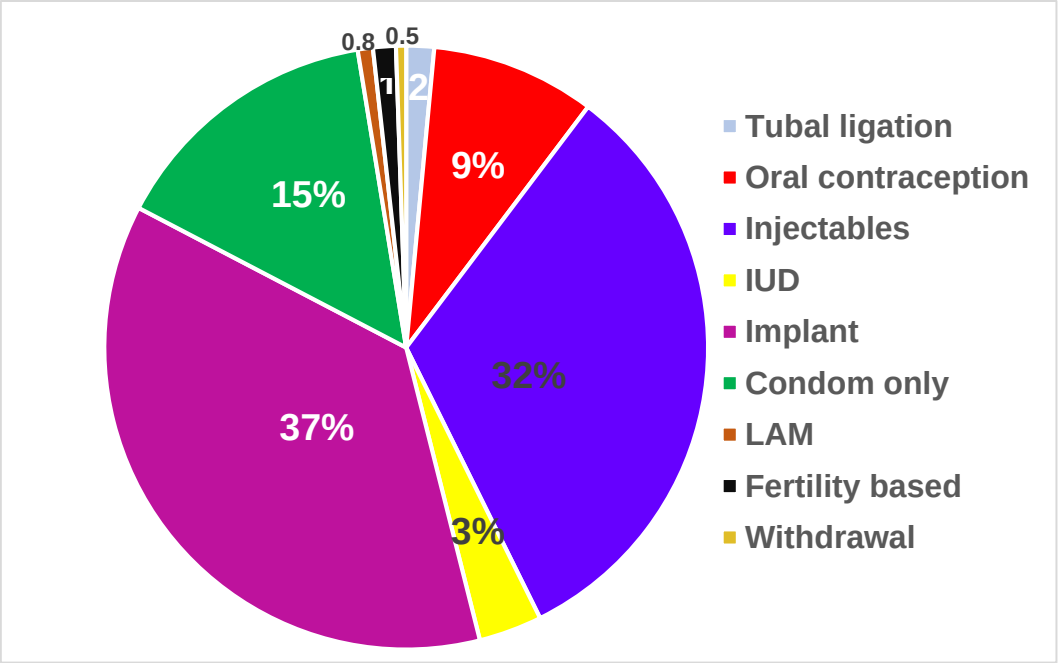

Figure 2: Contraceptive method mix among 738(77%) WLHIV attending HIV care and treatment centres in Kenya who reported current method of contraception
Among women who use contraception,109(15%) use condom only and 167 (34%) of condom users also used another modern method of contraception (40% of dual users also use implants similar to 40% who use injectables, 12% also use oral contraceptives, 3% use IUD and 2% each use withdrawal and tubal ligation)

Table 1: Characteristics of WLHIV attending HIV care and treatment centers in Kenya by depression and anxiety status

