The Problematization of Sexuality among Women Living with HIV and a New Feminist Approach for Understanding and Enhancing Women's Sexual Lives

Allison Carter, Saara Greene, Deborah Money, Margarite Sanchez, Kath Webster, Valerie Nicholson, Jessica Whitbread, Kate Salters, Sophie Patterson, Mona Loutfy, Neora Pick, Lori A. Brotto, Catherine Hankins, and Angela Kaida

Simon Frazer University

Author Note

Allison Carter, Faculty of Health Sciences, Simon Fraser University, Epidemiology and Population Health, British Columbia Centre for Excellence in HIV/AIDS; Saara Greene, School of Social Work, McMaster University; Deborah Money, Faculty of Medicine, University of British Columbia; Margarite Sanchez, ViVA, Positive Living Society of BC; Kath Webster, Faculty of Health Sciences, Simon Fraser University; Valerie Nicholson, Faculty of Health Sciences, Simon Fraser University; Jessica Whitbread, International Community of Women Living with HIV; Kate Salters, Faculty of Health Sciences, Simon Fraser University, Epidemiology and Population Health, British Columbia Centre for Excellence in HIV/AIDS; Sophie Patterson, Faculty of Health Sciences, Simon Fraser University; Mona Loutfy, Women's College Research Institute, Women's College Hospital, Department of Medicine, University of Toronto; Neora Pick, Oak Tree Clinic, British Columbia Women's Hospital and Health Centre, Faculty of Medicine, University of British Columbia; Lori A. Brotto, Department of Obstetrics and Gynecology, Faculty of Medicine, University of British Columbia; Catherine Hankins,

Amsterdam Institute for Global Health and Development, Department of Global Health, University of Amsterdam, Department of Epidemiology, Biostatistics, and Occupational Health, Faculty of Medicine, McGill University; Angela Kaida, Faculty of Health Sciences, Simon Fraser University

The present review was supported by a Knowledge Synthesis Grant from the Canadian Institutes of Health Research (CIHR, 147983). AC and KS received support through a Doctoral Research Award from the CIHR HIV/AIDS Research Initiative and the Canadian Association for HIV Research (CAHR). AK received salary support through a Tier 2 Canada Research Chair in Global Perspectives on HIV and Sexual and Reproductive Health. We would like to thank all of the women living with HIV, researchers, providers, and policymakers who supported this grant and review. We also thank Dr. Robert S. Hogg for his involvement as Doctoral Supervisor, and Alexandra de Pokomandy, Mary Kestler, Gina McGowan, Joanne Otis, and Wangari Tharao for their contributions to the grant. We dedicate this work to the many women living with HIV around the world.

Correspondence concerning this manuscript should be addressed to Allison Carter, Epidemiology and Population Health Program, British Columbia Centre for Excellence in HIV/AIDS, St. Paul's Hospital, 608-1081 Burrard Street, Vancouver, BC, V6Z 1Y6 Canada. Email: allison_carter@sfu.ca

Abstract

In the context of HIV, women's sexual rights and sexual autonomy are important but frequently overlooked and violated. Guided by community voices, feminist theories, and qualitative empirical research, we reviewed two decades of global quantitative research on sexuality among women living with HIV. In the 32 studies we found, conducted in 25 countries and composed mostly of cis-gender heterosexual women, sexuality was narrowly constructed as sexual behaviours involving risk (namely, penetration) and physiological dysfunctions relating to HIV illness, with far less attention given to the fullness of sexual lives in context, including more positive and rewarding experiences such as satisfaction and pleasure. Findings suggest that women experience declines in sexual activity, function, satisfaction, and pleasure following HIV diagnosis, at least for some period. The extent of such declines, however, is varied, with numerous contextual forces shaping women's sexual well-being. Clinical markers of HIV (e.g., viral load, CD4 cell count) poorly predicted sexual outcomes, interrupting widely held assumptions about sexuality for women with HIV. Instead, the effects of HIV-related stigma intersecting with inequities related to trauma, violence, intimate relations, substance use, poverty, aging, and other social and cultural conditions primarily influenced the ways in which women experienced and enacted their sexuality. However, studies framed through a medical lens tended to pathologize outcomes as individual "problems," whereas others driven by a public health agenda remained primarily preoccupied with protecting the public from HIV. In light of these findings, we present a new feminist approach for research, policy, and practice toward understanding and enhancing women's sexual lives—one that affirms sexual diversity; engages deeply with society, politics, and history; and is grounded in women's sexual rights.

Keywords: Women; sexuality; HIV; feminism; quantitative research; review

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> I hate the way it [having HIV] affects sex. It's like being in a room making love with all the lights on. My counselor, doctor and society are judging me about doing it right. It's no longer sex, it's a public health problem." – A woman living with HIV (VanDevanter, Thacker, Bass, & Arnold, 1999, p. 186)

An HIV diagnosis can be a traumatic experience for women around the world (Anderson et al., 2010; Cain et al., 2013; Kaplan, El Khoury, Field, & Mokhbat, 2016; Liamputtong, Haritavorn, & Kiatying-Angsulee, 2011; Stevens & Tighe Doerr, 1997; Stevens & Hildebrandt, 2006), with profound effects on their sexual lives (Beckerman & Auerbach, 2002; Gurevich, Mathieson, Bower, & Dhayanandhan, 2007; Keegan, Lambert, & Petrak, 2005; Maticka-Tyndale, Adam, & Cohen, 2002; Persson, 2005, 2008; Rispel, Metcalf, Moody, Cloete, & Caswell, 2011; Welbourn, 2013). As feminist scholars theorized when the epidemic began, "it is the sexually transmissible nature of HIV that transforms sexuality into something highly stigmatized and fraught with panic" (Lawless, Crawford, Kippax, & Spongberg, 1996, p. 17). Originally synonymous with sickness and death (Sontag, 1988), those living with HIV were once advised to never have sex again (Kaplan, Sager, & Schiavi, 1985). The accompanying discourses of risk and contamination in society created a major cultural context of fear (Conrad, 1989; Herek & Capitanio, 1994) that continues to foster widespread harassment and prosecution against women living with HIV (International Community of Women Living with HIV/AIDS, 2016). This history plays a prominent role in how sexuality among women in the context of HIV takes shape today.

Presently, however, combination antiretroviral therapy (cART) is enabling women with HIV to live healthier lives, with less comorbidity, longer life expectancy, and zero risk of HIV transmission to sexual partners with sustained viral suppression (Cohen et al., 2011; Montaner,

2011; Montaner et al., 2014; Patterson et al., 2015; Prevention Access Campaign, 2017; Rodger et al., 2016; Samji et al., 2013; Vernazza & Bernard, 2016; Vernazza, Hirschel, Bernasconi, & Flepp, 2008). Although these outcomes are not equally experienced among women around the world owing to differences in health system infrastructure as well as poverty, violence, and intersectional stigma (Berger, 2010; Logie, James, Tharao, & Loutfy, 2011), women are increasingly counselled in clinical practice that they can live a "normal" life with HIV, including a sexual life if desired (Barrington, Kerrigan, Ureña, & Brudney, 2017; Mattes, 2014; Mazanderani & Paparini, 2015). However, societies have stigmatized and criminalized women with HIV so harshly that, as activist Alice Welbourn (2013) explains, "sexual pleasure becomes something scary for us to think about, let alone realize, as it is couched not in terms of what is our right and how we can be supported in this, but in terms of our evil intent" (p. 154).

Indeed, individuals and institutions still see women with HIV (and so, women often see themselves) primarily as a risk to sexual partners (Bayer, 1997; Stevens & Galvao, 2007) rather than as sexual beings with their own sexual rights. Women's personal testimonies reveal extreme pressures to always disclose their HIV-status and always practice "safer sex" (defined narrowly as male condoms), every time, with everyone (Gurevich et al., 2007; Lawless, Crawford, et al., 1996). Those who do not disclose face threats of imprisonment (International Community of Women Living with HIV/AIDS, 2016) and demonization in the media (Mykhalovskiy, Hastings, Sanders, Hayman, & Bisaillon, 2016; Persson & Newman, 2008). Those who do disclose commonly encounter violence, rejection, and abandonment by partners (Gielen, Fogarty, et al., 2000; Gielen, O'Campo, Faden, & Eke, 1997), in addition to fear, prejudice, and moral judgement from society (Herek & Capitanio, 1998; Lawless, Kippax, & Crawford, 1996).

It is not surprising then, that some women living with HIV, prefer to avoid sex altogether or report "lost" or "damaged" sexuality (Closson et al., 2015; Gurevich et al., 2007; Keegan et al., 2005; Lawless, Crawford, et al., 1996; Nevedal & Sankar, 2015; Persson, 2005; Siegel, Schrimshaw, & Lekas, 2006; van der Straten, Vernon, Knight, Gomez, & Padian, 1998; VanDevanter et al., 1999). Many others, however, are reclaiming sexual freedom and fullness through personal and political acts (Abrams, 2017; AIDES, 2016; Becker, 2014; Caballero, 2016; Cardinal et al., March 30, 2014; Fratti, 2017; Iacono, 2016; International Community of Women Living with HIV/AIDS, 2016; McClelland & Whitbread, 2016; Mitchell, Whitbread, & McClelland, 2011; Nade'ge, 2016; Nicholson, Sanchez, Webster, & Carter, March 20, 2016; Petretti, 2017; Prevention Access Campaign, 2017; Sanchez, Webster, Salters, Kaida, & Carter, March 23, 2017; The Well Project, 2017; Whitbread, 2017; Whitbread, 2016).

