

Supporting The Sexual Rights of Women Living With HIV: A Critical Analysis of Sexual Satisfaction and Pleasure Across Five Relationship Types

ABSTRACT

In the context of HIV, a focus on protecting others has overridden concern about women's own sexual wellbeing. Drawing on feminist theories, we measured sexual satisfaction and pleasure across five relationship types among women living with HIV in Canada. Of the 1,230 women surveyed, 38.1% were completely or very satisfied with their sexual life, while 31.0% and 30.9% were reasonably or not very/not at all satisfied, respectively. Among those reporting recent sexual experiences (n=675), 41.3% always felt pleasure, with the rest reporting usually/sometimes (38.7%) or seldom/not at all (20.0%). Sex did not equate with satisfaction or pleasure, as some women were completely satisfied without sex while others were having sex without reporting pleasure. After adjusting for confounding factors, such as education, violence, depression, sex work, antiretroviral therapy, and provider discussions about transmission risk, women in long-term/happy relationships (characterized by higher levels of love, greater physical and emotional intimacy, more equitable relationship power, and mainly HIV-negative partners) had increased odds of sexual satisfaction and pleasure relative to women in all other relational contexts. Those in relationships without sex also reported higher satisfaction ratings than women in some sexual relationships. Findings put focus on women's rights, which are critical to overall well-being..

Key words: Sexual rights; Sexual pleasure; Sexual satisfaction; Women; HIV; Canada

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INTRODUCTION

Sexual wellbeing is a human right. The Declaration of Sexual Rights, endorsed by the World Association for Sexual Health (2014), states "the following sexual rights must be recognized, promoted, respected, and defended" regardless of age, race, sexual orientation, health status, social and economic situation, and so forth: the right to sexual autonomy (including choices about one's body, sexual behaviours, and relationships), the right to sexual freedom (including both the freedom to sexual expression and freedom from all forms of violence, stigma, and oppression), and the right to pleasurable, satisfying, and safe sexual experiences, which can be an important source of overall health and wellbeing. These rights, however, often go unacknowledged and unsupported in research, policy, and discourse regarding the sexuality and sexual health of women living with HIV (Carter, Greene, et al., 2017).

For decades, sex in the context of HIV has been synonymous with danger, resulting in a lack of pleasure in discussions and programs about women and HIV (Higgins & Hirsch, 2007; Higgins, Hoffman, & Dworkin, 2010). This narrative, combined with gendered cultural norms, have produced expectations that women living with HIV ought not to have sex, or, if they must, then need to do so safely, with no acknowledgment of the satisfaction, pleasure, or other benefits that women may be deriving from sex (Gurevich, Mathieson, Bower, & Dhayanandhan, 2007; Lawless, Crawford, Kippax, & Spongberg, 1996). Importantly, however, women living with HIV have, for many years, fought back against these negative sexual scripts. From Mariana Iacono's (2016) tips on how to go down on a woman living with HIV, to queer artist-activist Jessica Whitbread's (2011; 2016) "Fuck Positive Women" poster and "I Don't Need a Space Suit to Fuck You" retro lesbian sci-fi fantasia, to the policy statement of the International Community of Women Living with HIV/AIDS (2015) opposing laws that criminalize intimacy between

consenting adults, women living with HIV have been at the forefront of efforts to end sexual oppression and promote sexual liberation for themselves and their communities.

This kind of sex-positive feminist dialogue is largely absent from HIV research, as most studies concerning HIV-positive women's sexual health continue to focus on *others'* sexual health. The emphasis on HIV prevention is evident in the large literature on: safer sex, which has primarily interrogated (male) condom use practices (Carvalho et al., 2011); safer conception (Matthews et al., 2017) and prevention of vertical transmission (Ambia & Mandala, 2016); and more recently, treatment-driven prevention strategies, for which the latest science shows that people who are adherent to combination antiretroviral therapy (cART) and achieve and maintain an undetectable viral load (VL) have effectively no risk of sexually transmitting the virus to HIV-negative partners (Rodger et al., 2016). While important inequities in treatment access and adherence exist owing to a myriad of social factors (e.g., substance use, violence, poverty) (Carter, Roth, et al., 2017), researchers are beginning to theorize that this biomedical science may have the unintended good consequence of freeing people living with HIV from repressive discourses of sexual risk and opening up new possibilities for sexual pleasure (Persson, 2016).

To draw attention to the need for research, policy, and discourse to support the sexual rights of women living with HIV, as set forth in the Declaration, the purpose of this study was to explore sexual satisfaction and pleasure among women living with HIV in Canada. Consistent with critical feminist theory (Carter, Greene, et al., 2017), we were concerned with how these experiences relate to issues of power, looking specifically at women's intimate relationships and the larger social realities in which women enact their sexual lives. By studying positive aspects of sexuality, and understanding the relational and social conditions under which women are most and least likely to enjoy them, we aim to shift the focus in HIV to women's rights and help

change the dominant narrative from risk to pleasure.

Definitions and conceptual underpinnings

Sexual satisfaction and pleasure.

Sexual satisfaction is often defined with regard to positive emotions. For example, Sprecher and Cate (2004) conceptualized it as “the degree to which an individual is satisfied or happy with the sexual aspect of his or her relationship” (p. 236). Early theories of sexual satisfaction stem mainly from social exchange models that posit that feeling sexually satisfied (or sexually unsatisfied) arises from a perceived balance between the presence of sexual rewards (e.g., joy, pleasure) and absence of sexual costs (e.g., anxiety, inhibition) as exchanged between partners (Byers, Demmons, & Lawrance, 1998). These descriptions, however, focus on satisfaction within relationships, while others have measured satisfaction in relation to how happy one is with one’s sexual life more broadly (Bridges, Lease, & Ellison, 2004). The Sexual Satisfaction Scale – Women’s version (SSS-W) was developed to capture both the relational and personal dimensions of this concept (Meston & Trapnell, 2005), and several other new scales assessing sexual satisfaction have been developed and recently reviewed by Mark, Herbenick, Fortenberry, Sanders, and Reece (2014).

Although sexual pleasure plays an important role in satisfaction (Pascoal, Narciso, & Pereira, 2014), it also has distinct meanings. Broadly defined, Abramson and Pinkerton (2002) described sexual pleasure as the “positively valued feelings induced by sexual stimuli” (p. 8). Other definitions emphasize both physical and emotional sensations arising from intimate touch of the genitals or other erogenous zones, such as breasts and thighs (De la Garza-Mercer, 2007). Yet sex and sexual gratification can also encompass broader experiences such as kissing, hugging, or fantasizing (Fahs & McClelland, 2016), which women living with HIV themselves

report are important aspects of a pleasurable sexual life (Taylor et al., 2016).

Subjectivity, Agency, and Entitlement.

Cutting across these literatures is the notion that sexual satisfaction and pleasure are subjective experiences. Indeed, when people are asked to reflect on these concepts, the individual and dyadic factors they describe as contributing to sexual fulfillment and enjoyment are highly diverse and personal in nature. Yet sexuality is also political, and is “moderated by and unfolds within a particular and cultural milieu” (Abramson & Pinkerton, 2002, p. 10). A key feature, then, of critical sexuality research is attention to the ways in which disparate socio-political conditions may shape not only how women experience but also how they *evaluate* their sexual lives within specific social contexts (Fahs, 2014; Fahs & McClelland, 2016; McClelland, 2011, 2013).

Feminist scholars have taken up this cause in recent studies by theorizing outcomes in relation to sexual agency and entitlement. Agency has been defined as “the ability of individuals to act according to their own wishes and have control of their sexual lives” (including the choice to have or not have sex) (Fahs & McClelland, 2016, p. 396). In empirical research on the subject, higher agency has been associated with greater sexual satisfaction and excitement (Fetterolf & Sanchez, 2015; Kiefer & Sanchez, 2007; Laan & Rellini, 2011; Sanchez, Kiefer, & Ybarra, 2006), while lower agency has been linked to a reduced likelihood of declining unwanted sex (Bay-Cheng & Eliseo-Arras, 2008) and feeling pleasure (Sanchez, Crocker, & Boike, 2005).

Beyond deciding to have sex and pursue pleasure, is the issue of feeling entitled to it. Sara McClelland (2010) recently elaborated on this in her “*intimate justice*” framework to guide sexual satisfaction research among marginalized populations. After methodically reviewing decades of sexual and life satisfaction research, she argued that external contexts (e.g., pressure

to conform to gender roles, stigma against sexuality) can lower what a person feels they deserve sexually and heighten satisfaction ratings (McClelland, 2010).

Research on sexual satisfaction and pleasure among women living with HIV

Both qualitative studies (Carlsson-Lalloo, Rusner, Mellgren, & Berg, 2016) and women's own personal testimonies (Becker, 2014; Caballero, 2016; Carta, 2016; Fratti, 2017; Whitbread, 2016) reveal how several social, political, emotional, and relational factors can affect women's experiences of sex. Common concerns reported in the literature include disclosure and its consequences (e.g., rejection, violence), fears of transmitting HIV and challenges discussing safer sex, and external (e.g., HIV non-disclosure laws) and internal (e.g., low self-esteem) HIV-related stigmatization (Beckerman & Auerbach, 2002; Crawford, Lawless, & Kippax, 1997; Gurevich et al., 2007; Lather & Smithies, 1997; Siegel, Schrimshaw, & Lekas, 2006; van der Straten, Vernon, Knight, Gomez, & Padian, 1998; Welbourn, 2013). For some women, such stressors contribute to feelings of loss of sexuality (Balaile, Laisser, Ransjo-Arvidson, & Hojer, 2007; Gurevich et al., 2007). Studies, thus, suggest many women (though not all) report less satisfaction with their sex lives (Balaile et al., 2007; Hankins, Gendron, Tran, Lamping, & Lapointe, 1997; Siegel et al., 2006) and reduced enjoyment of sex (Closson et al., 2015; Lambert, Keegan, & Petrak, 2005; Siegel et al., 2006) after an HIV diagnosis.