Characteristic	N	Overall N=963 n (%); Median(IQR)	Depressed[1] N = 99 n (%); Median (IQR)	Not-depressed N = 864 n (%); Median (IQR)	Anxiety[2] N=130 n(%);median(IQR)	No anxiety N=832 n(%);median(IQR)
Socio-demographic						
Age (years)	963	33 (27, 37)	33 (27, 38)	33 (27, 37)	33(29,38)	33(27,37)
Completed primary education or more	963	931 (97)	96(97)	835(97)	121(93)	809(97)
Monthly income (Ksh)	963	9,000(5,15)	10,000(6,15)	9,000(5,15)	9500(6,15)	9000(6,15)
Employed	963	369(38)	36 (36)	333(39)	54(42)	315(38)
Married/cohabiting	963	603(63)	57(58)	546(63)	83(64)	520(63)
No. of living children	919	3 (2, 4)	3 (2, 4)	3 (2, 4)	3(2,4)	3(2,4)
Gravidity	919	3 (2, 4)	4 (2, 4)	3 (2, 4)	4(2,5)	3(2,4)
HIV and partner characteristics						
Time since HIV diagnosis (years)	957	7 (4,12)	8 (3,13)	7 (4,12)	9(4,13)	7(3,12)
On ART	963	958(99)	99(100)	859(99)	128(98)	829(100)
Have a regular partner	963	701(73)	68(69)	633(73)	93(72)	608(73)
Partner HIV status	701					
Positive		343(49)	42(62)	154(24)	55(59)	288(47)
Negative		197(28)	19(28)	178(28)	26(28)	171(28)
Don't know		161(23)	7(10)	301(48)	12(13)	149(25)
Disclosed HIV status to partner	701	641(91)	66(97)	575(91)	90(97)	551(91)
Experienced stigma[3]	962	859(89)	98(99)	761(88)	128(99)	730(88)
Experienced violence[4]	703	58(8)	23(34)	35(6)	23(25)	35(6)
Have social support[5]	962	956(99)	99(100)	857(99)	128(98)	827(100)
Contraception and sexual history						
Sexually active	963	706(73)	64(65)	642(74)	96(74)	609(73)
Using contraception	963	747(78)	73(74))	674(78)	98(75)	648(78)
Dual method use[6]	492	167(34)	14(26)	153(35)	12(19)	154(36)
LARC use[7]	719	292(40)	28(40)	264(41)	34(35)	258(42)
Intent to use contraception (non-users)	210	91(43)	13(50)	78(42)	14(45)	77(43)
Discussed contraception with provider last year	963	536(56)	48(48)	488(56)	56(43)	479(58)
Pregnancy intention and unmet need						
Pregnancy intention	836					
No desire		422(50)	44(55)	378(50)	63(58)	359(49)
≤ 2 years		375(45)	31(39)	344(46)	36(33)	339(47)
> 2 years		39(5)	5(6)	34(5)	9(8)	30(4)
Unmet need[8]	616	61(10)	9(18)	52(9)	8(11)	53(10)

*[1] Patient Health Questionnaire 9 ≥5
*[2]Generalized anxiety disorder 7≥5
*[3] Berger HIV Stigma Scale ≥1
*[4]Violence Against Women ≥1
*[5]Social support- Medical Outcomes Study >19
*[6]Dual method use -Use both condoms + other contraception method
*[7]LARC-long acting reversible contraception- IUD (intra-uterine device) and Implant

*[8]Unmet need- sexually active women who don't want a/another child or desire pregnancy in the next two years, and not using any method of contraception

Table 2: Depression, anxiety and other factors associated with unmet need among WLHIV attending HIV care and treatment centres in Kenya