To support community efforts in redressing the denial of women's sexual desires (Welbourn, 2013), we critically examined two decades of quantitative research on sexuality among women living with HIV around the world (1996 to 2017). In line with international reports that emphasize the importance of women's pleasure to achieving sexual health and rights (Salmander Trust, 2014; World Health Organization, 2017), we sought to make visible studies that moved beyond safer sex and encompassed broader aspects of sexuality. As an interdisciplinary team conducting empirical research on this topic using quantitative methods (Carter et al., 2017a, 2017b, 2017c; Kaida et al., 2015), we focused only on quantitative data. We situated our analysis and critique, however, within several literatures (i.e., feminist theoretical, qualitative empirical, non-academic personal stories) and disciplines (i.e., sexuality, gender, HIV). This allowed us to be as comprehensive as possible in our review of available quantitative research while bringing needed critical perspectives to the field. Our ultimate goal was to

advance understandings of women's sexuality in the context of HIV across multiple, often-contradictory knowledge cultures, and, in turn, shape the direction of future research, policy, and practice.

We synthesized the literature using a rigorous scoping review methodology (Arksey & O'Malley, 2005), an approach to map broader topics underpinning a research area, unlike the often narrow scope of systematic reviews. Our process is documented in detail in the online supplement to this review. Briefly, it involved five iterative and non-linear stages: (a) engaging key stakeholders including women living with HIV, who partnered in framing the study, elucidating the findings, and making recommendations; (b) identifying and selecting articles for inclusion; (c) reviewing the materials and charting relevant information; (d) comparing the data within and between studies; and (e) synthesizing and reporting the data as a coherent whole. The key terms and search strategy used to select articles are shown in Figures 1s and 2s of the online supplement, respectively, and details for each study are provided in Table 1s.

What follows is a critical overview of the evidence aimed at supporting a way forward in research so that policymakers, practitioners, and women living with HIV can make effective use of the findings. Because most papers included in our review lacked conceptual analysis (Fahs & McClelland, 2016), we first defined key terms and looked toward feminist perspectives on sexuality, gender, and HIV to deepen our analysis. With these guiding frameworks, we then summarized the key patterns and issues underpinning the research area, taking care to uncover the diversities of women's sexual experiences, on the one hand, and the uniformities of positivist quantitative analyses on the other. Finally, we offer recommendations for action at all levels to support and enhance the sexual lives of women living with HIV.

Conceptual Analysis

Defining Sexual Health, Sexuality, and Sexual Rights

Sexual health and sexuality has a variety of meanings that have changed over time (Edwards & Coleman, 2004; Fortenberry, 2013; Impett, Muise, & Breines, 2013; Sandfort & Ehrhardt, 2004). The World Health Organization (2006, p. 5) has defined sexual health as "a state of physical, emotional, mental and social well-being in relation to sexuality…not merely the absence of disease, dysfunction or infirmity." It has likewise offered a broad definition of sexuality:

> Sexuality is a central aspect of being human throughout life and encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviours, practices, roles and relationships. While sexuality can include all of these dimensions, not all of them are always experienced or expressed. (World Health Organization, 2006, p. 5)

Critically, these and other reports, including those from feminist scholars, have emphasized the centrality of sexual rights to sexual health and sexuality (Fahs, 2014; Little, 1991; McClelland, 2010; Tiefer, 2001; World Association for Sexual Health, 2014; World Health Organization, 2006). Simply put, it is the right to control one's body, desires, and experiences in relation to sexuality. This includes freedom from all forms of sexual harm including coercion, discrimination, violence, and oppressive mandates, as well as freedom to enjoy all modes of sexual expression including pleasure and satisfaction (Fahs, 2014; McClelland, 2010), regardless of age, race, gender, sexual orientation, nationality, marital status, social and economic situation, health (including HIV) status, and so forth (World Association for Sexual Health, 2014).

Feminist Perspectives on Sexuality, Gender, and HIV

Although perspectives vary widely, most feminist researchers tend to agree that sexuality is diverse and primarily socially constructed—influenced by culture, relational dynamics, economic conditions, and historical, legal, and political factors (Cacchioni, 2007; Carpenter, 2010; Holland, Ramazanoglu, Scott, Sharpe, & Thomson, 1990; Holland, Ramazanoglu, Sharpe, & Thomson, 1994; Holland, Ramazonoglu, Sharpe, & Thomson, 1992; Little, 1991; Meadows, 1997; Reddy & Dunne, 2007; Ryan, 2001; Tiefer, 2004; Vance & Pollis, 1990). What sets feminist approaches apart is their theoretical anchorage in intersectionality (Berger, 2010; Bowleg, 2008; Bredström, 2006; Crenshaw, 1989; Dworkin, 2005; Hancock, 2007; Purdie-Vaughns & Eibach, 2008; Shields, 2008). This theory encourages critical attention to how women's sexual experiences are tied to interlocking social positions, structural inequities, and historical discourses on sexuality, gender, and HIV.

Research by Lawless, Crawford, et al. (1996) provides one of the earliest empirical examples of intersectional feminist theorizing on sexuality among women living with HIV, although they do not explicitly use this term. Based on the narrative accounts of 24 heterosexual women with HIV in Australia, researchers illuminated how women's sexual pleasure and safety was undermined by violence, gender norms (e.g., penetrative sex for men's satisfaction; condoms as incompatible with romance), and both subtle and overt messages from care providers that their sexuality was contaminated and a threat to the public. The authors also found differing negotiations for women in casual versus ongoing HIV sero-concordant and sero-discordant relationships.

Gurevich et al. (2007) extended this theorizing in interviews with 20 women living with HIV in Canada, highlighting the ways in which lower social statuses due to gender and HIV

intersect with multiple cultural dialogues (e.g., female promiscuity) and imperatives (e.g., disclosure demands; prevention burdens) to constrain women's sexual freedoms. Feminist analyses by Squire (2003) and Persson (2005) further reveal the reach of socio-historical discourses concerning sexuality among women with HIV (e.g., HIV as dirty; women with HIV as sexually deviant and vessels of disease; women as sexually passive). Their research analyzed how women and partners internalize these messages and then enact them, consciously and unconsciously, within intimate relationships, leading to both interpersonal and self-stigma, which ultimately shape women's feelings, identities, and possible sexual lives with HIV.

Recent critical work has also drawn attention to how these prevailing cultural norms are reinforced by laws (International Community of Women Living with HIV/AIDS, 2016; Kaida et al., 2015), the media (Mykhalovskiy et al., 2016; Persson & Newman, 2008), and medical and public health practices (Kaida et al., 2015; Mazanderani, 2012; Persson, 2014) that impact, often negatively, but sometimes positively, how women sexually live with HIV. Collectively, in examining women's sexuality in relation to these multiple social and political forces, feminist scholarship is increasingly illuminating how "the most private aspects of living with the virus can at the same time be the most public" (Mazanderani, 2012, p. 393).

Pathologizing Women's Sexuality

Despite these insights, much of contemporary quantitative research on women's sexuality in plagued by over-medicalization and biological reductionism, which has been critiqued for decades, both by feminist scholars (Angel, 2010, 2012, 2013; Bancroft, 2002; Cacchioni, 2007; Moynihan, 2003; Riessman, 1983; Spurgas, 2013, 2016; Tiefer, 1991, 1996, 2003, 2004; Tosh & Carson, 2016; Wood, Koch, & Mansfield, 2006) and clinical, psychology, and sexology experts (Balon, 2008; Bancroft, 2002; Basson et al., 2003; Basson et al., 2004; Brotto, 2010; Graham,

2010; Payne et al., 2006; Segraves, Balon, & Clayton, 2007). Most pressingly, these debates have centred on the construction of “female sexual dysfunction” in the Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 1980, 1987, 1994, 2000, 2013). Although several revisions were made to the latest edition (Basson, 2014; Graham, 2016), the medical community at large continues to broadly define these “disorders” in relation to sexual desire, arousal, orgasm, and pain as documented in models of the “human sexual response cycle” (HSRC) (Kaplan, 1974; Masters & Johnson, 1966). Both frameworks have been criticized for positioning sexual response as a linear sequence of physical, mechanical events that occur similarly in men and women and for labelling those who deviate from the heteronormative sexual scripts buried therein (i.e., high desire, high arousal, frequent (penetrative) intercourse and orgasm as end-point) as abnormal or unhealthy (Tiefer, 2004).

However, researchers have, for some time, argued that sexual experiences cannot and should not be universalized in this way for several reasons (Basson, 2000; Brotto, 2010; Heiman, 2002; Tiefer, 2001). Most importantly, not all women want to have penetrative sex and supporting rather than problematizing their decision is vital (Hayfield & Clarke, 2012; Tosh & Carson, 2016). Further, sexual response cycles are far from universal. Some researchers suggest women’s sexual desire is responsive and extremely context-sensitive, with interest in sex sometimes preceding and other times following some form of sexual arousal or excitement (Brotto, Heiman, & Tolman, 2009; Carvalheira, Brotto, & Leal, 2010; Goldhammer & McCabe, 2011; Graham, Sanders, Milhausen, & McBride, 2004). Others point out that sexual arousal consists of both physiological (e.g., lubrication) and cognitive (e.g., feeling “turned on”) elements, with non-concordance between the body and the mind being common among women (Graham et al., 2004). In addition, despite the privileging of intercourse (Peterson &

Muehlenhard, 2007b), most cisgender women do not reliably orgasm through penetration alone, with the frequency and intensity varying greatly depending on clitoral stimulation and genital anatomy (Basson, 2000; Pfaus, Quintana, Mac Cionnaith, & Parada, 2016; Wallen & Lloyd, 2011). Importantly, however, feminists also caution against essentialisizing gender differences (Angel, 2013; Spurgas, 2013, 2016)—that is, treating such differences as if they were biological or natural as opposed to resulting from dissimilar socialization (i.e., norms about "proper" femininity and masculinity) (Holland et al., 1990; Holland et al., 1994). They also emphasize differences between groups of women, likewise owing to divergent social realities (Tiefer, 2002).

From Disease to Diversity

To avoid over-pathologizing what many view as simply rich and expansive individual difference, Barker and Richards (2013) have advocated that "perhaps a move toward the language of diversity rather than dysfunction/problem would be appropriate as it would remove the implication that being non-sexual, non-orgasmic, non-erectile or non-penetratable are necessarily problems." Some scholars also encourage a shift toward a positive psychology of sexuality (Impett et al., 2013). Recent critical work, for example, has explored concepts of sexual empowerment (Lamb, 2010), pleasure (Sanchez, Crocker, & Boike, 2005), and satisfaction (McClelland, 2010, 2011, 2013). A common thread in these studies is analytic attention to broader social issues such as sexism/genderism, heterosexism, racism, classism, sexual stigma, and violence that can limit what women feel they deserve when it comes to sex and pleasure (Carpenter, 2010; McClelland, 2010; Tiefer, 2004). Such theorizing is especially important for understanding sexuality among women living with HIV whose experiences unfold within particularly unjust environments.