Evidence from large-scale, quantitative studies is relatively limited, however; and, of significance, most findings come from gender-aggregated data. One of the most consistent predictors of sexual satisfaction in the context of HIV has been stigma-related constructs, with lower satisfaction ratings found among those reporting greater sex-negative attitudes, perceived responsibility for reducing the spread of HIV, discrimination in a relationship, and internalized stigma (Bogart et al., 2006; Castro, Le Gall, Andreo, & Spire, 2010; Inoue, Yamazaki, Seki,

Wakabayashi, & Kihara, 2004; Peltzer, 2011). Researchers have also explored the role of age, depression, and education and employment (Bouhnik et al., 2008; Castro et al., 2010; Peltzer, 2011), though only socioeconomic factors have been found to consistently promote satisfaction. Quantitative studies have not explored relationships well. Studies have focused narrowly on women's relationship status (i.e., married vs. single) and report conflicting findings (Castro et al., 2010; Inoue et al., 2004; Peltzer, 2011). In contrast, results from non-HIV literature emphasize a clear connection between sexual satisfaction and pleasure and numerous indicators of relationship quality such as physical intimacy, emotional closeness, commitment, and gender power relations, among other factors (Haavio-Mannila & Kontula, 1997; Henderson, Lehavot, & Simoni, 2009; Sánchez-Fuentes, Santos-Iglesias, & Sierra, 2014). These studies, however, have failed to account for the *multidimensional* nature of sexual and intimate partnering, and it is the *interaction between* relationship dimensions that may be critical to experiences of sexual satisfaction and pleasure.

Study objective

In a previous paper, we used latent class analysis (LCA) to model patterns of sexual and intimate relationship experiences among women living with HIV in Canada, uncovering five multi-dimensional latent classes (i.e., no relationship; relationships without sex; and three sexual relationships: short-term, long-term/unhappy, and long-term/happy), which differed on seven indicators of sex, intimacy, and relationship power (Carter et al., 2016). The current paper represents a follow-up to this analysis and is guided by the following objective: to describe women's feelings of sexual satisfaction and pleasure and compare such experiences across these five latent classes, critically examining and adjusting for social and health factors associated with relationship types and predictive of sexual outcomes.

METHOD

Study design

Data for this analysis came from the baseline questionnaire of the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS, www.chiwos.ca). CHIWOS is a community-based research project of self-identified women living with HIV aged 16 years or older from British Columbia, Ontario, and Quebec (Loutfy et al., 2017). The study is committed to the meaningful involvement of women living with HIV as Peer Research Associates (PRAs) and academic researchers, care providers, and community agencies as allied partners throughout all stages of the research, from the design of data collection tools, through participant outreach and recruitment, to knowledge dissemination activities including scientific co-authorship.

Women living with HIV were recruited into CHIWOS between August 2013 and May 2015, using a comprehensive strategy designed to oversample women from communities traditionally marginalized from research (Webster et al., In Press). After a brief screening interview, PRAs administered FluidSurveysTM questionnaires to women in English (n = 1081) or French (n = 343). Interviews were completed either in-person (at community agencies or women's homes) or via telephone or Skype for those living in rural or remote areas, and lasted an average of 2-hours (interquartile range (IQR): 90-150 minutes). Participants provided voluntary informed consent and were given \$50 to honour their time and contributions. We received ethical approval from Simon Fraser University, the University of British Columbia/Providence Health Care, Women's College Hospital, McGill University Health Centre, and community organizations where necessary.

Study variables

Outcome variables.

Sexual health questions were informed by women living with HIV and aimed at minimizing participant burden. Sexual satisfaction was assessed among all women using one item from the personal contentment domain of the SSS-W (Meston & Trapnell, 2005): “Overall, how satisfactory or unsatisfactory is your present sex life?” Responses were on a five-point scale ranging from “completely,” “very,” or “reasonably” satisfactory to “not very” or “not at all” satisfactory. The final two categories were collapsed due to low numbers. Sexual pleasure was assessed using one item from the Brief Index of Sexual Functioning for Women (BISF-W) (Taylor, Rosen, & Leiblum, 1994), which read: “During the past month, have you felt pleasure from any forms of sexual experience?” Responses included: “always felt pleasure,” “usually, about 75% of the time,” “sometimes, about 50% of the time,” “seldom, less than 25% of the time,” “have not felt any pleasure,” and “have had no sexual experience during the past month.” Those with no recent sexual experience were excluded from analyses, with the remainder collapsed into three groups (i.e., always vs. usually/sometimes vs. seldom/none).

Explanatory variables.

The main explanatory variable was relationship latent class, derived via LCA. A detailed description of LCA methodology and these relationship types is available elsewhere (Carter et al., 2016). Briefly, LCA is a person-centred approach capable of identifying clusters of individuals that share a common set of characteristics using structural equation modelling of categorical data (Lanza, Bray, & Collins, 2013). In our analysis, we modelled seven indicators: 1) sexual relationship status (a cross of recent consensual oral, anal, or vaginal sexual activity with a regular partner and current relationship status), 2) (dis)contentment with their frequency of sexual intimacy (e.g., kissing, intercourse, etc.), 3) (dis)contentment with the amount of emotional closeness experienced, and, of those with a regular partner (i.e., spouse, common law

partner, long term relationship, friend with benefits, or partner seen on and off for some time): 4) relationship duration, 5) couple HIV serostatus, 6) sexual exclusivity, and 7) relationship power (i.e., the Relationship Control sub-scale of the Sexual Relationship Power Scale, developed by Pulerwitz, Gortmaker, and DeJong (2000)). Two items (i.e., emotional closeness and sexual intimacy) came from the SSS-W (Meston & Trapnell, 2005) and bivariable analyses revealed a strong association with reporting a completely satisfactory sex life (data not shown). However, LCA groups women according to their response patterns on multiple variables, which together contribute the underlying meaning of the latent class. Thus, while we acknowledge strong intercorrelations, we questioned whether these two indicators were perfectly aligned with the outcome of overall sexual satisfaction and sought to uncover this in our analysis, exploring how varying levels of physical and emotional intimacy may impact global satisfaction ratings.

As the resulting latent classes are described elsewhere (Carter et al., 2016), we offer a brief description here along with a figure illustrating the latent class structure (Figure 1). The most prevalent class within the entire sample (which we called, no relationship [46.5%]) was comprised entirely of women who reported being single, separated, widowed, or divorced and had not engaged in any consensual oral, anal, or vaginal sexual activity with a regular partner in the past 6 months. The second class (relationships without sex [8.6%]) consisted of women who had similarly not had any recent sex but reported their current legal relationship status as married, common-law, or in a relationship but not living together. Forty three per cent of the women in this class were content with the amount of physical intimacy in their life (or lack thereof), while 27% felt they had enough emotional closeness. The final three latent classes represented distinct types of consensual sexual relationships with a regular partner (short-term [15.4%], long-term/unhappy [6.4%], and long-term/happy [23.2%]). Relative to women in short-

term relationships, women in the two longer-term latent classes had much higher probabilities of reporting that they were in a sexually monogamous relationship, were married, common-law, or non-cohabiting, and had been with their partner for ≥ 3 years. These sexual relationships diverged, however, on contentment with physical intimacy (97%–happy vs. 44%–unhappy vs. 46%–short-term) and emotional closeness (86%–happy vs. 24%–unhappy vs. 16%–short-term), high power equity (93%–happy vs. 52%–unhappy vs. 51%–short-term), and the presence of an HIV-negative partner (71%–happy vs. 59%–unhappy vs. 81%–short-term). Further, in bivariable analyses, we found that women in long-term/happy sexual relationships (66.8%) and relationships without sex (50%) were most likely to report “feeling love for and wanted by someone all of the time”, compared to women in long-term/unhappy relationships (33.3%), short-term relationships (24.8%), and no relationship (23.5%) ($p < .0001$).

Confounders.

Factors associated with latent class membership in the previous analysis and theorized to be determinants of sexual satisfaction and pleasure were considered as potential confounders (see tables for full derivations and cited literature for scoring instructions). These included: age; annual personal income; education; children living at home; transactional sex; illicit drug use; any physical, verbal, sexual, or controlling violence as an adult or child; use of cART; discussed with a provider how VL impacts HIV transmission risk; post-traumatic stress disorder (PTSD) (score range = 6 – 30, ≥ 14 indicating likely PTSD; Cronbach $\alpha = .91$) (Lang & Stein, 2005); depression (score range = 0 – 30, ≥ 10 suggesting probable depression; Cronbach $\alpha = .74$) (Zhang et al., 2012); sexism/genderism and racism (score range = 8 – 48; Cronbach $\alpha = .94$) (Williams, Yan, Jackson, & Anderson, 1997); and HIV stigma (score range = 0 – 100; Cronbach $\alpha = .84$) (Berger, Ferrans, & Lashley, 2001). Although not independently associated with

relationship types (and thus, not meeting confounding criteria), we also examined the following factors in relation to sexual outcomes in bivariable analyses: gender; sexual orientation; ethnicity; time living with HIV; most recent VL; most recent CD4 cell count; and physical and mental-health related quality of life, assessed via the SF-12 (score range = 0 – 100, Cronbach α = .82) (Carter, Loutfy, et al., 2017).

Analysis plan

Final analytic sample.

Overall, 1,424 women living with HIV were enrolled in CHIWOS, but only 1,334 were included in the previous LCA owing to missing relationship data. Of these 1,334 women, 1,230 responded to the aforementioned question about sexual satisfaction, while 675 reported on pleasure from any forms of sexual experience in the past one-month. For regression analyses of sexual satisfaction, we excluded another 163 women who responded, “don’t know” or “prefer not to answer” to confounders, resulting in a final analytic sample of 1,067 for both unadjusted and adjusted analyses (80.2% of the total sample). For pleasure, the final sample size for multivariable comparisons was 567 (41.6% of the total sample).

Descriptive, bivariable, and multivariable analyses.