Characteristic	Met need N= 555	Unmet need[1] N=61	Unmet need vs met need			
	n (%) median	n (%) median	Crude PR (95% CI)	Unadjusted p value	Adjusted PR (95%CI)*	adjusted p value
Socio-demographic						
Age (years)	33(27,37)	27(21,31)	0.92(0.88, 0.95)	<0.001	0.97(0.93, 1.01)	0.12
Married/cohabiting	419(75)	27(44)	0.30(0.19, 0.48)	<0.001	0.40(0.24, 0.65)	<0.001
Not married/not cohabiting	136(25)	34(56)				
Gravidity	3(2,4)	2(1,3)	0.59(0.48, 0.72)	<0.001	0.71(0.57, 0.89)	0.003
Depression[2]						
No depression	514(93)	52(85)				
At least mild depression	41(7)	9(15)	1.96(0.95,3.52)	0.04	2.32(1.47, 3.67)	<0.001
At least moderate depression			1.69(0.10, 5.84)	0.57	2.19(0.80, 6.01)	0.13
Mild depression	36(88)	8(89)				
Moderate depression	5(12)	1(11)				
Moderately severe	0	0				
Severe depression	0	0				
Anxiety[3]						
No anxiety	492(89)	53(87)				
At least mild anxiety	63(11)	8(13)	1.16(0.53,2.19)	0.68	1.47(0.81, 2.66)	0.21
At least moderate anxiety			1.01(0.06, 3.87)	0.99	0.78(0.13, 4.82)	0.79
Mild anxiety	54(86)	7(88)				
Moderate anxiety	8(13)	1(12)				
Severe anxiety	1(2)	0				
Depression or anxiety						
Mild depression or mild anxiety	75(14)	13(21)	1.62(0.88, 2.77)	0.10	1.80(1.11, 2.92)	0.02
Neither mild depression nor mild anxiety	480(86)	48(79)				
HIV and partner characteristics						
Time since HIV diagnosis for each additional year	8(7,12)	4(2,6)	0.93(0.88, 0.97)	0.002	0.94(0.90, 0.99)	0.02
Disclosed HIV status to partner	437(95)	27(84)	0.56(0.44, 0.80)	<0.001	0.68(0.51, 0.92)	0.01
Not disclosed status	22(5)	5(16)				
Stigma[4]						
Not experienced stigma	71(13)	5(8)				
Experienced stigma overall	483(87)	56(92)	1.03(1.00, 1.07)	0.07	1.01(0.97, 1.04)	0.61
Low-level stigma	185(38)	18(32)				
Middle-level stigma	285(59)	36(64)				
High-level stigma	13(3)	2(4)				
Violence against women[5]						
Not experienced violence	436(94)	32(91)				
Experienced violence	30(6)	3(9)	1.33(0.33, 3.46)	0.62	0.81(0.25, 2.58)	0.72
Physical violence only	10(33)	1(33)				
Sexual violence only	6(20)	0				
Psychological only	14(47)	2(67)				
Contraception prior experience						
Discussed contraception with provider last year	326(59)	35(57)	0.94(0.59, 1.54)	0.81	1.01(0.64, 1.59)	0.97
Did not discuss contraception	227(41)	26(43)				

*[1]Unmet need- sexually active women who don't want a/another child or desire pregnancy in the next two years, and not using any method of contraception

*[2] Patient Health Questionnaire9 mild depression (5-9), moderate depression (10-14), moderately severe (15-19), severe (20-27)

*[3]Generalized anxiety disorder7 mild anxiety (5-9), moderate anxiety (10-14), severe anxiety (≥15)

*[4]Berger HIV Stigma Scale- low level stigma (13-24), middle-level stigma (25-36), high level stigma (37-48)
*[5]Violence Against Women- physical violence (≥1), sexual violence (≥1), psychological violence (≥1)
*Adjusted PR- adjusted for age, marital status, gravidity, time since HIV diagnosis and HIV disclosure(p<.1)

Table 3: Depression, anxiety and other factors associated with LARC use among WLHIV attending HIV care and treatment centres in Kenya