One theory of relevance to our discussion is the dual control model, which proposes widespread individual variability in sexuality due to the interaction between an individual's "sexual excitation system" (SES) and "sexual inhibition system" (SIS) (Bancroft, Graham, Janssen, & Sanders, 2009). These systems receive information from the external and internal environment causing the mind and body to react in different ways depending on whether the stimuli are pleasurable or threatening (Bancroft et al., 2009). For instance, a warm and emotionally connected relationship may be exciting for some, whereas fears of HIV transmission may be inhibiting, along with numerous other potential stressors (e.g., discrimination and abuse from partners, threats of criminalization, and feelings of unattractiveness). By emphasizing the importance of context, this model and feminist theories both advance the notion that there is no normative standard for sexuality and that challenges and changes with sexuality and intimacy after an HIV diagnosis—whether related to having sex, desiring sex, arousal, orgasm, satisfaction, or pleasure, among other many facets—are understandable, given the numerous overt and covert oppressions in women's intimate lives.

These concepts and critical approaches have together informed our critical feminist review of the quantitative literature on sexuality among women living with HIV. The theoretical framing used to inform this review enabled a broader conceptualization and contextualization of women's sexuality in the context of HIV. In doing so, we attempted to resist over-medicalizing women's sexuality and over-pathologizing diversity, while thoughtfully acknowledging and responding to the sexual grief and loss described by many women living with HIV (Gurevich et al., 2007; Lawless, Crawford, et al., 1996; Nevedal & Sankar, 2015; van der Straten et al., 1998).

Critical Review of Past Research

In total, 32 quantitative studies involving 11,552 women living with HIV were included in our review (Agaba et al., 2017; Bernier et al., 2016; Bogart et al., 2006; Bouhnik et al., 2008; Bova & Durante, 2003; Castro, Le Gall, Andreo, & Spire, 2010; Courtenay-Quirk, Zhang, & Wolitski, 2009; Craft & Serovich, 2007; De Vries, Gwyther, & Mkhabela, 2013; Denis & Sung-Mook, 2003; El Fane et al., 2011; Florence et al., 2004; Goggin, Engelson, Rabkin, & Kotler, 1998; Hankins, Gendron, Tran, Lamping, & Lapointe, 1997; Inoue, Yamazaki, Seki, Wakabayashi, & Kihara, 2004; Kaida et al., 2015; Kilmarx, Hamers, & Peterman, 1998; Lambert, Keegan, & Petrak, 2005; Luzi et al., 2009; Negin et al., 2016; Oyedokun, Odeigah, Alabi, Adegunloye, & Akujobi, 2014; Peltzer, 2011; Pinzone et al., 2015; Robinson et al., 2017; Rosenberg et al., 2017; Schrooten et al., 2001; Taylor et al., 2015; Trotta et al., 2008; Valadares et al., 2014; Wessman et al., 2015; Wilson et al., 2010; Zierler et al., 1999). Henceforth, for clarity, we have identified them by their alphabetically assigned number in the reference list.

Quantitative Conceptualizations of Sexuality

Our review of the 32 studies revealed several biases, omissions, and assumptions that are shaping and ultimately limiting knowledge about women's sexuality in the context of HIV. Although the studies spanned 25 countries in six of seven continents, most were conducted in North America and Europe, with fairly few (25%) in Africa (1, 2, 11, 21, 20, 9, 22, 25), where 70% of all people with HIV live (UNAIDS, 2016). Nearly half (15, 47%) of all studies were mixed-gendered cohorts (2, 3, 4, 6, 7, 9, 11, 15, 17, 20, 22, 23, 25, 26, 28), highlighting a persistent lack of research focus on women with HIV, unlike the relative plethora of sex studies for men with HIV (Scanavino, 2011) and women with cancer (Abbott-Anderson & Kwekkeboom, 2012; Emilee, Ussher, & Perz, 2010) and other chronic illnesses (Basson, 2010; Giraldi & Kristensen, 2010). Of these studies, just seven disaggregated their data by gender (2, 3,

7, 11, 17, 23, 25). Further, across the mixed-gendered cohorts, women's bodies, desires, and experiences were largely conceptualized as no different from men's.

Although samples were diverse with respect to age, ethnicity, country, education, and time since HIV diagnosis, studies almost exclusively provided a cis-gendered, heterosexual picture of women's sexuality. Trans and gender diverse women and women identifying as lesbian, gay, bisexual, two-spirited, or queer were either ignored, excluded, or under-represented in quantitative research, severely limiting the full scope of sexualities presented here. In addition, few studies theorized how women's sexuality may differ by membership in other marginalized groups that face multiple sexual stigmas and stereotypes (e.g., younger women, older women, women of colour, women who use substances, or women involved in sex work) (Berger, 2010; Logie et al., 2011) (exceptions: 14, 20, 27). There was also little cross-cultural theoretical analysis, even in multi-country research (2, 12, 26, 30).

In contrast with international definitions of sexuality (World Association for Sexual Health, 2014; World Health Organization, 2006), quantitative conceptualizations of this multifaceted construct were severely limited. The vast majority of reviewed studies were oriented toward understanding sexual inactivity (13, 41%) (2, 3, 7, 8, 14, 16, 17, 20, 24, 25, 27, 30, 32) and dysfunction (16, 50%) (1, 4, 5, 9, 10, 11, 12, 13, 18, 19, 21, 23, 26, 28, 29, 31). Just three studies (9%), all involving mixed-gendered cohorts (6, 15, 22), were principally interested in sexual satisfaction (though studied from a deficit perspective, i.e., dissatisfaction); added insights come from the descriptive statistics of three women-only studies (14, 16, 18). Other affirming aspects of sexual life remained almost entirely overlooked (e.g., feelings of pleasure, love, sexual self-esteem, agency, deservingness) (exceptions: 14, 18)—evidence that the primary concern of quantitative research is pathologizing the state of sexuality among women with HIV

rather than exploring broader, more positive emotional and pleasure-based aspects of women's sexual well-being (Fahs, 2014; Impett et al., 2013). In this way (and others), research can reinforce and perpetuate societal stigma.

Of significance, researchers tended to presume sexual activity, function, and satisfaction are universally understood, desired, and experienced between individuals, despite evidence to the contrary (McClelland, 2010, 2011, 2013; Peterson & Muehlenhard, 2007b; Sanders et al., 2010; Tiefer, 2001). In much of the literature, investigators provided no definition of sexual activity at all, leading readers to assume that it meant heterosexual (penile-vaginal) intercourse. When definitions were provided, they were most often restricted to interpersonal sex involving vaginal and anal intercourse (3, 22, 27), and, in two cases, oral sex as well (16, 24). Two studies also counted caressing and foreplay (10, 31) and just one reported on self-pleasure among women (14). Moreover, notions of consensual and wanted sex (Bay-Cheng & Eliseo-Arras, 2008; Peterson & Muehlenhard, 2007a) remained missing from existing survey items with one exception (16 operationalized consensual but not wanted sex).

This narrow conceptualization of "sex" is consistent with a frequently implicit objective of reducing HIV risk that underlies sexuality studies in the context of HIV. It also ignores the multiple meanings of being sexual (Fahs & McClelland, 2016; Peterson & Muehlenhard, 2007b) including the vast array of non-penetrative experiences that women with HIV describe as essential to their overall pleasure and satisfaction (e.g., kissing, touching, mutual masturbation) (Taylor et al., 2016). Furthermore, quantitative discourse on the implications of sexual abstinence is replete with contradictions, with public health research framing it favourably, as an "[HIV] prevention strategy among several (e.g., condom use)" (3, p. 1078) that can protect the health of populations, and medical health research viewing it negatively, as a "chronic disease"

(32, p. 83) that is afflicting individuals living with HIV.

Diversities in sexual function were likewise diminished in the studies reviewed and replaced with a narrow, inflexible set of heteronormative standards. Specifically, women who were not having sex (as defined previously) with high levels of desire, arousal, and orgasm were considered sexually "dysfunctional." This definition is consistent with the view of the DSM (American Psychiatric Association, 2013), which has been rigorously critiqued by feminist scholars (Angel, 2012, 2013; Cacchioni, 2007; Farrell & Cacchioni, 2012; Spurgas, 2016; Tiefer, 1991, 2004; Tosh & Carson, 2016; Wood et al., 2006). Notably, however, the measurement of "dysfunction" has been highly variable. Some investigators relied on clinical diagnosis according to DSM criteria (11, 13). Others employed single-item survey questions (4, 26, 28, 29), some of which were exceptionally vague (e.g., "dysfunction in sexual activity"; "sexual difficulties"). Many more used several different non-validated (5, 9, 13) and validated (1, 8, 10, 12, 18, 19, 21, 23, 31) multi-item scales. The most commonly used scale was the Female Sexual Function Index (FSFI) (1, 12, 19, 21, 23, 31), originally adapted from an erectile dysfunction index (Kaplan et al., 1999; Rosen, 2000; Rosen et al., 1997). The FSFI quantifies desire, arousal, orgasm, pain, lubrication, and satisfaction in the past 4 weeks, with an overt assumption that sex (or more specifically, penetration) is necessary for sexual well-being. This is evident in the scoring methods: sexually inactive women are automatically assigned the lowest score and, thus, are assumed "dysfunctional" (exceptions: 19 and 23 excluded these women from analyses).