Baseline characteristics were reported on all 1,334 women comprising the LCA, using frequencies (n) and percentages (%) for categorical variables, and medians (M) and interquartile ranges (Q1, Q3) for continuous variables. Bivariable analyses were conducted of the explanatory variable (relationship types) and confounders by both sexual satisfaction (n = 1230) and pleasure (n = 675). Crude associations were tested using the Pearson χ^2 test or Fisher’s exact test for categorical variables and Kruskal Wallis Test for continuous variables. Those with a p-value of <0.2 (Kaida et al., 2015) and previously associated with relationship types (Carter et al., 2016)

were examined in further analyses. Binomial and multinomial logistic regression (the latter adjusting for factors meeting confounding criteria) were used to investigate how relationship types were associated with increased odds of feeling completely, very, or reasonably satisfied with one's sexual life, using not very/not at all satisfied as the referent, with unadjusted and adjusted odds ratios (ORs and AORs) and 95% confidence intervals (CIs) reported. Procedures were repeated to explore the link between relationship types and an increased odds of always or usually/sometimes feeling sexual pleasure, using seldom/not at all as the referent. To compare all latent classes, we ran multiple models, each time using a different latent class as the reference group. Analyses were conducted using SAS® version 9.3 (SAS, North Carolina, United States).

RESULTS

Social and health circumstances of women's lives

The 1,334 women living with HIV included in baseline analyses were diverse in gender (4.3% trans), sexual orientation (12.5% LGBTQ), ethnicity (22.3% Indigenous; 28.9% African/Caribbean/Black; 41.2% White), socio-economic status (71.4% personal income <\$20,000 CAD, 18.1% current illicit drug use, 6.2% current sex work), age (median: 42.0 years; IQR: 35.0, 50.0; range: 16 – 74), and time living with HIV (median: 10.8 years; IQR: 5.9, 16.8; range: 1 month – 33.7 years). Nearly one-quarter (22.8%) had biological children living at home with them. Nearly half had depression and PTSD symptoms, and 80.4% reported lifetime experiences of violence. Most were taking cART (82.7%) and had an undetectable VL (81.5%). About two-thirds (68.8%) had talked to their doctor about its impact on transmission. Table 1 shows other social and health factors as well as levels of sexual satisfaction and pleasure.

Experiences of sexual satisfaction and pleasure

Of women with sexual satisfaction ratings (n = 1,230), 21.0% and 17.1% reported being

completely and very satisfied with their sex lives, respectively, with the remainder feeling reasonably (30.9%) or not very/not at all satisfied (30.9%). Overall, 51.8% of the cohort stated they had some form of sexual experience in the past month ($n = 675$), including 22.5% of women in no relationship and 21.7% of women in relationships without sex. Of these 675 women, 41.3% always and 38.6% usually/sometimes felt pleasure from sexual experience, while 20% reported seldom/no pleasure. Satisfaction and pleasure were correlated but not identical constructs: among those who always felt pleasure, 47.6% were completely and 28.9% were very satisfied with their sex life (vs. reasonably [14.4%] and not very/not at all satisfied [9.0%]; data not shown).

Patterns of sexual satisfaction and pleasure by relationship types

As highlighted in Table 2, approximately half (48.7%) of the women in long-term/happy sexual relationships (defined by the highest levels of love, physical and emotional intimacy, shared power, and mixed HIV status) were completely satisfied with their sexual life, while 32.0% were very and 17.3% reasonably sexually satisfied; just 2% ($n = 6$) said not at all/not very satisfied. The opposite pattern was found for women in no relationship, of whom 44.4% ($n = 237$) were not very/not at all satisfied; although the remainder were satisfied at some level with their sexual life (i.e., 30.9% reasonably, 12.4% very, and 12.4% completely). Of the three remaining latent classes (all with similar levels of physical intimacy), women in relationships without sex were more likely to report that overall, their present sex life was completely satisfactory (20.4%) than women in short-term (7.6%) and long-term/unhappy (8.2%) sexual relationships.

In terms of sexual pleasure (Table 3), 64.2% of women in long-term/happy sexual relationships reported that they always felt pleasure from any forms of sexual experience during the past month, while 33.9% usually/sometimes felt pleasure and 2.8% experienced seldom/no

pleasure. Reports of always feeling pleasure were much lower among women in short-term sexual relationships (30.7%), and even lower among those in long-term/unhappy sexual relationships (16.2%, characterized by longer duration and more HIV-positive partners). For women in no relationship or relationships without sex, about one-quarter reported always feeling pleasure during their sexual experiences.

As seen in both tables, sex did not equate with satisfaction or pleasure, as some women were completely satisfied without sex (i.e., 12.4% no relationship, 20.4% relationships without sex), while others were having sex without reporting pleasure (i.e., 24.2% short-term, 21.6% long-term/unhappy).

Patterns of sexual satisfaction and pleasure by social and health factors

In terms of social and health covariates, sexual satisfaction was crudely associated with age, sexism/genderism, annual personal income, education, PTSD and depressive symptoms, violence as an adult and as a child, cART, discussed with provider how VL impacts transmission risk, and HIV stigma, all of which were associated with relationship types in our previous LCA paper (Carter et al., 2016). With the exception of income, these same factors showed crude associations with sexual pleasure, along with three additional influences (i.e., transactional sex, illicit drug use, and children at home). Gender and sexual orientation were not associated with relationship types or sexual satisfaction and pleasure, while ethnicity was only associated with sexual satisfaction: specifically, Indigenous women were more likely to be completely sexually satisfied (27.8%) compared to women of all other ethnicities (18.1 – 20.5%), while African, Caribbean, and Black women reported the highest rates of sexual dissatisfaction (38.5%) versus their peers (range: 19.9 – 33.7%). Since, however, ethnicity was not a determinant of relationship types (the second criterion for confounding), it was excluded from the multivariable confounder

analyses. Clinical factors (e.g., VL, CD4 count) were not examined further for the same reason.

Multivariable confounder analysis of sexual satisfaction

In adjusted analyses, women in long-term/happy sexual relationships had much greater odds of reporting satisfaction with their sexual life than women in all other latent classes, with the greatest effects seen relative to no relationship, and the weakest in relation to relationships without sex (Table 4, $n = 1,067$). Additionally, the effect estimates were generally strongest at the highest level of sexual satisfaction (“completely”) and gradually decreased in strength through to the middle (“very”) and lowest level of satisfaction (“reasonably”), all relative to “not very/not all” satisfied. For instance, after adjusting for confounders, the odds of feeling completely satisfied with one’s sex life (vs. not very/not all) were 94 times greater among women in long-term/happy relationships than women in no relationships (AOR = 94.05, 95% CI = 35.75, 247.44). The extremely large estimates and wide CIs indicate a strong predictor and reflect the fact that very few women in long-term/happy relationships were not very/not at all satisfied ($n = 6$ [2.0%]) versus many women in no relationship ($n=237$ [44.4%]).

Much lower effect estimates (i.e., less than 2) were observed for all other relationship comparisons. For instance, women in relationships without sex also had increased adjusted odds of reporting that their sex life was completely satisfactory, relative to women in no relationship (although the 95% CI included the null value) (AOR = 1.88, 95% CI = 0.98, 3.63). There were no differences when comparing short-term and long-term/unhappy relationships to no relationships (referent) at the highest outcome level (i.e., completely satisfied), but higher AORs were seen at the remaining two outcome levels (i.e., very and reasonable satisfied). Likewise, there were also no differences when women in relationships without sex were used as the referent.

In terms of confounding factors, women with depression (AOR = 0.32, 95% CI = 0.20, 0.53) and currently experiencing violence (AOR = 0.38, 95% CI = 0.18, 0.82) had reduced odds of reporting a completely satisfactory sex life. Older age (AOR = 0.89, 95% CI = 0.73, 1.09, per 10-year increase in age) and HIV stigma (AOR = 0.98, 95% CI = 0.87, 1.09) also had reduced effects on sexual satisfaction, though the estimates were smaller and patterns non-significant (i.e., the 95% CI included the null value). Women with higher than high school education also had lower AORs for being completely satisfied relative to women with lower than high school education (AOR = 0.46, 95% CI = 0.24, 0.86), as did women who had discussed with their provider how VL impacts transmission risk (AOR = 0.67, 95% CI = 0.43, 1.05).

Multivariable confounder analysis of sexual pleasure

In regards to sexual pleasure (Table 5, n = 567), women in long-term/happy sexual relationships had greater adjusted odds of reporting that they always felt pleasure during any sexual experiences versus seldom/no pleasure, relative to those in long-term/unhappy relationships (AOR = 41.02, 95% CI = 11.49, 146.40) and those in short-term relationships (AOR = 11.83, 95% CI = 4.29, 32.59). The strength of association was reduced at the outcome level of “usually/sometimes” felt pleasure but nonetheless elevated (i.e., referents: long-term/unhappy: AOR = 4.84, 95% CI = 1.66, 14.09; short-term: AOR = 6.48, 95% CI = 2.40, 17.47). In comparing women in long-term/unhappy relationships versus short-term relationships, the adjusted odds of always feeling pleasure during sexual experiences were reduced for the former group by 71% (AOR = 0.29, 95% CI = 0.10, 0.87). No significant differences in the experiences of pleasure were observed when comparing those in no relationships to those in relationships without sex.

In terms of confounders, as with sexual satisfaction, women experiencing depression

(AOR = 0.46, 95% CI = 0.24, 0.91) and current violence (AOR = 0.21, 95% CI = 0.06, 0.73) had lower adjusted odds of reporting that they always felt pleasure. Current transactional sex, while not included in the satisfaction model, was also associated with a significant reduction in always feeling pleasure (AOR= 0.16, 95% CI = 0.05, 0.52). Similar to the previous model, small and non-significant associations with pleasure were seen for older age (AOR = 0.82, 95% CI: 0.59, 1.13) and HIV stigma (AOR= 0.88, 95% CI = 0.74, 1.03). On the other hand, two contrasting findings were seen in relation to higher than high school education (AOR = 2.22, 95% CI = 0.94, 5.22) and having discussed with a provider how VL impacts transmission risk (AOR= 1.87, 95% CI = 1.00, 3.50), with higher (i.e., above 1) AORs for always reporting pleasure observed rather than lower (i.e., below 1) AORs as seen with satisfaction.