Characteristic	Short acting N= 426	LARC use[1] N=292	LARC use vs short acting			
	n (%) median	n (%) median	Crude PR (95% CI)	Unadjusted p value	adjusted PR (95%CI) *	adjusted p value
Socio-demographic						
Age (years)	33(27,37)	32(26,36)	0.98(0.97, 0.99)	0.004	0.97(0.96, 0.99)	0.002
Married/cohabiting	291(68)	211(72)	1.13(0.93, 1.39)	0.25	1.08(0.89, 1.33)	0.47
Not married/not cohabiting	136(32)	81(28)				
Gravidity	3(2,4)	3(2,4)	0.96(0.91, 1.02)	0.20	1.01(0.95, 1.07)	0.84
Depression[2]						
No depression	384(90)	264(90)				
At least mild depression	42(10)	28(10)	0.98(0.71,1.29)	0.91	1.00(0.71,1.31)	0.97
At least mild depression without stigma			1.01(0.74, 1.38)	0.96	1.03(0.75,1.41)	0.87
At least mild depression with stigma			0.55(0.38, 0.80)	0.002	0.55(0.37,0.82)	0.003
Mild depression	35(83)	23(82)				
Moderate depression	7(17)	5(18)				
Moderately severe	0	0				
Severe depression	0	0				
Anxiety[3]						
No anxiety	363(85)	258(88)				
At least mild anxiety	63(15)	34(12)	0.84(0.62,1.10)	0.25	0.82(0.60, 1.07)	0.18
At least mild anxiety without stigma			0.88(0.65,1.18)	0.38	0.85(0.63, 1.16)	0.31
At least mild anxiety with stigma			0.48(0.33,0.68)	<0.001	0.40(0.28, 0.59)	<0.001
Mild anxiety	54(86)	28(82)				
Moderate anxiety	8(13)	5(15)				
Severe anxiety	1(2)	1(3)				
Depression or anxiety						
Depression or anxiety	74(17)	45(15)	0.92(0.70, 1.16)	0.50	0.91(0.70, 1.15)	0.47
Neither mild depression nor mild anxiety	352(83)	247(85)				
Mild depression or anxiety without stigma			0.94(0.73, 1.22)	0.65	0.94(0.72,1.22)	0.65
Mild depression or anxiety with stigma			0.51(0.36,0.71)	<0.001	0.50(0.35,0.72)	<0.001
HIV and partner characteristics						
Time since HIV diagnosis for each additional year	8	7	0.99((0.97, 1.00)	0.17	1.00(0.98, 1.02)	0.75
Disclosed HIV status to partner	315(95)	216(96)	0.88(0.78, 1.09)	0.14	0.85(0.73, 0.99)	0.04
Not disclosed status	17(5)	10(4)				
Stigma[4]						
Not experienced stigma	36(8)	44(15)				
Experienced stigma overall	390(92)	248(85)	0.99(0.98, 1.01)	0.26	0.99(0.98, 1.01)	0.22
Low-level stigma	158(41)	87(35)				
Middle-level stigma	221(57)	153(62)				
High-level stigma	11(3)	8(3)				
Violence against women[5]						
Not experienced violence	312(93)	214(92)				
Experienced violence	24(7)	19(8)	1.09(0.73, 1.48)	0.65	1.12(0.75, 1.54)	0.51
Physical violence only	6(25)	8(42)				
Sexual violence only	6(20)	3				
Psychological only	12(25)	8(16)				
Contraception prior experience						
Discussed contraception with provider last year	234(55)	177(61)	1.15(0.96, 1.39)	0.13	1.14(0.95, 1.37)	0.16
Did not discuss contraception	191(45)	114(39)				

*[1]Unmet need- sexually active women who don't want a child/another child or desire pregnancy in the next two years, and not using any method of contraception

*[2] Patient Health Questionnaire9 mild depression (5-9), moderate depression (10-14), moderately severe (15-19), severe (20-27)

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*[5]Violence Against Women- physical violence (≥1), sexual violence (≥1), psychological violence (≥1)
*Adjusted PR- adjusted for age, marital status, gravidity and HIV disclosure(p<.1)

References

1. Ahinkorah BO, Ameyaw EK, Seidu AA. Socio-economic and demographic predictors of unmet need for contraception among young women in sub-Saharan Africa: evidence from cross-sectional surveys. Reproductive Health. 2020 Oct 23;17(1):163.

2. Sully EA, Biddlecom A, Darroch JE, Riley T, Ashford LS, Lince-Deroche N, et al. Adding It Up: Investing in Sexual and Reproductive Health 2019. 2020 Jul 28 [cited 2023 Jan 23]; Available from: https://www.guttmacher.org/report/adding-it-up-investing-in-sexual-reproductive-health-2019

3. Chen Y, Begnel E, Muthigani W, Achwoka D, Mcgrath CJ, Singa B, et al. Higher contraceptive uptake in HIV treatment centers offering integrated family planning services: A national survey in Kenya. Contraception. 2020 Jul 1;102(1):39–45.

4. Dev R, Kohler P, Begnel E, Achwoka D, McGrath CJ, Pintye J, et al. Contraceptive counseling experiences among women attending HIV care and treatment centers: A national survey in Kenya. Contraception. 2021 Aug 1;104(2):139–46.