Finally, in contrast to the prevailing medical and public health reasoning in the abovementioned literatures, understandings of sexual satisfaction were entirely atheoretical, notwithstanding available theories (Byers, Demmons, & Lawrance, 1998; Byers & Macneil, 2006; Byers, Wang, Harvey, Wenzel, & Sprecher, 2004; Lawrance & Byers, 1995; McClelland,

2010, 2011, 2013). All researchers operationalized sexual satisfaction dichotomously (6, 14, 15, 16, 22), using self-reports of the degree to which an individual feels content with their sexual life (e.g., “In general, concerning your sexual life, you would say that you are satisfied or dissatisfied?”). Evaluating results remained difficult, however, owing to several conceptual limitations, including a lack of critical engagement with whether individuals’ appraisals focus more on physical or emotional aspects of sexual satisfaction (McClelland, 2013), reflect self or partner fulfillment (McClelland, 2011), and are determined within the individual or influenced by social and political conditions (McClelland, 2010).

Sexual Diversities

Sexual activity. Most studies tended to conclude that the “majority of women” (14, p. 267) living with HIV are sexually active, although one report suggested the exact opposite (24). Both conclusions elide diversity of experiences. Although not enough is understood about sex and sexuality following diagnosis, studies have found that some women continue to be sexually active after learning their HIV status (68–90%) (5, 14, 18), whereas others stop having sex altogether (42%) (2). Cessation of sexual relations is reported to be higher among women than men (23%) (2). No studies have been conducted among young women living with HIV since birth and navigating sex for the first time, although qualitative research suggests variations in sexual behaviours (Fair & Albright, 2012; Greenhalgh, Evangeli, Frize, Foster, & Fidler, 2013, 2016; Mergui & Giami, 2014).

For women who are sexually active, one study estimated that 44% of 161 women resumed their sex life within one month of their HIV diagnosis, whereas the rest took on average 4 months (range: 2 months to 8 years) (14). Half of these women reported that the decision to re-initiate sex depended more on desires to please one’s partner rather than oneself (14),

underscoring the role of gender norms in shaping women's sexuality (Holland et al., 1990; Holland et al., 1994; Holland et al., 1992). Other studies suggest women experience changes in sexual activities after diagnosis and treatment, including a reduction in the frequency of intercourse (14, 17), oral sex (32), and masturbation (14) as well as number of sexual partners (9, 32) and casual sex encounters (17). One research team described the drop in number of sexual partners as "encouraging" (9, p. 173), highlighting the often not-so-hidden prejudice against HIV-positive women's rights to express and enjoy their sexuality as they wish.

In terms of recent sexual experience (i.e., past month to past year), studies most often indicate about two-thirds to three-fourths of women engage in intercourse (4, 5, 6, 7, 8, 10, 11, 13, 14, 18, 19, 22, 23, 27, 30, 31, 32), although estimates range considerably by socio-demographic, economic, and cultural factors, from as low as 14% among 59 Nigerian women aged 50 and over (versus 50% of Nigerian men) (20), to 44–49% with 1795 Canadian women reporting high stigma (16, 24), to as high as 93% in 43 Italian women engaged in care (23). Among those who are sexually inactive, past research estimates that 48–74% of these individuals have deliberately chosen to abstain from sex (3, 7), at least for some time (range: 2 months to 24 years). The overall prevalence of deliberate abstinence (i.e., among all people with HIV) is 18–23% for women and 11–20% for men (3, 7).

When asked about reasons for sexual inactivity (whether intentional or not), many women across studies reported difficulties finding the "right" partner, anxieties about disclosing to partners, fears around the possibility of transmitting HIV, and low interest in sex (5, 7, 11, 18, 20, 32). Other reasons included depression, guilt, religious taboos, pregnancy concerns, a dislike of condoms, and pain during intercourse (5, 7, 11, 18, 20, 32). All of these factors inform

understanding of the numerous internal and external contexts shaping women's sexual activity in the context of HIV.

Sexual function. Although a "majority of women" with HIV are sexually active, as narrowly defined and described by the prior literature, many studies assessing sexual function report that "female sexual dysfunction is frequent" (12, p. 556). According to most research using the FSFI, an estimated 25–34% of women living with HIV have a sexual "disorder" (12, 19, 23, 31), and one study reported that such problems were more than twice as likely in this population (n = 1279) than among women without HIV (n = 526) (31). A much higher prevalence of sexual difficulties has been reported among Black African women in Nigeria (66–89%, based on a total sample size n = 370) (1, 21), Morocco (69%, n = 72) (11), and the United Kingdom (60%, n = 82) (18). Although this pattern may be due to differences in social, cultural, and religious norms around sexuality (1, 11, 21), these and other factors (e.g., political, economic) remained under-theorized in research. Moreover, it is unclear whether Western-based psychological instruments (and sexual concepts and normative standards therein) were adapted and validated across cultures. When examining this outcome across genders, two studies suggested sexual "dysfunctions" were more frequent in men than women (11, 23), although the study populations are arguably not readily comparable because of differences not just in anatomy, but also in socio-sexual development and interaction.

Just one study with 101 women in the United States, composed mainly of sexually active women (90%) with injection drug use (64%) and sex work (55%) histories, described a "good level of sexual functioning" (5, p. 80). This was based on women's responses to three questions about whether their "health" impacted their interest in, frequency of, or problems with sex. The meaning of "health" (i.e., whether it referred to HIV or other conditions) was unclear, and how

this population may differ from others in crucial ways (e.g., sexual agency; power within relationship; sex for female pleasure versus work, survival, or male pleasure) was unaddressed. In fact, there are reports that some women living with HIV were angered by the study's positive conclusions, which felt disconnected from their own lived realities (Gurevich et al., 2007; Kahn, 2000), underscoring the importance of unearthing multiple rather than singular experiences.

In terms of specific domains of sexual functioning, some studies report low desire is common (39–43%, based on a total sample size $n = 54$) (13), with variation between those having (33%, $n = 57$) and not having (45%, $n = 39$) sex (8), while other studies suggested it is rare (9%, $n = 116$) (10). Additional concerns such as vaginal dryness and painful intercourse are reportedly infrequent among women with HIV (10, 12), whereas difficulties reaching orgasm is prevalent (41–78%) (10, 14), varying not only by HIV-status (10, $n = 116$) but also other forms of social difference (e.g., race, IDU) (14, $n = 161$). However, given that women with HIV are less likely to receive oral sex than women without HIV (32), combined with past research showing that two-thirds of cis-gender heterosexual women rarely or never orgasm with penetration alone (Basson, 2000; Wallen & Lloyd, 2011), this finding may have more to do with partners' inattention to female pleasure in the context of HIV despite zero risk of transmission when virally suppressed (Rodger et al., 2016) and other safer sex methods, rather than a "dysfunction" on women's part.

Among all studies we identified, just two provided insight into women's own views on the social, mental, and physical factors underlying reduced sexual functioning (11, 13). In response to a question about the cause of low desire, women's explanations were varied and included fears of rejection, persistent worries about HIV transmission, relationship problems, lack of a partner, and fatigue (13, $n = 54$). In a more recent study in Morocco (11, $n = 72$), women likewise

attributed sexual difficulties to fear of infecting a partner and anger toward a partner as well as feeling that their sexuality reminded them of disease and that their sex life was constrained by the use condoms. These accounts are consistent with women's reasons for sexual inactivity and reflective of aforesaid theories positing that changing and high-stress contexts can, understandably, alter women's sexual interest and arousal.

Sexual satisfaction and other subjectivities. Because most quantitative research has focused on physical aspects of sex, much less is known about the impact of HIV on women's sexual feelings, although several key findings are apparent and complemented by qualitative narratives (Carlsson-Lalloo, Rusner, Mellgren, & Berg, 2016). One study reported that many women (84%, $n = 161$) experience a "sexual adjustment period" after an HIV diagnosis (median duration: 8.5 months; range: 1 month to 5 years) (14). In some ways, this may be akin to the psychosexual adjustment frequently reported among women with other chronic illnesses such as breast (Emilee et al., 2010) and gynaecological (Abbott-Anderson & Kwekkeboom, 2012) cancer. The difference, however, is that HIV is transmitted between people (most often through sex, followed by injection drug use) and rooted in discourses of risk, responsibility, and stigma (Lawless, Kippax, et al., 1996; Sontag, 1988). Consequently, it is not uncommon for women with HIV to report extreme discomfort with their sex life immediately following diagnosis, and a range of negative emotions (e.g., fear of being touched; worries about infecting others; concerns about having to use condoms and sex feeling less "natural"; diminished spontaneity and freedom) (14). Reduced levels of satisfaction, enjoyment, and pleasure with sex have also been reported (14, 18, 22).

Yet sexual feelings can be radically different for every woman. Two studies explicitly asked women their beliefs concerning the impact of living with HIV on their sex lives using

fixed responses (5, 18). In research with mostly Black African women in the United Kingdom (*n* = 82) reporting high rates of sexual abuse (41%), including during war or violent conflict, 24% of women said HIV made it impossible to have sex; 58% felt that being HIV-positive slightly, moderately, or greatly reduced their sexual enjoyment; and 28% felt it made no real difference (18). In contrast, among sexually active women with injection drug use and sex work histories in the US (*n* = 101), few (11%) reported that the quality of their sex life became significantly worse after testing HIV-positive, whereas about half (52%) said it remained the same or improved (5). Both studies underscore the wide variation in women's sexuality because women inhabit different social environments, including varied experiences of trauma, stigma, medical care, and vulnerability and positions of power (Maxwell, 2006).

For some, to have sex and feel pleasure, they have to feel safe. Feeling safe is not just about learning how to live with HIV; it is also about healing from incredible trauma and providing women with the right environment to do so (e.g., freedom from further violence, discrimination, criminalization, and other wrongs) (International Community of Women Living with HIV/AIDS, 2016; Salmander Trust, 2014). For others, such as those involved in street drug use and/or sex work, it is possible that some women live in the same social contexts before and after HIV diagnosis, resulting in no appreciable difference in subjective experiences of sex. Some women may even find themselves excluded from understanding what "great sex" is and feeling entitled to it, owing to socio-economic status, gendered expectations and attitudes to sex, and other factors (Kleinplatz et al., 2009; Maxwell, 2006; McClelland, 2010).