DISCUSSION

This analysis revealed positive dimensions of sexual health for women living with HIV in Canada: 69% of women in our cohort were satisfied, to some extent (i.e., reasonably, very or completely), with their sexual life (or lack thereof), and among those with recent sexual experiences, 41.3% reported always feeling sexual pleasure. This finding disrupts narratives of sexual danger in the context of HIV and demonstrates to women living with HIV, and to society, that many women can and do enjoy their sexual lives following a diagnosis of HIV. Yet access to a satisfying and pleasurable sex life was not equal amongst women in our cohort. A key finding was that women in long-term/happy relationships (characterized by higher levels of love, greater physical and emotional intimacy, more equitable relationship power, and mainly HIV-negative partners) had the highest degree of sexual satisfaction and pleasure. It is noteworthy, however, that some women in this cohort were sexually satisfied despite being in no relationship or a non-sexual relationship. Our analysis also highlighted how social status and mental health are related

to sexual satisfaction and pleasure. These findings fill important knowledge gaps pertaining to how relational dynamics, social inequities, and trauma impact positive and rewarding aspects of sexuality for women living with HIV, an under-studied population in the field of sexual science.

The overall prevalence of sexual satisfaction in our analysis is similar to that reported for other HIV cohorts (Castro et al., 2010; Lambert et al., 2005), but lower than some general population estimate papers (i.e., 75 – 83%) (Colson, Lemaire, Pinton, Hamidi, & Klein, 2006; Dunn, Croft, & Hackett, 2000). The differences may be due to the effects of living with HIV or other social factors that disproportionately impact women living with the virus such as violence and chronic depression (Machtinger, Wilson, Haberer, & Weiss, 2012). However, it remains difficult to draw conclusive interpretations and to compare to other, more recent studies (Heiman et al., 2011; Henderson et al., 2009; Schmiedeberg & Schröder, 2016; Velten & Margraf, 2017), as researchers have used various single- and multi-item instruments (with slight differences in question wording and response scales) and have commonly focused exclusively on sexually active individuals in relationships (del Mar Sánchez-Fuentes, Santos-Iglesias, & Sierra, 2014). Conversely, our prevalence of sexual pleasure is higher than that reported by one previous HIV study (Hankins et al., 1997), conducted early in the epidemic. Thirty-three per cent of women living with HIV in that study reported feeling little to no sexual pleasure during recent sexual activity, compared to just 20% of women in our analysis. As both scales used the same time frame, phrasing, and study population, this improvement in time could reflect the repositioning of HIV as a chronic disease today, which may reduce fears of transmission and maximize women's enjoyment of sex.

The finding that women in long-term/happy relationships were more likely to feel that their present sex life was, overall, either completely, very, or reasonably satisfactory compared to

women in all other relational contexts is consistent with other results showing the quality of a relationship with a partner can impact the quality of women's sex life, both within (Castro et al., 2010; Inoue et al., 2004; Peltzer, 2011) and outside the HIV field (Haavio-Mannila & Kontula, 1997; Henderson et al., 2009; Sánchez-Fuentes et al., 2014). Previous studies, though, focused on singular dimensions. For example, some reported longer relationship duration predicts lower sexual satisfaction due, in part, to more familiar, routine sex (Carpenter, Nathanson, & Kim, 2009; Liu, 2003; Pedersen & Blekesaune, 2003; Schmiedeberg & Schröder, 2016). Yet, within long-term committed relationships, women can have varying experiences of sexual satisfaction based on other critical subtleties of relationships, as seen with the long-term/happy and long-term/unhappy latent classes in our analysis (of which, the latter had lower levels of love, power, intimacy, and HIV-negative partners and were less likely to be satisfied sexually). This finding underscores the importance of considering the interaction of several relationship variables. It also highlights how partaking in sex does not universally mean a woman is enjoying a satisfying sex life, adding to previous literature among women without HIV (Fahs & Swank, 2011).

With regard to sexual pleasure, we found that women in long-term/unhappy relationships also had significantly reduced odds of always feeling pleasure compared to women in short-term and long-term/happy relationships. The former comparison (i.e., long-term/unhappy to short-term) may indicate that, when indicators of intimacy and power are equal, newer relationships are more sexually gratifying, as observed in past HIV research (Hankins et al., 1997). It may also point to a role of couple HIV serostatus, as HIV-positive partners were more common in long-term/unhappy relationships and previous research suggests some women may stay in these relationships simply because of shared status, fearing that no HIV-negative person would want to be with them (Keegan, Lambert, & Petrak, 2005; Lawless et al., 1996; Nevedal & Sankar, 2015).

Yet relationships and pleasurable sex *is* possible with HIV-negative people, as seen for women in the long-term/happy latent class (of which 71% had HIV-negative partners and 64.2% always felt pleasure), corroborating past research linking pleasure to power equity (Holland, Ramazonoglu, Sharpe, & Thomson, 1992), physical and emotional intimacy (Muhanguzi, 2015), and other relational factors (Carpenter et al., 2009). This finding subverts a common assumption that couples with differing HIV statuses are plagued by sexual challenges (Beckerman & Auerbach, 2002; Bunnell et al., 2005; Lawless et al., 1996; Rispel, Metcalf, Moody, Cloete, & Caswell, 2011; Siegel et al., 2006; van der Straten et al., 1998). Clearly, HIV “serodiscordance” does not necessarily mean sexual discord. In fact, serodiscordance may even enhance intimacy for women through the process of partner acceptance and validation (Persson, 2005), which may reduce internalized stigma and facilitate self-acceptance, all leading to more capacity for trust, intimacy, and pleasure.

Beyond relationships, our findings highlight how sexual experiences are also shaped by a number of important social factors. Women living with HIV experience high rates of violence (Logie et al., 2017), depression, and trauma (Machtinger et al., 2012). Our results show that these stressors can greatly affect experiences of both sexual satisfaction and pleasure, consistent with findings outside the HIV field (del Mar Sánchez-Fuentes et al., 2014). Involvement in transactional sex is also more common among women living with HIV, though it negatively affected reports of sexual pleasure only. Conversely, factors associated with increased sexual pleasure included higher education and provider communication about the science of transmission, while these same factors predicted lower odds for sexual satisfaction. The former findings are consistent with previous research linking higher social status to sexual pleasure (Sanchez et al., 2005), likely through enhanced sexual agency (Bay-Cheng & Eliseo-Arras,

2008). They may also signify the sexually liberating potential of the prevention benefits of cART for some women (Persson, 2016), though important inequities in awareness of this science and in treatment remain (Carter, Roth, et al., 2017; Patterson et al., 2017). Regarding the latter finding (on satisfaction), one interpretation may be that women who are more highly educated and have talked to their doctor about this global strategy are less satisfied because they have higher internal expectations for their sex lives (McClelland, 2010).

Collectively, these findings expand the literature on the sexuality of women living with HIV, while also making a number of contributions to the broader science of women's sexuality. First and foremost, critical sexuality researchers have emphasized the importance of centering discussions of abject bodies within the sexuality field (Fahs & McClelland, 2016). This study constitutes an important example of how to engage with this goal. By reframing the sexual experiences of women who are living with HIV away from contagion, as women with other sexually transmitted infections (Nack, 2008) and severe mental illness (Davison & Huntington, 2010) have done, we can build an evidence-base that de-stigmatizes sexuality for marginalized and excluded groups. The findings also make visible the relational and social powers that influence women's sexuality. Many of these factors (e.g., sex work, drug use, violence at war, PTSD) are invisible in current literature, as psychological studies often rely on university samples. Finally, from a methodological point of view, this paper demonstrates the utility of feminist quantitative approaches in understanding and supporting women's sexual lives. LCA, in particular, offers a rich area of study for measuring dynamic patterns of sex and relationship experience.

Limitations

A significant limitation of this study is that the measures used to assess sexual

satisfaction and pleasure were broad, whereas the underlying concepts are comprehensive and multifaceted (Opperman, Braun, Clarke, & Rogers, 2014; Pronier & Monk-Turner, 2014). Choice of measurement should be informed by the research question; however, this study was a tertiary objective of the larger parent study. Our questionnaire had a total of nine sections (Abelsohn, 2014), just one of which was specific to sexual health. Of relevance to feminist community-based research, we prioritized questions that were most important to women with HIV and sought to balance participant burden with scientific rigor, a frequent challenge in research with vulnerable populations (Ulrich, Wallen, Feister, & Grady, 2005). While our single-item assessments precluded us from understanding the multiple dimensions of these constructs, it is worth noting that a recent review of sexual satisfaction tools found that just one question can meet some psychometric criteria and is enough if cost or participant burden is a concern (although this item was not from the SSS-W) (Mark et al., 2014). Nonetheless, future research should examine these experiences using the full range of items included in validated scales.

We also acknowledge that we did not assess how women were interpreting “sexual satisfaction” and “sexual pleasure.” While these experiences may be quite personal in nature (i.e., what brings one woman sexual enjoyment may not pleasure another woman), appraisals may be subject to gender norms, social stigma, and other factors (McClelland, 2010, 2011, 2013). For instance, some women may consider their partner’s satisfaction in their own self-ratings (McClelland, 2011), or pleasure may be experienced or interpreted differently across age groups (Taylor et al., 2016). Data may also be affected by social desirability bias, such that sexual satisfaction and/or pleasure were over-reported. We aimed to minimize the effect of such biases, through the involvement of women living with HIV in the design and administration of the survey, as well as intensive survey training and piloting procedures.

Another important limitation is that we provided no definition for “sexual experiences,” which, depending on the person, may include oral, vaginal, and/or anal sex as well as a broader range of activities such as kissing, touching, masturbation, and so forth (Peterson & Muehlenhard, 2007; Sanders et al., 2010). Given the varied meanings of the same construct, it remains difficult to make conclusions about the kinds of activities that are eliciting pleasure as well as reports of pleasure among women in no relationships and relationships without sex. Future HIV studies should assess these constructs in surveys more carefully. Future work should also explore how physical health (e.g., vaginal pain, disabilities, general ill-health) may influence sexual enjoyment, as these data was not collected in our survey.