5. Track20 [Internet]. [cited 2023 Jan 23]. Available from: https://www.track20.org/ext/countryData.php?code=kenya

6. Waldron EM, Burnett-Zeigler I, Wee V, Ng YW, Koenig LJ, Pederson AB, et al. Mental health in women living with HIV: the unique and unmet needs. Journal of the International Association of Providers of AIDS Care (JIAPAC). 2021;20:2325958220985665.

7. Carvajal DN, Ghazarian SR, Shea Crowne S, Bohrer Brown P, Carter Pokras O, Duggan AK, et al. Is depression associated with contraceptive motivations, intentions, and use among a sample of low-income Latinas? Womens Health Issues. 2014;24(1):e105-113.

8. Hall KS, Steinberg JR, Cwiak CA, Allen RH, Marcus SM. Contraception and Mental Health: A Commentary on the Evidence and Principles for Practice. Am J Obstet Gynecol. 2015 Jun;212(6):740–6.

9. Stidham Hall K, Moreau C, Trussell J, Barber J. Young women's consistency of contraceptive use — does depression or stress matter? Contraception. 2013 Nov 1;88(5):641–9.

10. Hall KS, Moreau C, Trussell J, Barber J. Role of Young Women's Depression and Stress Symptoms in Their Weekly Use and Nonuse of Contraceptive Methods. Journal of Adolescent Health. 2013 Aug 1;53(2):241–8.

11. Patient Health Questionnaire-2 (PHQ-2) - Mental Health Screening - National HIV Curriculum [Internet]. [cited 2023 Jan 25]. Available from: https://www.hiv.uw.edu/page/mental-health-screening/phq-2

12. Patient Health Questionnaire-9 (PHQ-9) - Mental Health Screening - National HIV Curriculum [Internet]. [cited 2023 Jan 25]. Available from: https://www.hiv.uw.edu/page/mental-health-screening/phq-9

13. Generalized Anxiety Disorder 7-item (GAD-7) - Mental Health Screening - National HIV Curriculum [Internet]. [cited 2023 Jan 25]. Available from: https://www.hiv.uw.edu/page/mental-health-screening/gad-7

14. Reinius M, Wettergren L, Wiklander M, Svedhem V, Ekström AM, Eriksson LE. Development of a 12-item short version of the HIV stigma scale. Health Qual Life Outcomes. 2017 May 30;15(1):115.

15. World Health Organization. Violence against women prevalence estimates, 2018: global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women [Internet]. World Health Organization; 2021 [cited 2023 Jan 25]. xix, 87 p. Available from: https://apps.who.int/iris/handle/10665/341337

16. Measures for the assessment of dimensions of violence against women: A compendium [Internet]. [cited 2023 Feb 9]. Available from: https://www.svri.org/sites/default/files/attachments/2016-01-12/measures.pdf

17. Description and Scoring Instructions MOS Social Support Survey.pdf [Internet]. [cited 2023 May 3]. Available from: https://cadc.ucsf.edu/sites/g/files/tkssra881/f/Description%20and%20Scoring%20Instructions%20MOS%20Social%20Support%20Survey.pdf

18. Sherbourne CD, Stewart AL. The MOS social support survey. Social Science & Medicine. 1991 Jan 1;32(6):705–14.

19. Festin MPR. Overview of modern contraception. Best Practice & Research Clinical Obstetrics & Gynaecology. 2020 Jul 1;66:4–14.

20. Hubacher D, Olawo A, Manduku C, Kiarie J, Chen PL. Preventing unintended pregnancy among young women in Kenya: prospective cohort study to offer contraceptive implants. Contraception. 2012 Nov 1;86(5):511–7.

21. Breslow NE. Generalized linear models: checking assumptions and strengthening conclusions. Statistica applicata. 1996;8(1):23–41.