While difficulties feeling excitement and pleasure during sex can occur after diagnosis, other studies suggest sexual satisfaction ratings can improve over time (14, 22), even increasing to higher levels than before diagnosis (14). In fact, about two-thirds (61–67%) of women (and

men) with HIV report being satisfied with their sex lives (4, 6, 16 18), though rates can vary considerably between countries [i.e., 41% in Japan (15, *n* = 61), 30% in Morocco (11, *n* = 72)]. One study also indicates that men and women experience equal levels of sexual satisfaction (6, *n* = 521). A limitation of all these findings, however, is a lack of analysis on the ways in which HIV stigma and gender role norms may be biasing self-reports, with women living with HIV reporting feeling satisfied with less owing to lower expectations toward sex and sexuality (McClelland, 2010). Further, women (and men) are not monolithic, and assumptions of sameness are challenged when sexual satisfaction is considered among subgroups of individuals with varying levels of social privilege. For example, Hankins et al. (14, *n* = 161) found that more marginalized women report higher sexual dissatisfaction (i.e., 41% of 61 non-IDU White women vs. 58% of 53 non-IDU African/Haitian women vs. 71% of 47 IDU women), consistent with findings outside the HIV field (Fahs & Swank, 2011).

Studies of satisfaction also help to subvert another aforementioned assumption—namely, that not having sex is universally unsatisfying. In a study of South African women and men followed for 20 months after initiating cART, sexually active participants were, in fact, less satisfied than their sexually inactive counterparts (22). Interestingly, researchers attributed these findings to biological effects in the former group (i.e., cART-induced sexual dysfunction) and individual responsibilities in the latter (i.e., acceptance of abstinence to prevent HIV transmission). In another study of Canadian women, the opposite was found; sexual satisfaction was positively correlated with sexual activity (16), consistent with most research claims in the broader sexual health literature (Haavio-Mannila & Kontula, 1997; Henderson, Lehavot, & Simoni, 2009; Young, Denny, Luquis, & Young, 1998). Nevertheless, a sizeable proportion (i.e., 49%) of the 595 sexually inactive women in this study rated their present sex life as reasonably,

very, or completely satisfactory (16). As mentioned, for some, this may be related to what women feel they deserve sexually (McClelland, 2010). For others, intersecting stigma, institutional racism, and structural violence against women living with HIV (Berger, 2010; Logie et al., 2011) may also mean that not having sex is truly very sexually satisfying.

Determinants of Sexual Activity, Function, and Satisfaction

Medical factors. In analyses exploring predictors of sexual outcomes, factors relating to physical health were examined in most studies (i.e., *n* = 27 of 32, or 84%) (1-7, 10, 12-14, 16, 18-32), consistent with the overarching medical and public health lens framing this field. Although it is widely assumed that cART adversely affects sexual functioning, most studies showing a link have been conducted among men and focused on erectile dysfunction (Collazos, 2007; Colson et al., 2002; Lamba, Goldmeier, Mackie, & Scullard, 2004; Wang et al., 2013) or non-specific sexual difficulties (4, 26, 28). Analyses involving women only, however, have consistently demonstrated no association between women's sexual functioning and use of cART, type of regimen, or other HIV-related clinical markers such as viral load, CD4 cell count, disease stage, adherence, time on treatment, number of previous medication switches, HIV symptoms, or time living with HIV (12, 18, 19, 23) (exception: 31, where women with CD4 > 200 cells/μL reported higher functioning). These same factors also play little to no role in explaining differences in women's sexual satisfaction (6, 22) and sexual activity in recent years in settings with high cART uptake (5, 16, 30) (exception: 14 and 32, both conducted around the advent of cART and linking higher CD4 counts to sexual activity).

The same conclusion is reported for other physiological factors (e.g., sex hormones, body mass index, diabetes, or medications for seizures, blood pressure, heart disease, or estrogen replacement) (13, 19, 31), whereas findings are mixed when it comes to physical health-related

quality of life (3, 7, 16, 20). Perhaps the most consistent finding lies in the possible influence of menopause on women's sexuality (19, 27, 29, 31). Specifically, researchers estimated that the odds of sexual activity decrease after menopause by 22–25% for 1927 women living with HIV and 18% for 742 women without HIV (p = .724; i.e., no significant differences by HIV-status) (27), whereas sexual functioning depends on the domain considered (19, 29) but is reportedly lower overall according to measurements with the FSFI (β = 4.42; referent group: postmenopausal women) (31, total n = 1805). It is worth noting that the effect size for menopause and other correlates (i.e., depression, relationship status, age) in this study (31) was double, and in some cases triple, that for HIV-status (β = 2.53), signifying that being a woman, first and foremost, may matter more to sexual experiences than one's identity as a woman with HIV.

Mental health and violence. Although sexuality is most often viewed in physical terms, emotions play an important role. It is important to recognize that women with HIV disproportionately cope with the effects of violence (Brady, Gallagher, Berger, & Vega, 2002; Gruskin et al., 2002; Logie et al., 2017a; Whetten et al., 2006), physical and psychological trauma (Machtinger, Wilson, Haberer, & Weiss, 2012), and depression (Morrison et al., 2002; Rabkin, 2008) compared to women without HIV. In fact, it is through sexual violence that a significant proportion of women come to be living with HIV (Logie et al., 2017b), a social status that can, in turn, trigger further violence and poor mental health (Gielen, Fogarty, et al., 2000; Gielen, McDonnell, Burke, & O'Campo, 2000; Gielen et al., 1997; McDonnell, Gielen, & O'Campo, 2003). Prior research has shown that these physical, emotional, and mental states can activate stress responses and affect women's interest in and enjoyment of sex (Hamilton & Meston, 2013; Lykins, Janssen, & Graham, 2006; ter Kuile, Vigeveno, & Laan, 2007).

In spite of these realities, less than half of reviewed studies (i.e., *n* = 15 of 32, or 47%) considered how acute and chronic stressors may impact HIV-positive women's sexuality, with most focusing on emotional health (5, 7, 8, 12, 13, 15, 16, 18, 20-24, 31) and just four studying violence (5, 7, 18, 29). In particular, depression and anxiety were linked to lower sexual desire (13), activity (8, 16), and function (5, 12, 18, 31). Mixed (gender-aggregated) findings were reported in relation to sexual satisfaction (15, 22). A history of sexual violence was correlated with abstinence after HIV diagnosis among some women (18), whereas sexual abuse during childhood was associated with more reports of pain during intercourse among others (5). Bivariable associations between dyspareunia and physical and emotional violence have also been reported among menopause women (29), although vuvlovaginal atrophy took precedence when choosing variables to include for multiple regression. Clearly, when studies on sexuality are orientated toward medicalized lines of inquiry, the physical and emotional traumas that frequently underlie woman's anxieties and challenges around sex in the context of HIV go unseen and unsupported.

Relationship characteristics. Not all sex involves another person. However, when it comes to partnered sexual experiences, relational dynamics are central. These were investigated in 56% (*n* = 18) of reviewed studies (1-7, 15, 16, 18, 20-22, 24, 25, 29-31). Despite the variety and complexity of intimate relationships (Bowleg, Lucas, & Tschann, 2004; Devries & Free, 2011; Longfield, 2004; Manlove, Welti, Wildsmith, & Barry, 2014; Nelson, Morrison-Beedy, Kearney, & Dozier, 2011; Sassler, 2010; Vasilenko, Kugler, & Lanza, 2015; Wentland & Reissing, 2014), quantitative HIV research is dominated by studies assessing women's marital status (1, 3-7, 10, 13, 16, 17, 20, 23-25, 30, 31). Described as a "self-evident" association (3, p. 1083), studies have consistently demonstrated a strong correlation between being

married/partnered and sexual activity (2, 3, 7, 16, 18, 20, 24, 30). However, conflicting findings regarding associations with sexual function (1, 31) and satisfaction (6, 15, 22; gender-aggregated) may indicate that the quality, not just existence, of an intimate relationship is important when it comes to women's sexual responses and satisfaction with their sexual life.

Most other studies have focused on partnership dynamics presumed to involve sexual risk (14, 16, 17, 18, 22, 30), although they reveal interesting associations with sexual pleasure. According to one study (14), sex is more frequent, orgasms are easier to achieve, and satisfaction is higher among women with a new regular partner since HIV diagnosis compared to those with the same regular partner or casual partners. In two other studies, sexual activity has been associated with knowing a partner's HIV-status (non-significantly) (30), and sexual satisfaction with having an HIV-negative partner (22). For many, an HIV diagnosis changes relationships, and, in turn, affects sexuality and intimacy (Beckerman & Auerbach, 2002; Gurevich et al., 2007; Keegan et al., 2005; Maticka-Tyndale et al., 2002; Persson, 2005, 2008; Rispel et al., 2011), although the precise impact depends on various factors including the kind of relationship women had before HIV diagnosis, whether or not they acquired HIV from that partner, and how couples cope with difficult emotions (e.g., anger, distrust, worry, fear) (Nevedal & Sankar, 2015; Persson, 2005; Siegel & Schrimshaw, 2003). People may either deepen feelings or close them off.

Social and political context. Sex and relationships unfold within a broader socio-political environment. However, just 11 (34%) studies (2-7, 13, 15, 16, 22, 26), 8 of which were mixed-gendered (2-7, 15, 22, 26), considered how multiple social processes related to HIV might impact women's sexuality (Caballero, 2016; Gagnon & Holmes, 2011, 2012; Lawless, Crawford, et al., 1996; Psaros et al., 2012; Siegel et al., 2006; Thomassilli, 2010; Welbourn, 2013). Sexual

inactivity was significantly related to experiences of enacted, anticipated, and internalized stigma (16), as well as feelings of loneliness and needing help with disclosure (2). Conversely, factors associated with having sex included receiving support from a community-based organization (2), obtaining information on the role of an undetectable viral load on decreasing HIV transmission risk from a healthcare provider (16), and having regular discussions about HIV with a partner (2). Regarding sexual function, research has tended to focus on internalized stigmas. In particular, one study found that sexual interest may be reduced for women who associate sex with how they acquired HIV (13), whereas others have suggested anxiety about one's body due to abdominal fat accumulation is a major determinant of lower overall and domain-specific sexual functioning (4, 19, 28). Lastly, in the literature on sexual dissatisfaction, independent associations have been reported with HIV stigma at interpersonal levels (e.g., discrimination in a relationship) (6) and individual levels [e.g., internalized stigma (22), negative attitudes toward sex because of HIV (15), stronger feelings of responsibility to protect partners' health (3)], although these issues arguably arise from injustices at the structural level (Parker & Aggleton, 2003).