Some effect estimates for sexual satisfaction were extremely large with wide CIs, chiefly for the long-term/happy versus no relationship comparison because of high correlations with two LCA indicators (i.e., physical intimacy and emotional closeness). These results should be interpreted cautiously. Interestingly though, these measures were not perfectly correlated in our study, since three classes (i.e., relationships without sex, short-term, and long-term/unhappy) had similar levels of physical intimacy but differed in terms of overall satisfaction, perhaps owing to differing emotional closeness, couple HIV serostatus, or other unmeasured factors (e.g., trust, communication). Future work should assess additional aspects of relationships (including non-sexual dynamics) and explore their relative importance. This topic is particularly ripe for exploration qualitatively, and studies should explore women’s narratives about feeling sexually happy and having great sex to help increase possibilities for women living with HIV to enjoy their sexuality.

While this research has limitations, it focuses on a much-needed area of sexual health for women living with HIV. Additional critical studies on sexual rights and social justice in the

context of HIV are necessary.

Implications

Sexual satisfaction and pleasure were greatest in long-term/happy relationships, underscoring the centrality of love, intimacy, and power to positive sexual outcomes. However, it is important to acknowledge that all consensual relationship types are valid, and to avoid discourses that position women's pursuit of pleasure as proper only in the context of committed, long-term relationships (Fahs, 2014; Holland, Ramazanoglu, Scott, Sharpe, & Thomson, 1990). Women deserve to have the type of relationship they want (inclusive of no sex and both serious and casual relations), and they should be free to pursue pleasurable and satisfying sexual experiences regardless. Thus, we advocate for the need for interventions to 1) improve unequal sexual power within *all* relationships and between different socio-demographic groups, 2) promote sexuality and HIV education (including the right to autonomy, mutual pleasure, and the science of HIV transmission), and 3) address the social impediments to women's sexual wellbeing, especially stigma, violence, and trauma of various kinds. By doing so, all women living with HIV may be able to more easily negotiate and fight for sexual satisfaction and pleasure in their lives.

Conclusions

This research provides an alternative, pleasure-focused narrative that is largely absent in quantitative research on sexuality among women living with HIV, one that supports women's right to sexual satisfaction and pleasure while simultaneously uncovering the factors that can deny women these rights. In making perspectives like these more visible, and through disseminating positive accounts of sexuality, we hope women living with HIV will feel less alone and more empowered to lead the sexual lives they really want. We call on providers and

researchers to support women in this endeavour by talking about and studying the rewarding aspects of sexuality and relationships, including non-sexual relationships that can bring joy to women's lives. Not only is researching and promoting sexual satisfaction and pleasure important for pleasure's sake, but it may also contribute to positive outcomes across multiple dimensions of well-being and sexual health (Herbenick et al., 2009; Higgins, Mullinax, Trussell, Davidson Sr, & Moore, 2011; Hogarth & Ingham, 2009; Smiler, Ward, Caruthers, & Merriwether, 2005).

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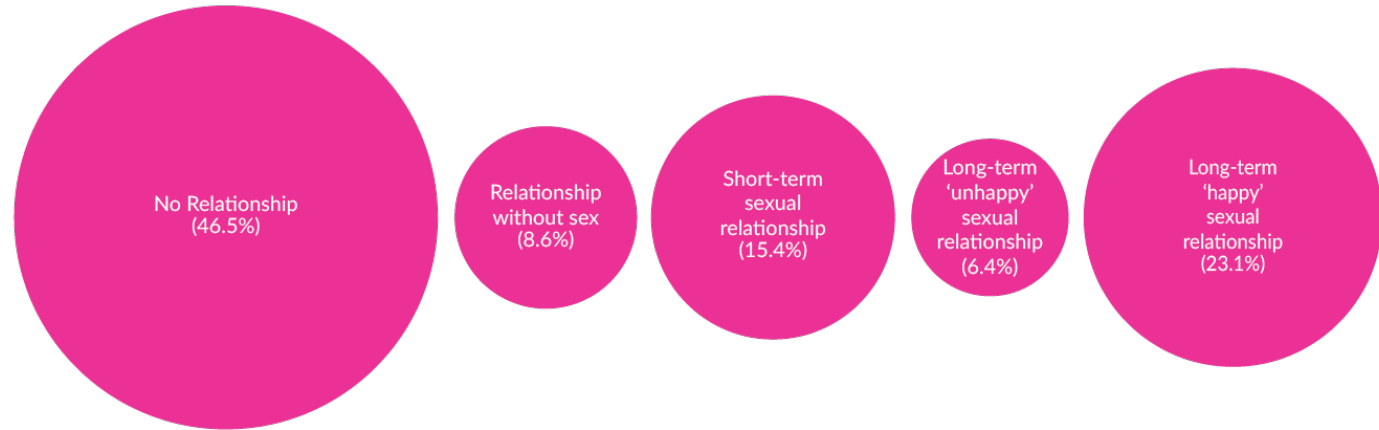
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Latent Class Structure



Relationship Indicators

Sexual relationship status					
Single and not having sex	1.00	-	-	-	-
Partnered and not having sex	-	1.00	-	-	-
Single and having sex	-	-	0.85	-	0.28
Partnered and having sex	-	-	0.15	1.00	0.72
Content with physical intimacy	-	0.43	0.46	0.44	0.97
Enough emotional closeness	-	0.27	0.16	0.24	0.86
Relationship duration of ≥ 3 years	-	-	0.35	0.89	0.62
Sexually monogamous	-	-	0.60	0.90	0.88
HIV-negative partner	-	-	0.81	0.59	0.71
High power equity	-	-	0.51	0.52	0.93
(among those who had sex in past 1-month)					

Figure 1

Five distinct patterns of sexual relationship experiences resulting from latent class analysis among women living with HIV in CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study (N = 1,335). Class membership probabilities (upper half) estimate the prevalence of the latent classes within the entire sample. Item-response probabilities (lower half) are class conditional, estimating the percentage of individuals who reported the responses indicated given membership in a particular latent class.

Table 1

Baseline characteristics of women living with HIV enrolled in CHIWOS (N=1,334)

Variables	n (%) or M (Q1, Q3)
Outcomes	
Sexual satisfaction	
Completely satisfactory	258 (21.0)
Very satisfactory	211 (17.1)
Reasonably satisfactory	381 (31.0)
Not very satisfactory	171 (13.9)
Not at all satisfactory	209 (17.0)
Sexual pleasure	
Always felt pleasure from sexual experience	279 (21.4)
Usually, about 75% of the time	181 (13.9)
Sometimes, about 50% of the time	80 (6.1)
Seldom, less than 25% of the time	60 (4.6)
Have not felt any pleasure	75 (5.8)
Have had no sexual experience during the past month	628 (48.2)
Explanatory	
Relationship Type	
No relationship	621 (46.5)
Relationship without sex	115 (8.6)
Short-term sexual relationship	205 (15.4)
Long-term 'unhappy' sexual relationship	85 (6.4)
Long-term 'happy' sexual relationship	308 (23.1)
Confounders	
Social, cultural, political, and economic factors	
Age (years), continuous	42.0 (35.0, 50.0)
Sexual orientation	
Heterosexual	1163 (87.5)
Lesbian, gay, bisexual, two-spirited, or queer	166 (12.5)
Gender identity	
Cis gendered women	1277 (95.7)
Trans and gender diverse women	57 (4.3)
Genderism/Sexism, continuous	17.0 (10.0, 28.0)
Ethnicity	
White	550 (41.2)
Indigenous	298 (22.3)
African, Caribbean, Black	386 (28.9)
Other/multiple	100 (7.5)
Racism, continuous	16.0 (8.0, 28.0)
Annual personal income (CAD)	
Less than \$20,000	929 (71.3)
\$20,000 to less than \$40,000	233 (17.9)
\$40,000 or more	140 (10.8)
Education	
Lower than high school	202 (15.2)
High school	573 (43.2)
Higher than high school	552 (41.6)

Transactional sex in the past 6 months	
No	1227 (93.8)
Yes	81 (6.2)
Illicit drug use history	
Never	708 (53.9)
Previously	366 (27.9)
Currently (past 3 months)	238 (18.1)
Have biological children living at home	
Yes	305 (22.8)
No	562 (42.1)
No biological children	415 (31.1)
Not biologically female	52 (3.9)
Time living with HIV (years), continuous	10.8 (5.9, 16.8)
Discussed with provider how viral load impacts transmission risk	
No	411 (21.2)
Yes	906 (68.8)
Perception of how treatment changes transmission risk	
Makes the risk a lot lower	881 (66.5)
All other responses (i.e., no difference, a little lower, higher)	443 (33.5)
HIV stigma scale, continuous	57.5 (42.5, 70.0)
Subcale 1 (personalized stigma), continuous	20 (12.5, 25.0)
Subcale 2 (disclosure), continuous	15 (12.5, 20.0)
Subcale 3 (internalized stigma), continuous	7.5 (2.5, 15.0)
Subcale 4 (public attitudes), continuous	15 (10.0, 17.5)
Mental health and violence factors	
Mental health-related quality of life, continuous	42.2 (31.4, 52.5)
Post-traumatic stress disorder	
Score < 14	692 (52.3)
Score ≥ 14 (likely PTSD)	632 (47.7)
Depression	
Score < 10	662 (51.3)
Score ≥10 (depressive symptoms)	628 (48.6)
Any violence as an adult	
Never	251 (19.6)
Previously	754 (58.7)
Currently (past 3 months)	278 (21.7)
Any violence as a child	
No	399 (31.3)
Yes	876 (68.7)
Any violence at war, as an adult or child	
No	1083 (84.7)
Yes	196 (15.3)
Physical health factors	
Physical health-related quality of life, continuous	47.9 (33.6, 55.5)
On combination antiretroviral therapy	
Never	168 (12.6)
Previously	61 (4.6)
Currently	1099 (82.8)
Most recent viral load	
Undetectable	1031 (77.3)
Detectable	193 (15.5)
Never accessed medical care / Never received results	42 (3.2)
Don't know	68 (5.1)

Most recent CD4 cell count	
<200	72 (5.4)
200 to <500	360 (27.0)
500 or more	665 (49.9)
Never accessed medical care / Never received results	37 (2.8)
Don't know	198 (14.9)

Note. CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study.