22. Lee J, Chia KS. Estimation of prevalence rate ratios for cross sectional data: an example in occupational epidemiology. British journal of industrial medicine. 1993;50(9):861.

23. Schwartz L, Toohill J, Creedy DK, Baird K, Gamble J, Fenwick J. Factors associated with childbirth self-efficacy in Australian childbearing women. BMC Pregnancy and Childbirth. 2015 Feb 13;15(1):29.

24. Steele KR, Townsend ML, Grenyer BFS. Parenting stress and competence in borderline personality disorder is associated with mental health, trauma history, attachment and reflective capacity. Borderline Personality Disorder and Emotion Dysregulation. 2020 May 11;7(1):8.

25. Hall KS, Steinberg JR, Cwiak CA, Allen RH, Marcus SM. Contraception and Mental Health: A Commentary on the Evidence and Principles for Practice. Am J Obstet Gynecol. 2015 Jun;212(6):740–6.

26. WenJuan W, Staveteig S, Winter R, Allen C. Women's marital status, contraceptive use, and unmet need in sub-Saharan Africa, Latin America, and the Caribbean. DHS Comparative Reports [Internet]. 2017 [cited 2023 Jul 9];(No.44). Available from: https://www.cabdirect.org/globalhealth/abstract/20183060877

27. Ezeanolue EE, Iwelunmor J, Asaolu I, Obiefune MC, Ezeanolue CO, Osuji A, et al. Impact of male partner's awareness and support for contraceptives on female intent to use contraceptives in southeast Nigeria. BMC Public Health. 2015 Sep 10;15(1):879.

28. Wanyenze RK, Tumwesigye NM, Kindyomunda R, Beyeza-Kashesya J, Atuyambe L, Kansiime A, et al. Uptake of family planning methods and unplanned pregnancies among HIV-infected individuals: a cross-sectional survey among clients at HIV clinics in Uganda. Journal of the International AIDS Society. 2011;14(1):35–35.

29. Mulongo AM, Lihana RW, Githuku J, Gura Z, Karanja S. Factors associated with uptake of dual contraception among HIV-infected women in Bungoma County, Kenya: a cross-sectional study. Pan Afr Med J. 2017 Nov 2;28(Suppl 1):2.

30. Ahinkorah BO, Ameyaw EK, Seidu AA. Socio-economic and demographic predictors of unmet need for contraception among young women in sub-Saharan Africa: evidence from cross-sectional surveys. Reproductive health. 2020;17(1):1–11.

31. Polis CB, Bradley SEK, Bankole A, Onda T, Croft T, Singh S. Contraceptive Failure Rates in the Developing World: An Analysis of Demographic and Health Survey Data in 43 Countries.

32. Kenya-National-Family-Planning-Guidelines-6th-Edition-for-Print.pdf [Internet]. [cited 2023 Aug 11]. Available from: https://tciurbanhealth.org/wp-content/uploads/2019/04/Kenya-National-Family-Planning-Guidelines-6th-Edition-for-Print.pdf

33. Maharajh R, Haffejee F. Exploring male condom use among women in South Africa: a review of the literature. African Journal of AIDS Research. 2021 Jan 2;20(1):6–14.

34. Kosugi H, Shibanuma A, Kiriya J, Wafula SW, Jimba M. Consistent condom use among highly effective contraceptive users in an HIV-endemic area in rural Kenya. PLoS One. 2019;14(5):e0216208.

35. Steward WT, Bharat S, Ramakrishna J, Heylen E, Ekstrand ML. Stigma Is Associated with Delays in Seeking Care among HIV-Infected People in India. J Int Assoc Provid AIDS Care. 2013 Mar 1;12(2):103–9.

36. Peitzmeier SM, Grosso A, Bowes A, Ceesay N, Baral SD. Associations of Stigma With Negative Health Outcomes for People Living With HIV in the Gambia: Implications for Key Populations. JAIDS Journal of Acquired Immune Deficiency Syndromes. 2015 Mar 1;68:S146.