These HIV-related social processes also intersect with other matters of everyday life to affect women's behaviours, responses, and feelings around sex. Twenty-four studies in total (75%) examined such factors (e.g., age, ethnicity) (1-7, 12-14, 16, 19-28, 30-32), although most conceptualized them as characteristics of persons rather than as identities shaped by the larger social and political world. Most studies examined the influence of age and report reduced sexual activity among older women (2, 3, 5, 16, 24, 27, 30, 32), with one study estimating that the odds of sexual activity declines by 62–64% for every 10-year increase in age (27). This drop across ages was higher among women than men in one study (25). Varied results, however, were found

for function (12, 23, 31) and satisfaction (6, 22), and the relative contribution of social and physical aging-related challenges on sexuality remains unstudied (Narasimhan, Payne, Caldas, Beard, & Kennedy, 2016). Research has also explored the role of substance use (1, 5, 12, 14, 32). For instance, a Canadian study of 161 women reported that women who were injecting drugs desired sex less often than those who were not (41% vs. 65%) yet were more likely to be sexually active (96% vs. 45%), have sex daily (54% vs. 0–10%), never/rarely have orgasms (78% vs. 41–65%), and be dissatisfied with their sex life (71% vs. 41–58%) (14). Whether this is linked with substance use or factors related to sexual autonomy and power differentials (such poverty, abuse, or sex work) is unknown. Sexual activity, orgasm, and satisfaction were also unequally experienced between White women and Women of Colour in this study (14) (also see 24), with group differences on a number of sexuality outcomes also seen by socio-economic position [e.g., income (16), education (22), employment status (24, 6)]. Combined, these findings demonstrate that the context within which sex occurs—both external circumstances (e.g., discrimination from partners, cultural norms regarding ideal sexuality) and women's internal states (e.g., shame associated with HIV)—is a centrally important, albeit neglected, determinant of sexual experiences among women living with HIV.

The Way Forward

In summary, findings of quantitative research suggest women experience declines in sexual activity, function, and satisfaction following an HIV diagnosis. What is striking, however, is that studies perpetuate gendered assumptions about women's sex and sexuality—inclusive of with whom they have sex and what sex looks like. Moreover, despite the huge variation in experiences and the clear influence of context, researchers tended to over-pathologize outcomes, framing sexual issues as "diseases" or "disorders" as if they lie within the person rather than

being historically rooted and socially situated. Consequently, recommendations for action are often narrow in scope, with an emphasis on the "management/treatment" (26, p. 1022) of women's sexual activity and function in clinical practice or social programs (including especially counselling on condom use and treatment adherence to prevent transmission) (1, 2, 4, 5, 7-12, 14, 15, 18-21, 22-24, 26-28-31), as opposed to altering the disempowering environments of stigma and stress within which women with HIV are often forced to navigate their sexuality (6, 16). Such conclusions demonstrate the pervasive influence of the medical disease model, consistent with research findings on women's sexuality more broadly (Angel, 2010, 2012, 2013; Bancroft, 2002; Cacchioni, 2007; Moynihan, 2003; Riessman, 1983; Spurgas, 2013, 2016; Tiefer, 1991, 1996, 2003, 2004; Tosh & Carson, 2016; Wood et al., 2006).

In the context of HIV, however, this problematization extends beyond clinical practice to the realm of public health. Although (some of) the reviewed studies are helpful toward legitimizing women's broader needs around sexuality, it is apparent that much of the literature is pre-occupied with protecting others from HIV acquisition. For instance, in Bova et al.'s study (5), the last word on the subject was the following:

> the future task for [HIV] prevention and research will be…to pay heed to the sexual lives, well-being, and problems of HIV-positive people *in order better to understand the situations in which unprotected relations occur*. *On that basis* they can be supported to live as well as have *safe* sexual lives" (5, p. 82, emphasis added).

In other words, the sexual lives of women living with HIV matter in so far as they are relevant to public health. However, with the exception of one study (24), little effort has even gone into truly assessing HIV risk (e.g., whether women were having penetrative versus non-penetrative

sex, intimate with male or female and HIV-positive or HIV-negative partners, virally supressed, using condoms, and making informed choices with their partners around negotiated safety). It would seem from our review that despite the fact that knowledge around transmission and risk has been accumulating for many years (Cohen et al., 2011; Montaner, 2011; Montaner et al., 2014; Prevention Access Campaign, 2017; Rodger et al., 2016; Vernazza & Bernard, 2016; Vernazza et al., 2008), research more generally has been slow to shift, despite community demands for the truth (Mejia, 2017).

Importantly, couching research under "women's sexual health" when, in fact, it has little to do (read: nothing) with *women's* health at all, is not just erroneous, it is unjust. Further, in reducing women's sexuality to a "public health problem" that must be solved, opportunities to develop rich, contextualized, and compassionate understandings of sex and intimacy in the context of HIV are severely limited. Instead, women become positioned into one of three discrete groups: (a) they are abstinent and presumed unhappy (but also doing their "public health duty"), (b) they are sexually active and potentially have considerable negative effects on the dynamics of the epidemic, or (c) they are sexually "dysfunctional" (read: damaged or abnormal). This leaves very little space for women to have and enjoy a satisfying and pleasurable sexual life of their choosing. It also stifles much needed dialogue on how to empathetically address, structurally and individually, the concerns and suffering of women who do experience sexual problems.

From a feminist lens, four points merit comment to move this field of research forward. First, researchers must recognize that sexuality in the context of HIV is not just a matter of prevention. Women living with HIV are sexual beings with their own needs, desires, and concerns. Achieving sexual health and rights demands considerably increased attention to their own well-being. This necessarily involves studying the positive outcomes (Impett et al., 2013;

Jolly, Cornwall, & Hawkins, 2013) they want to achieve and the enabling factors necessary to do so (Salmander Trust, 2014), not simply the negative aspects to avoid. Sexuality must also be understood beyond physical acts and physiological stages. Sexuality encompasses a vast range of experiences (e.g., pleasure, intimacy, love (including self-love), respectful relationships, agency, bodies and identities) and studying diverse forms of sexual expression will greatly support women's access to full emotional, spiritual, intellectual, relational, social, and physical well-being in relation to sexuality (World Association for Sexual Health, 2014; World Health Organization, 2006).

Second, whereas sexuality is a personal right, its manifestations are not simply a personal matter. Sexuality is deeply connected to politics. Feminist theory encourages us to see sex and sexuality as social and cultural processes (Tiefer, 2004). This is especially important in the context of HIV, where historical and current-day structural inequities (e.g., stigma, violence, the law) shape the way women view and experience themselves as sexual beings. Further, sexual healing and living with HIV is far from uniform; it varies markedly by intersecting social positions such as age, gender, race, and sexual orientation likely owing to broader systems of ageism, sexism/genderism, racism, heterosexism, and homophobia (Berger, 2010; Logie et al., 2011). Women are so much more than the virus. Rather than viewing them as one group and intensely investigating their disease (e.g., viral loads and CD4 cell counts), it is essential that researchers recognize that significant diversity exists among women and focus more heavily on the broader social and relational conditions shaping their sexual lives. Greater attention, in particular, to the experiences of gender diverse and lesbian, bisexual, trans, and queer women is needed.

Third, in order to deepen these understandings, we advocate, as other critical quantitative researchers have (Harnois, 2013; Sprague, 2016), for the adoption of diverse theories, methods, and approaches. Research to date has been largely atheoretical. Conceptual analysis (e.g., defining key terms, tracing historical meanings, developing new ideas) is critical in future studies to bring greater depth to our thinking (Fahs & McClelland, 2016). Research has also almost always relied on traditional cross-sectional statistical approaches such as logistic or linear regression. New data designs for understanding multi-dimensionality (Lanza, Bray, & Collins, 2013), directionality (Vasilenko, Ram, & Lefkowitz, 2011), and dyadic interactions (Kashy, Kenny, Reis, & Judd, 2000) will also bring new insights. Intervention research is a particularly barren field, both in terms of improving women's quality of sexual life (Fernet et al., 2017) and relating to larger programmatic and systemic transformation (Salmander Trust, 2014; World Health Organization, 2017). Regardless of the approach, we encourage researchers to push the boundaries of their discipline(s) by becoming more connected to other fields and more reflexive about their own positioning in the research, and how their training and worldview affects what and how they choose to study (Ryan & Golden, 2006; Shaw, 2010). The meaningful involvement of women living with HIV in the research process has been ignored (exception: study 16) and its rectification in future work is critical (Carter et al., 2014; Orza, July 27 2012).

Finally, we strongly emphasize the need to de-medicalize sexuality and de-pathologize sexual diversity among women living with HIV (Angel, 2010, 2012, 2013; Bancroft, 2002; Cacchioni, 2007; Moynihan, 2003; Riessman, 1983; Spurgas, 2013, 2016; Tiefer, 1991, 1996, 2003, 2004; Tosh & Carson, 2016; Wood et al., 2006). Studies that frame sexual inactivity as inherently worse than sexual activity (or vice versa) are fundamentally biased and overlook the importance of women's agency over their own sexuality. If a woman is choosing to be sexually

inactive, especially in a context filled with HIV stigma and discrimination, then that may be a better sexual health outcome than a woman who is sexually active but not by active choice. On the other hand, someone else may desire and enjoy intercourse but feel great disappointment in its absence. And someone might be sexually active and sexually satisfied, but report difficulties with orgasm. Women's sexual experiences are varied, and future research must attend to whether women *themselves* perceive their experiences to be problems. Measuring and theorizing around sexual autonomy and satisfaction is crucial in this regard (McClelland, 2010). If a woman is satisfied with her sexual life and it was freely chosen, or even if she reports dissatisfaction and distress, she should not (nor should she ever) be labeled as having a "disease" or "dysfunction," however dissimilar her feelings or behaviours may be from a statistical mean.