Table 2
Bivariable associations with sexual satisfaction among women living with HIV enrolled in CHIWOS (N=1,230), with row percentages shown

Variables	Completely satisfactory	Very satisfactory	Reasonably satisfactory	Not Very/ Not at all satisfactory	DF	Chi-square value	p-value
	(n=258, 21.0%) n (%) or M (Q1, Q3)	(n=211, 17.1%) n (%) or M (Q1, Q3)	(n=381, 31.0%) n (%) or M (Q1, Q3)	(n=380, 30.9%) n (%) or M (Q1, Q3)			
Relationship Type					12	360.4846	< .0001
No relationship	66 (12.4)	66 (12.4)	165 (30.9)	237 (44.4)			
Relationship without sex	22 (20.4)	9 (8.3)	36 (33.3)	41 (38.0)			
Short-term sexual relationship	15 (7.6)	29 (14.7)	87 (43.9)	67 (33.8)			
Long-term 'unhappy' sexual relationship	7 (8.2)	9 (10.6)	40 (47.1)	29 (34.1)			
Long-term 'happy' sexual relationship	148 (48.7)	98 (32.0)	53 (17.3)	6 (2.0)			
Confounders							
Social, cultural, political, and economic factors							
Age (years), continuous	40.5 (33.0, 49.0)	40.0 (34.0, 48.0)	41.0 (35.0, 50.0)	45.0 (38.0, 52.0)	3	32.1859	< .0001
Sexual orientation					3	1.8979	.5939
Heterosexual	219 (20.6)	188 (17.7)	329 (30.9)	328 (30.8)			
Lesbian, gay, bisexual, two-spirited, or queer	39 (24.2)	23 (14.3)	48 (29.8)	51 (31.7)			
Gender					3	0.2781	.9641
Cis gendered women	248 (21.1)	202 (17.2)	363 (30.9)	363 (30.9)			
Trans and gender diverse women	10 (18.5)	9 (16.7)	18 (33.3)	17 (31.5)			
Genderism/Sexism, continuous	16.0 (8.0, 28.0)	17.0 (11.0, 26.0)	20.0 (11.0, 28.5)	18.0 (11.0, 28.0)	3	9.2252	.0264
Ethnicity					9	41.4693	< .0001
White	97 (18.1)	79 (14.7)	192 (35.8)	169 (31.5)			
Indigenous	77 (27.8)	54 (19.5)	91 (32.9)	55 (19.9)			
African, Caribbean, Black	66 (20.5)	58 (18.0)	74 (19.4)	124 (38.5)			
Other/multiple	18 (20.0)	20 (21.3)	24 (25.5)	32 (34.0)			
Racism, continuous	16.0 (8.0, 28.0)	16.0 (8.0, 27.0)	17.0 (8.0, 28.0)	16.0 (8.0, 29.0)	3	2.624	.4533
Annual personal income (CAD)					6	9.2763	.1586
Less than \$20,000	176 (20.7)	143 (16.8)	272 (31.9)	261 (30.6)			
\$20,000 to less than \$40,000	50 (23.4)	29 (13.5)	66 (30.8)	69 (32.2)			
\$40,000 or more	26 (19.4)	34 (25.4)	35 (26.1)	39 (29.1)			
Education					6	14.7275	.0225
Lower than high school	42 (22.8)	35 (19.0)	50 (27.2)	57 (31.0)			
High school	125 (23.8)	82 (15.6)	176 (33.5)	142 (27.1)			

Higher than high school	88 (17.1)	94 (18.3)	153 (29.8)	179 (34.8)			
Transactional sex in the past 6 months					3	1.2957	.7302
No	235 (20.8)	194 (17.2)	346 (30.6)	354 (31.4)			
Yes	15 (19.5)	10 (13.0)	27 (35.1)	25 (32.5)			
Illicit drug use history					6	6.8145	.3383
Never	122 (19.3)	116 (18.4)	201 (31.8)	193 (30.5)			
Previously	82 (23.1)	51 (14.4)	101 (28.4)	121 (34.1)			
Currently (past 3 months)	52 (23.2)	41 (18.3)	67 (29.9)	64 (28.6)			
Have biological children living at home					9	10.4951	0.3119
Yes	60 (21.7)	46 (16.6)	74 (26.7)	97 (35.0)			
No	121 (23.2)	94 (18.0)	159 (30.5)	147 (28.2)			
No biological children	68 (17.8)	61 (15.9)	133 (34.7)	121 (31.6)			
Not biologically female	9 (18.4)	10 (20.4)	15 (30.6)	15 (30.6)			
Time living with HIV (years), continuous	10.8 (6.3, 16.2)	10.0 (5.6, 16.0)	11.2 (5.6, 17.9)	11.0 (6.5, 16.8)	3	2.1025	.5514
Discussed with provider how viral load impacts transmission risk					3	5.3688	.1467
No	74 (19.8)	52 (13.9)	124 (33.2)	123 (33.0)			
Yes	181 (21.5)	157 (18.6)	251 (29.8)	253 (30.1)			
Perception of how treatment changes transmission risk					3	2.5897	.4593
Makes the risk a lot lower	169 (20.9)	147 (18.1)	249 (30.7)	245 (30.2)			
All other responses (i.e., no difference, a little lower, higher)	88 (21.4)	60 (14.6)	129 (31.4)	134 (32.6)			
HIV stigma scale, continuous	52.5 (37.5, 70.0)	55.0 (42.5, 65.0)	60.0 (45.0, 75.0)	60.0 (45.0, 72.5)	3	19.7018	.0002
Subcale 1 (personalized stigma), continuous	17.5 (10.0, 25.0)	20.0 (12.5, 25.0)	22.5 (12.5, 27.5)	20.0 (12.5, 27.5)	3	10.1073	.0177
Subcale 2 (disclosure), continuous	15.0 (10.0, 20.0)	15.0 (12.5, 20.0)	15.0 (12.5, 20.0)	17.5 (12.5, 20.0)	3	7.0747	.0696
Subcale 3 (internalized stigma), continuous	7.5 (0.0, 12.5)	7.5 (0.0, 12.5)	7.5 (7.5, 15.0)	7.5 (2.5, 17.5)	3	22.3978	< .0001
Subcale 4 (public attitudes), continuous	15.0 (10.0, 17.5)	15.0 (10.0, 17.5)	15.0 (10.0, 17.5)	15.0 (10.0, 17.5)	3	4.4027	.2211
Mental health and violence factors							
Mental health-related quality of life	46.8 (34.2, 55.9)	48.2 (37.0, 55.9)	44.1 (33.2, 52.4)	37.4 (26.1, 46.5)	3	77.2935	< .0001
Post-traumatic stress disorder					3	41.3941	< .0001
Score < 14	152 (23.4)	139 (21.4)	204 (31.4)	154 (23.7)			
Score ≥ 14 (likely PTSD)	103 (17.9)	72 (12.5)	176 (30.6)	224 (39.0)			
Depression					3	91.8095	< .0001
Score < 10	164 (26.3)	142 (22.8)	193 (31.0)	124 (19.9)			
Score ≥ 10 (depressive symptoms)	86 (15.0)	63 (11.0)	180 (31.5)	243 (42.5)			
Any violence as an adult							.0047
Never	58 (26.0)	38 (17.0)	75 (33.6)	52 (23.3)	6	18.7107	
Previously	148 (21.0)	128 (18.2)	210 (29.9)	217 (30.9)			
Currently (past 3 months)	43 (16.4)	34 (13.0)	83 (31.7)	102 (38.9)			

Any violence as a child					3	3.9221	.2700
No	82 (22.6)	70 (19.3)	105 (28.9)	106 (29.2)			
Yes	166 (20.3)	128 (15.7)	261 (32.0)	261 (32.0)			
Any violence at war, as an adult or child					3	14.2102	.0026
No	205 (20.3)	172 (17.1)	332 (32.9)	299 (29.7)			
Yes	42 (24.0)	28 (16.0)	35 (20.0)	70 (40.0)			
Physical health factors							
Physical health-related quality of life	50.7 (35.4, 56.2)	51.3 (37.4, 55.9)	46.8 (33.4, 54.9)	46.1 (32.0, 55.8)	3	9.0763	.0283
On combination antiretroviral therapy					6	11.9848	.0623
Never	28 (17.6)	33 (20.8)	62 (39.9)	36 (22.6)			
Previously	10 (17.5)	11 (19.3)	20 (35.1)	16 (28.1)			
Currently	218 (21.6)	166 (16.5)	296 (29.4)	328 (32.5)			
Most recent viral load					9	17.2901	.0444
Undetectable	207 (21.7)	159 (16.7)	283 (29.7)	305 (31.9)			
Detectable	32 (18.1)	31 (17.5)	70 (39.6)	44 (24.9)			
Never accessed medical care / Never received results	9 (23.1)	10 (25.6)	14 (35.9)	6 (15.4)			
Don't know	10 (16.7)	11 (18.3)	14 (23.3)	25 (41.7)			
Most recent CD4 cell count					12	16.4579	.1712
<200	11 (16.9)	10 (15.4)	19 (29.2)	25 (38.5)			
200 to <500	78 (23.4)	56 (16.8)	114 (34.2)	85 (25.5)			
500 or more	126 (20.4)	103 (16.6)	181 (29.2)	209 (33.8)			
Never accessed medical care / Never received results	8 (23.5)	9 (26.5)	13 (38.2)	<5 (11.8)			
Don't know	35 (19.8)	33 (18.6)	53 (29.9)	56 (31.6)			

Note. CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study.

Table 3
Bivariable associations with sexual pleasure among women living with HIV enrolled in CHIWOS who report any recent (past month) sexual experience, with row percentages shown (N=675)

Variables	Always felt sexual pleasure	Usually/ Sometimes (50-75%)	Seldom (25%)/ Have not felt any pleasure	DF	Chi-square value	p-value
	(n=279, 41.3%) n (%) or M (Q1, Q3)	(n=261, 38.7%) n (%) or M (Q1, Q3)	(n=135, 20.0%) n (%) or M (Q1, Q3)			
Relationship Type				8	170.6634	< .0001
No relationship	34 (24.3)	44 (31.4)	62 (44.3)			
Relationship without sex	7 (28.0)	6 (24.0)	12 (48.0)			
Short-term sexual relationship	47 (30.7)	69 (45.1)	37 (24.2)			
Long-term 'unhappy' sexual relationship	12 (16.2)	46 (62.2)	16 (21.6)			
Long-term 'happy' sexual relationship	179 (64.2)	96 (33.9)	8 (2.8)			
Confounders						
Social, cultural, political, and economic factors						
Age (years), continuous	38.0 (32.0, 46.0)	40.0 (35.0, 47.0)	44.0 (36.0, 50.0)	2	19.393	< .0001
Sexual orientation				2	1.3008	.5218
Heterosexual	233 (40.7)	222 (38.7)	118 (20.6)			
Lesbian, gay, bisexual, two-spirited, or queer	46 (46.5)	36 (36.4)	17 (17.2)			
Gender				2	2.2492	.3248
Cis gendered women	268 (41.9)	247 (38.6)	125 (19.5)			
Trans and gender diverse women	11 (31.4)	13 (40.0)	10 (27.6)			
Genderism/Sexism, continuous	16.0 (9.0, 26.0)	18.0 (12.0, 27.0)	22.0 (11.0, 28.5)	2	5.8407	.0539
Ethnicity				6	9.5683	.1440
White	121 (40.3)	121 (40.3)	58 (19.3)			
Indigenous	75 (47.8)	45 (28.7)	37 (23.6)			
African, Caribbean, Black	66 (39.1)	72 (42.6)	31 (18.3)			
Other/multiple	17 (34.7)	23 (46.9)	9 (18.4)			
Racism, continuous	15.0 (8.0, 27.0)	16.0 (8.0, 26.0)	17.0 (8.0, 29.0)	2	4.1402	.1262
Annual personal income (CAD)				4	2.7018	.6089
Less than \$20,000	187 (40.3)	177 (38.1)	100 (21.5)			
\$20,000 to less than \$40,000	52 (43.3)	48 (40.0)	20 (16.7)			
\$40,000 or more	33 (45.8)	28 (38.9)	11 (15.3)			

Education				4	8.0803	.0887
Lower than high school	33 (33.0)	39 (39.0)	28 (28.0)			
High school	123 (44.4)	99 (35.7)	55 (19.9)			
Higher than high school	121 (41.3)	122 (41.6)	50 (17.1)			
Transactional sex in the past 6 months				2	21.9149	< .0001
No	254 (43.0)	227 (38.5)	109 (18.5)			
Yes	12 (18.2)	28 (42.4)	26 (39.4)			
Illicit drug use history				4	11.3869	.0225
Never	138 (46.6)	107 (36.2)	51 (17.2)			
Previously	85 (39.2)	92 (42.4)	40 (18.4)			
Currently (past 3 months)	53 (33.8)	61 (38.9)	43 (27.4)			
Have biological children living at home				6	12.8931	.0448
Yes	67 (44.4)	58 (38.4)	26 (17.2)			
No	111 (36.0)	128 (41.6)	69 (22.4)			
No biological children	92 (50.0)	61 (33.2)	31 (16.9)			
Not biologically female	9 (28.1)	14 (43.8)	9 (28.1)			
Time living with HIV (years), continuous	9.6 (5.0, 16.4)	11.9 (6.6, 17.9)	10.4 (6.7, 15.5)	2	5.0178	.0814
Discussed with provider how viral load impacts transmission risk				2	17.5898	.0002
No	60 (32.8)	68 (10.2)	55 (30.1)			
Yes	216 (44.6)	190 (39.3)	78 (16.1)			
Perception of how treatment changes transmission risk				2	3.6113	.1644
Makes the risk a lot lower	199 (42.3)	185 (39.4)	86 (18.3)			
All other responses (i.e., no difference, a little lower, higher)	75 (37.7)	75 (37.7)	49 (24.6)			
HIV stigma scale, continuous	55.0 (40.0, 67.5)	55.0 (42.5, 70.0)	60.0 (45.0, 72.5)	2	6.2803	.0433
Subcale 1 (personalized stigma), continuous	17.5 (10.0, 25.0)	20.0 (10.0, 25.0)	20.0 (12.5, 25.0)	2	2.3428	.3099
Subcale 2 (disclosure), continuous	15.0 (10.0, 20.0)	17.5 (12.5, 20.0)	15.0 (12.5, 20.0)	2	1.3634	.5058
Subcale 3 (internalized stigma), continuous	7.5 (0, 12.5)	7.5 (0, 15.0)	8.8 (5.0, 17.5)	2	12.7458	.0017
Subcale 4 (public attitudes), continuous	15.0 (10.0, 15.0)	15.0 (10.0, 15.0)	15.0 (10.0, 17.5)	2	2.5869	.2743
Mental health and violence factors						
Mental health-related quality of life	46.5 (34.3, 55.6)	40.6 (29.8, 51.8)	33.3 (23.9, 44.4)	2	47.2708	< .0001
Post-traumatic stress disorder				2	27.9178	< .0001
Score < 14	180 (50.4)	124 (34.7)	53 (14.8)			
Score ≥ 14 (likely PTSD)	97 (31.1)	135 (43.3)	80 (25.6)			
Depression				2	48.4578	< .0001

Score < 10	182 (51.8)	127 (36.2)	42 (12.0)			
Score ≥ 10 (depressive symptoms)	86 (28.1)	131 (42.8)	89 (29.1)			
Any violence as an adult				4	32.2089	< .0001
Never	60 (64.5)	25 (26.9)	8 (8.6)			
Previously	153 (39.9)	149 (38.9)	81 (21.2)			
Currently (past 3 months)	49 (29.2)	78 (46.4)	41 (24.4)			
Any violence as a child				2	11.4283	.0033
No	83 (50.6)	60 (36.6)	21 (12.8)			
Yes	178 (37.5)	189 (39.8)	108 (22.7)			
Any violence at war, as an adult or child				2	4.6456	.098
No	233 (42.1)	216 (39.0)	105 (18.9)			
Yes	28 (31.8)	36 (40.9)	24 (27.3)			
Physical health factors						
Physical health-related quality of life	51.4 (39.3, 56.3)	48.0 (34.7, 56.3)	40.7 (30.5, 54.5)	2	17.9716	.0001
On combination antiretroviral therapy				4	18.7914	.0009
Never	49 (61.3)	17 (21.3)	14 (17.5)			
Previously	17 (44.7)	17 (44.7)	4 (10.5)			
Currently	211 (38.1)	226 (40.8)	117 (21.1)			
Most recent viral load				6	19.4327	.0035
Undetectable	214 (41.1)	205 (39.3)	102 (19.6)			
Detectable	40 (39.6)	41 (40.6)	20 (19.8)			
Never accessed medical care / Never received results	17 (80.9)	<5 (9.5)	<5 (9.5)			
Don't know	8 (25.0)	13 (40.6)	11 (34.4)			
Most recent CD4 cell count				8	21.0371	.0070
<200	10 (24.4)	19 (46.3)	12 (29.3)			
200 to <500	68 (37.1)	79 (43.2)	36 (19.7)			
500 or more	142 (43.6)	124 (38.0)	60 (18.4)			
Never accessed medical care / Never received results	16 (80.0)	<5 (10.0)	<5 (10.0)			
Don't know	43 (41.3)	37 (35.6)	24 (23.1)			

Note. CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study. In total, 628 women (48.2% of sample) reported no sexual experience (solo/partnered) and were excluded from this analysis.

Table 4

Multinomial logistic regression of factors associated with feeling 'completely', 'very', or 'reasonably' satisfied with one's sexual life, in reference to 'not very/not at all' satisfied, among women living with HIV enrolled in CHIWOS (N=1,067)