In putting together and unpacking these findings using a critical feminist lens, it is clear that evaluations of reduced sexual activity, function, or satisfaction observed among women living with HIV are far less pathological than they are social. To quote an expert:

> When a woman has to worry each time about disclosure, discrimination, rejection and the criminalization that comes with HIV, it's but normal that sex is not of interest to her. Stress, depression, and other health issues associated with HIV definitely make me lose my sex drive. (POZ Magazine, 2010)

This comment was made by a woman with HIV in response to a research-based blog post (on Study 31) in POZ Magazine (2010). Given the presence of HIV stigma and numerous other medical, psychological, relational, and structural forces at play in women's lives, we argue, as others have (Bancroft, Loftus, & Long, 2003; Tiefer, 2001), that it is wrong for sexual problems to be chalked up to a dysfunctional sexual response system. This system is, in fact, functioning

as expected in an unjust environment. The problem is not women or their sexuality. Rather, challenges around sex for women living with HIV lie in context. And therein lies the solution.

Implications for Policymakers, Practitioners, and Women Living with HIV

To enhance women's sexual lives and redress social injustice, we advocate, first and foremost, for continued collective action at the political level. Communities affected by HIV are already leading this charge in a number of creative ways including, for example, the PosterVirus project that is re-claiming sexual autonomy by challenging dominant ideologies and legislations that aim to control HIV-positive people's bodies and behaviours (McClelland & Whitbread, 2016). Additional mass public education campaigns that tackle stigma while normalizing sex and desire for women with HIV are also needed, like "Fuck Positive Women" (Mitchell et al., 2011), "Love Positive Women" (Whitbread, 2017), "#Révélation" (AIDES, 2016), and "Undetectable=Untransmittable" (Prevention Access Campaign, 2017). Messages that target straight HIV-negative men are critical in this regard, because HIV is still hidden in the heterosexual community (Persson, 2005), and weaving it into cultural discourse (as it has been for gay men) will help make safe disclosure, relationships, and intimacy more possible for those who desire it.

De-stigmatizing and normalizing sexualities and relationships with HIV necessitates decriminalizing HIV non-disclosure (International Community of Women Living with HIV/AIDS, 2016). Such laws ignore the advancements in cART (Montaner et al., 2014; Patterson et al., 2015; Rodger et al., 2016; Samji et al., 2013) and unduly place the burden of prevention on people who have HIV (Canadian AIDS Society, 2011; Global Network of People Living with HIV (GNP+), 2011; International Community of Women Living with HIV/AIDS, 2016). They also perpetuate decades-old misconceptions about clinical and survival outcomes of

HIV, which continue to govern women's intimate lives (Gurevich et al., 2007; Lawless, Kippax, et al., 1996; Mazanderani, 2012; Persson & Newman, 2008).

When it comes to sexual health programming for women with HIV, we must expand discussions of "safer sex" and include broader, more sex-positive considerations. From how women feel about their bodies and identities; to their interests, wants, desires, and boundaries around sex (including no sex); and to the full range of types of sexual contact, practices, attractions, responses, and more. Sex positivity is inclusive of all women and all sexuality types in all their diversity. Empowering women living with HIV to make the sexual choices they want also requires providing them (and their partners, if applicable) with accessible and affirming information and support that is culturally-sensitive, trauma-informed, context-aware, and inclusive of an array of important topics about sexual well-being including autonomy, consent, women's anatomy and pleasure, mutuality in sex, and non-penetrative sexuality.

Creating physical and virtual opportunities for women living with HIV to talk to other women living with HIV about various aspects of sexuality and relationships with HIV should be made a priority through peer-led advocacy, counselling, support groups, sexuality workshops, and online communities and forums. HIV-positive women have been at the forefront of such efforts for many years (Abrams, 2017; AIDES, 2016; Becker, 2014; Caballero, 2016; Cardinal et al., March 30, 2014; Fratti, 2017; Iacono, 2016; International Community of Women Living with HIV/AIDS, 2016; McClelland & Whitbread, 2016; Mitchell et al., 2011; Nade'ge, 2016; Nicholson et al., March 20, 2016; Petretti, 2017; Prevention Access Campaign, 2017; Salmander Trust, 2014; Sanchez et al., March 23, 2017; The Well Project, 2017; Welbourn, 2013; Whitbread, 2017; Whitbread, 2016). *Life and Love with HIV* (www.lifeandlovewithHIV.ca) is a grassroots community-based initiative led by our team to bring these strong voices together and

move research evidence and community insights about sexuality and relationships directly into the hands of women living with HIV and those who love and support them.

Healthcare providers such as family doctors, nurses, and counsellors also have a role to play in initiating conversations around sexuality during post-test counselling and annual check-ups, as well as offering shame-free support for challenges that may be distressing to women. Many tools such as the PLISSIT model (Taylor & Davis, 2006) are available to guide clinical interactions of this nature. Referrals to sexuality and trauma therapists, where necessary, are crucial, as is funding to support this service. Mindfulness-based therapy is one option with empirical support for women wanting to address self-perceived sexual problems (Brotto, 2013; Brotto & Basson, 2014; Rosenbaum, 2013). However, as Cacchioni and Wolkowitz (2011) and others (Tosh & Carson, 2016) have cautioned, sexual therapies can, albeit unwittingly, reproduce normative heterosexuality. Thus, it remains important to embrace sexual diversity and acknowledge the centrality of context (rather than individual deficiencies on women's part) in influencing sexual experiences as part of providing women with multiple options for healing from sexual pain and reclaiming sexual joy.

For women wanting to enrich their sexual well-being, changing context where possible to reduce inhibitions (e.g., managing depression; recognizing and resisting stigma narratives) and activate excitations (e.g., creating sexually arousing contexts; cultivating resilience and self-love) is key (for other insights, see (Kleinplatz et al., 2009). Maximizing autonomy, satisfaction, and pleasure for women (not just their partners) should be the goal. Finally, the non-universal, highly contextual nature of sexuality uncovered in our review reinforces our universal message to women living with HIV: *You are normal*.

Conclusion

Although science has achieved much in terms of advances in HIV treatment, it has yet to undo the three and a half decades worth of stigma against women living with HIV. The present review shows that an HIV diagnosis can have significant impacts on women's sexuality, manifesting in different ways for different women depending on the contexts within which they live. A satisfying sexual life—inclusive of pleasure and free from discrimination and violence—is a human right. If we are to truly support women with HIV in achieving sexual health and rights, we have an obligation not only to de-stigmatize and de-criminalize HIV as well as women's bodies and sexuality, but also to affirm women's sexual desires, normalize their experiences of sex and intimacy, and support them in leading a (self-defined) satisfying, pleasurable, and fulfilling sexual life.

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Online Supplement for Carter, A., et al. (2017). The problematization of sexuality among women living with HIV and a new feminist approach for understanding and enhancing women's sexual lives. Sex Roles. Allison Carter, Simon Fraser University. Email: allison_carter@sfu.ca

Scoping review methodology

Stage 1: Engaging key stakeholders including women living with HIV. The idea for this review emerged and evolved from years of discussions among team members of the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (Loutfy et al., Submitted; Loutfy et al., 2016), feedback from sex-positive workshops delivered by, with, and for women living with HIV (Cardinal et al., March 30, 2014; Nicholson et al., March 20, 2016; Sanchez et al., March 23, 2017), and insights from empirical research demonstrating the influence of HIV stigma and other social factors on women's sexual activity (Kaida et al., 2015). The subsequent design and execution of this review was an interdisciplinary collaborative process that drew on the collective knowledge of women living with HIV, epidemiologists, social scientists, psychologists, clinicians, and policymakers through formal and informal discussion and joint co-authorship. All stakeholders were involved in framing the study, elucidating the findings, and making recommendations.

Stage 2: Identifying and selecting articles for inclusion. Six online databases (CINAHL, Medline, PsyhcoInfo, Web of Science, ProQuest, Cochrane Database of Systematic Reviews) were searched between October 2015 and January 2016, and again in December 2016 (AC). We used Medical Subject Heading (MeSH) terms, or key words where MeSH terms were unavailable, of the following generic formula: "HIV" and "women" and "sexuality" and "relationships" (**Figure 1**). Articles published in English from all geographic locations from 1996 onwards were considered; 1996 represents the start of the modern era of cART. Studies where women living with HIV made up all or part of the sample were included, whereas those

focusing only on men with HIV were excluded. Due to the low number of studies exclusively devoted to women, we considered gender-mixed studies and commented on how gender was accounted for in the research. A PRISMA flow diagram (Moher, Liberati, Tetzlaff, & Altman, 2009) is shown in **Figure 2**, illustrating the number of records identified via database searching (n=1,223) to the final number of eligible materials included in this review (n=32).

Stage 3: Reviewing the materials and charting relevant information. This stage of the review involved a systematic process of reviewing the materials obtained and charting relevant information (AC). To ensure rigour, each article was read from beginning to end multiple times. The initial reading was used to create a summary chart to guide our search for data that would provide an overview of the studies (**Table 2**). Information was extracted in readings thereafter, with frequent returns to the literature to retrieve additional data as the review proceeded.

Stage 4: Comparing the data within and between studies. Next, repeated readings of the charted information were carried out to strengthen familiarity with the data (AC). During this process, key data patterns within and between studies were identified including patterns that reoccurred and those that stood out from the rest such as (un)common measures and (in)consistencies in associations. The material was then re-read and highlighted according to these patterns.