Variables	Completely satisfactory		Very satisfactory		Reasonably satisfactory	
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Comparison 1: No relationship (referent)						
Relationship without sex	1.87 (1.00, 3.50)	1.88 (0.98, 3.63)	0.74 (0.31, 1.75)	0.76 (0.31, 1.85)	1.49 (0.90, 2.48)	1.45 (0.85, 2.47)
Short-term sexual relationship	0.90 (0.47, 1.74)	1.06 (0.53, 2.12)	1.66 (0.95, 2.91)	1.94 (1.05, 3.58)	1.98 (1.31, 2.98)	2.23 (1.42, 3.51)
Long-term 'unhappy' sexual relationship	0.93 (0.36, 2.38)	1.31 (0.49, 3.58)	1.16 (0.47, 2.83)	1.51 (0.59, 3.88)	2.20 (1.24, 3.89)	2.82 (1.53, 5.22)
Long-term 'happy' sexual relationship	75.73 (31.81, 180.28)	94.05 (35.75, 247.44)	55.15 (22.92, 132.71)	59.06 (22.26, 156.67)	12.41 (5.18, 29.71)	14.33 (5.47, 37.51)
Comparison 2: Relationship without sex (referent)						
Short-term sexual relationship	0.48 (0.21, 1.08)	0.56 (0.24, 1.31)	2.24 (0.88, 5.75)	2.54 (0.96, 6.75)	1.33 (0.74, 2.37)	1.54 (0.83, 2.86)
Long-term 'unhappy' sexual relationship	0.49 (0.17, 1.42)	0.69 (0.23, 2.08)	1.56 (0.48, 5.05)	1.98 (0.59, 6.65)	1.48 (0.73, 2.98)	1.95 (0.93, 4.09)
Long-term 'happy' sexual relationship	40.42 (15.03, 108.73)	50.02 (16.91, 147.93)	74.57 (23.43, 237.28)	77.38 (22.42, 267.08)	8.33 (3.18, 21.86)	9.90 (3.46, 28.33)
Comparison 3: Short-term sexual relationship (referent)						
Long-term 'unhappy' sexual relationship	1.02 (0.35, 3.00)	1.23 (0.41, 3.69)	0.70 (0.26, 1.84)	0.78 (0.29, 2.12)	1.11 (0.59, 2.10)	1.26 (0.65, 2.43)
Long-term 'happy' sexual relationship	83.81 (30.61, 229.46)	88.75 (29.86, 263.78)	33.23 (12.77, 86.45)	30.46 (10.74, 86.41)	6.28 (2.51, 15.69)	6.41 (2.36, 17.43)
Comparison 4: Long-term 'unhappy' sexual relationship (referent)						
Long-term 'happy' sexual relationship	81.77 (24.25, 275.75)	71.97 (19.74, 262.41)	47.64 (14.59, 155.55)	39.08 (11.03, 138.40)	5.64 (2.08, 15.30)	5.08 (1.72, 14.99)
Confounders						
Social, cultural, political, and economic factors						
Age, continuous (10-unit increase)	0.72 (0.61, 0.85)	0.89 (0.73, 1.09)	0.70 (0.58, 0.83)	0.89 (0.71, 1.10)	0.74 (0.64, 0.85)	0.87 (0.73, 1.03)
Genderism/Sexism, continuous (10-unit increase)	0.88 (0.74, 1.05)	1.15 (0.91, 1.45)	0.94 (0.78, 1.13)	1.17 (0.92, 1.48)	1.09 (0.93, 1.27)	1.18 (0.98, 1.42)
Annual personal income (CAD) (Referent: < \$20,000)						
\$20,000 to less than \$40,000	0.98 (0.64, 1.52)	0.86 (0.50, 1.49)	0.82 (0.50, 1.34)	0.72 (0.40, 1.27)	0.91 (0.61, 1.35)	0.82 (0.53, 1.27)
\$40,000 or more	1.00 (0.57, 1.75)	1.14 (0.56, 2.32)	1.50 (0.87, 2.58)	1.38 (0.70, 2.70)	0.94 (0.57, 1.56)	0.85 (0.48, 1.50)
Education (Referent: Lower than high school)						
High school	1.05 (0.64, 1.73)	0.99 (0.55, 1.77)	0.81 (0.47, 1.38)	0.67 (0.37, 1.24)	1.34 (0.83, 2.14)	1.29 (0.78, 2.13)
Higher than high school	0.65 (0.39, 1.07)	0.46 (0.24, 0.86)	0.81 (0.48, 1.36)	0.50 (0.27, 0.94)	0.99 (0.62, 1.58)	0.93 (0.55, 1.57)
Discussed with provider how VL impacts transmission risk (Referent: No)	1.05 (0.73, 1.51)	0.67 (0.43, 1.05)	1.41 (0.94, 2.12)	0.90 (0.56, 1.43)	0.97 (0.70, 1.34)	0.73 (0.51, 1.04)
HIV stigma scale, continuous (10-unit increase)	0.89 (0.82, 0.97)	0.98 (0.87, 1.09)	0.93 (0.85, 1.02)	1.02 (0.90, 1.14)	1.03 (0.95, 1.11)	1.04 (0.95, 1.14)
Mental health and violence factors						
PTSD, score ≥ 14 (Referent: < 14)	0.52 (0.37, 0.73)	1.26 (0.77, 2.08)	0.36 (0.24, 0.52)	0.79 (0.47, 1.34)	0.59 (0.43, 0.80)	0.82 (0.55, 1.24)
Depressive symptoms, score ≥ 10 (Referent: < 10)	0.28 (0.19, 0.39)	0.32 (0.20, 0.53)	0.23 (0.16, 0.34)	0.32 (0.19, 0.53)	0.47 (0.34, 0.64)	0.46 (0.31, 0.70)
Any violence as an adult (Referent: Never)						
Previously	0.69 (0.44, 1.09)	0.58 (0.31, 1.08)	0.87 (0.53, 1.44)	0.95 (0.50, 1.81)	0.70 (0.46, 1.08)	0.67 (0.40, 1.13)
Currently (past 3 months)	0.40 (0.23, 0.70)	0.38 (0.18, 0.82)	0.46 (0.25, 0.84)	0.57 (0.26, 1.27)	0.57 (0.35, 0.92)	0.47 (0.25, 0.87)
Any violence as a child (Referent: No)	0.89 (0.62, 1.28)	1.29 (0.77, 2.15)	0.80 (0.54, 1.18)	1.09 (0.66, 1.83)	1.01 (0.72, 1.42)	1.33 (0.87, 2.02)
Physical health factors						
On combination antiretroviral therapy (Referent: Never)						
Previously	0.96 (0.34, 2.74)	0.95 (0.27, 3.37)	0.77 (0.27, 2.18)	0.71 (0.22, 2.36)	1.00 (0.42, 2.36)	1.20 (0.47, 3.05)
Currently	0.89 (0.51, 1.54)	1.26 (0.63, 2.52)	0.52 (0.31, 0.89)	0.64 (0.34, 1.23)	0.52 (0.33, 0.82)	0.77 (0.45, 1.30)

Note. Effect estimates with 95% CIs that do not cross the null value of '1' are in bold. CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study.

Table 5
Multinomial logistic regression of factors associated with 'always' or 'usually/sometimes' feeling sexual pleasure, in reference to 'seldom/none at all', among women living with HIV enrolled in CHIWOS who report any recent (past month) sexual experience (N=567)

Variables	Always felt pleasure		Usually/Sometimes (50-75%)	
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Comparison 1: No relationship (referent)				
Relationship without sex	1.15 (0.41, 3.23)	1.15 (0.35, 3.81)	0.65 (0.21, 2.02)	0.71 (0.21, 2.35)
Comparison 2: Short-term sexual relationship (referent)				
Long-term 'unhappy' sexual relationship	0.40 (0.14, 1.13)	0.29 (0.10, 0.87)	1.55 (0.73, 3.30)	1.33 (0.59, 3.02)
Long-term 'happy' sexual relationship	19.74 (7.62, 51.11)	11.83 (4.29, 32.59)	7.59 (2.96, 19.46)	6.48 (2.40, 17.47)
Comparison 3: Long-term 'unhappy' sexual relationship (referent)				
Long-term 'happy' sexual relationship	49.00 (14.46, 166.05)	41.02 (11.49, 146.40)	4.89 (1.75, 13.62)	4.84 (1.66, 14.09)
Confounders				
Social, cultural, political, and economic factors				
Age, continuous (10-unit increase)	0.62 (0.49, 0.79)	0.82 (0.59, 1.13)	0.75 (0.60, 0.95)	0.91 (0.67, 1.23)
Genderism/Sexism, continuous (10-unit increase)	0.74 (0.58, 0.93)	1.12 (0.75, 1.68)	0.89 (0.71, 1.12)	1.08 (0.74, 1.56)
Racism, continuous (10-unit increase)	0.83 (0.68, 1.02)	0.96 (0.67, 1.35)	0.94 (0.77, 1.15)	1.10 (0.80, 1.52)
Education (Referent: Lower than high school)				
High school	1.72 (0.91, 3.26)	1.47 (0.65, 3.36)	1.18 (0.64, 2.19)	1.30 (0.62, 2.71)
Higher than high school	2.40 (1.26, 4.57)	2.22 (0.94, 5.22)	1.94 (1.04, 3.60)	2.28 (1.05, 4.92)
Transactional sex in the past 6 months (Referent: No)	0.15 (0.06, 0.34)	0.16 (0.05, 0.52)	0.41 (0.22, 0.79)	0.49 (0.19, 1.26)
Illicit drug use history (Referent: Never)				
Previously	0.71 (0.41, 1.20)	1.42 (0.70, 2.88)	1.05 (0.61, 1.78)	1.57 (0.81, 3.04)
Currently (past 3 months)	0.40 (0.22, 0.70)	1.49 (0.64, 3.47)	0.67 (0.38, 1.17)	1.35 (0.62, 2.95)
Have biological children living at home (Referent: Yes)				
No	0.60 (0.33, 1.09)	0.98 (0.45, 2.13)	0.74 (0.41, 1.34)	0.95 (0.46, 1.96)
No biological children	0.86 (0.44, 1.66)	1.01 (0.44, 2.29)	0.65 (0.33, 1.27)	0.84 (0.38, 1.85)
Not biologically female	0.23 (0.07, 0.78)	1.01 (0.20, 5.06)	0.48 (0.17, 1.37)	1.10 (0.28, 4.24)
Discussed with provider how VL impacts transmission risk (Referent: No)	2.63 (1.62, 4.27)	1.87 (1.00, 3.50)	2.07 (1.29, 3.32)	1.39 (0.79, 2.46)
HIV stigma scale, continuous (10-unit increase)	0.89 (0.79, 0.99)	0.88 (0.74, 1.03)	0.88 (0.79, 0.99)	0.83 (0.71, 0.96)
Mental health and violence factors				
PTSD, score ≥ 14 (Referent: < 14)	0.41 (0.26, 0.65)	1.24 (0.63, 2.44)	0.77 (0.49, 1.21)	1.35 (0.71, 2.55)
Depressive symptoms, score ≥ 10 (Referent: < 10)	0.25 (0.16, 0.41)	0.46 (0.24, 0.91)	0.55 (0.35, 0.88)	0.68 (0.36, 1.28)
Any violence as an adult (Referent: Never)				
Previously	0.31 (0.13, 0.71)	0.38 (0.13, 1.13)	0.55 (0.22, 1.34)	0.49 (0.17, 1.44)
Currently (past 3 months)	0.16 (0.06, 0.40)	0.21 (0.06, 0.73)	0.60 (0.24, 1.53)	0.49 (0.15, 1.62)
Any violence as a child (Referent: No)	0.43 (0.25, 0.76)	1.07 (0.49, 2.31)	0.65 (0.37, 1.17)	1.05 (0.50, 2.19)
Physical health factors				
On combination antiretroviral therapy (Referent: Never)				
Previously	1.07 (0.29, 3.96)	1.36 (0.28, 6.61)	2.68 (0.68, 10.53)	2.27 (0.50, 10.37)
Currently	0.49 (0.23, 1.03)	0.31 (0.11, 0.88)	1.38 (0.59, 3.21)	0.91 (0.33, 2.54)

Note. Estimates with 95% CIs that do not cross the null value of '1' are in bold. CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study.