Stage 5: Synthesizing and reporting the data as a coherent whole. To synthesize the data, detailed summaries were created for each outcome separately (AC), consistent with their reporting in the literature. Following this, knowledge claims across outcomes were examined and summarized. Through a process of constant comparison, and researcher (AC, AK, SG) and community (AC, MS, KW, VN, JW) triangulation, summaries were revised and new ones created until the findings were integrated into a single, coherent whole. Successive rounds of

editing involving all co-authors were conducted and situated within readings of grey and qualitative literature, with new connections continually made and drafts repeatedly revised. Primary materials were revisited throughout the writing process, with reflexive discussions about the evidence occurring at multiple points.

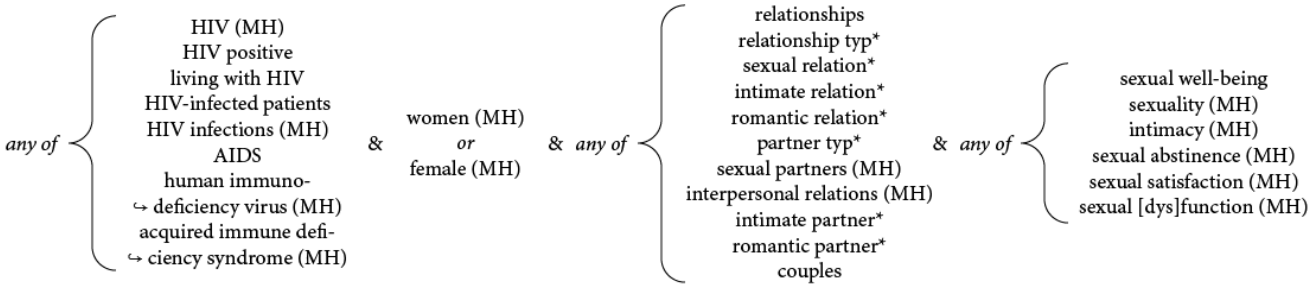

Figure 1s. Search terms used to identify quantitative studies on sexuality among women living with HIV.

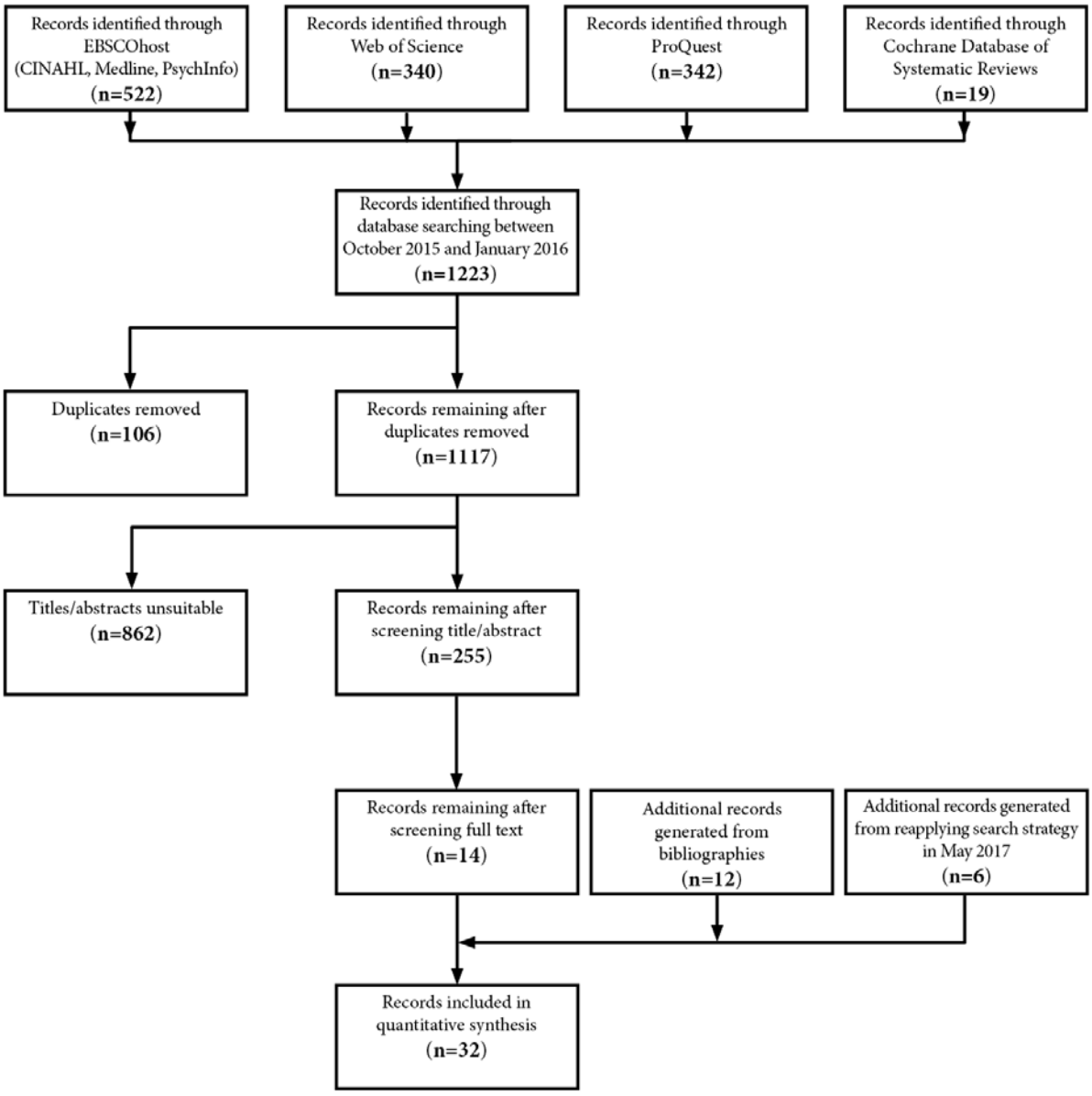

Figure 2s. A PRISMA flow diagram with the number of records identified, screened, removed, and included systematically documented.

Table 1s. A summary chart of findings from reviewed quantitative studies on sexuality among women living with HIV, listed in alphabetical order.

	General Information			Study Population					Key Measures of Interest		
#	Lead Author	Year	Country	Sample Size	Sample Characteristics	**Study Aims**	**Methods**	**Analyses**	Sexual outcome(s)	Covariate(s)	**Relevant Findings**
1	Agaba	2017	Nigeria	370	Mean age 33, 30% single vs. 43% married vs. 18% widowed/ divorced / separated, two-fifths unemployed, about three-quarters had secondary or tertiary education	To describe the prevalence and factors associated with female sexual dysfunction	Questionnaire (cross-sectional). Theoretical framework: None though does describe FSD as problems with sexual response, desire, orgasm, or pain + acknowledges possible biological, psychological, physiological, socio-cultural, and relational factors. Framing and conclusions are clinical (e.g., limited to screening and treating problems).	Multivariable analyses.	***Primary outcome: sexual dysfunction*** 1. 89% of women have FSD. Measured using FSFI, indicated by score of 26.55. Regarding individual domains: 2. Arousal and pain had lowest median subscore, satisfaction highest. 3. 88% had desire dysfunction, 75% arousal, 62% pain, 62% orgasm, 61% lubrication, and 46% satisfaction.	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4 at care entry, HIV RNA at care entry, current CD4, current viral suppression, time living with HIV, on ART; Other clinical (Hep B, Hep C, diabetes, hypertension, quality of life, health perception, sexual and reproductive history – i.e., # sex partners, # pregnancies, parity, family planning use) 2. Mental/violence: none. 3. *Relational:* marital status. 4. *Social – HIV:* none. 5. *Social* – Other: age, education, occupation, employment, alcohol and cigarette use	– Satisfactory health (ß=3.34; 95% CI: 1.16-5.52) and history of alcohol use (ß=2.38; 95% CI: 0.28-4.47) were associated with FSD; not any other factors.

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2	Bernier	2016	Five countries (Romania, Morocco, Mali, Democratic Republic of the Congo and Ecuador)	755 ♀ 658 ♂ 1413 total *(53.4% ♀ – data split by gender; gender and gender contexts un-theorized)*	Mean 36.5 years, 67.5% had children, 43.8% unemployed / student / housewife (vs. 56.1% employed)	To examine the factors associated with cessation of sexual relations after HIV diagnosis among men and women	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Cessation of sexual relations since HIV diagnosis because of HIV seropositivity: 42% of women and 23% of men **Sexual relations not defined.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* time with HIV, HIV test because of symptoms (used as physical marker) 2. *Mental/violence:* None. 3. *Relational:* Current relationship status: 54.4% in a relationship, 45.6% not in a relationship; Regular discussions about HIV with steady partner 4. *Social – HIV:* HIV infection a mystery, Need help to disclose, Serious social consequences*, feeling of loneliness, number of PLHIV known, Find support in CBO 5. *Social – Other:* age *This scale assessed if the participant suffered serious social consequences because of HIV (e.g., living apart from his/her family/children,	– Women in a relationship had lower adjusted odds of ceasing sexual relations because of HIV seropositivity (0.21 [0.13–0.32]), as did women having regular discussions about HIV with steady partner (but did not include a third level for 'no partner') (0.28 [0.17–0.44]). – Lower adjusted odds of this outcome were also seen among women living with HIV for a longer number of years (0.92 [0.87–0.98] – unclear what the unit increase is) and women finding support in CBO (0.53 [0.31–0.90]). – Variables with higher adjusted odds of cessation of sexual relations were: age (1.05 [1.03–1.07]), needing help to disclose HIV serostatus (2.08 [1.15–3.76]), serious social consequences (1.38 [1.11–1.71]), and feeling lonely every day (2.63 [1.43–4.81]). – **For men:** Some associated factors were similar (e.g., age, social consequences, regular discussions with partner). Some were different including: HIV test because of symptoms (marker of physical condition), HIV infection perceived as a mystery, and knowing many PLHIV. But note: They only showed adjusted variables if p <= 0.05 (i.e., relied on p-values versus CIs; thus, some estimates not shown for men, such as relationship status and feeling of loneliness, even though these CIs may have not crossed 1). Despite this, they concluded gender differences in determinants with women's more related to "relationship issues and social support" versus men "individual and representational issues surrounding virus". – ***Re: gender:*** they mention that "the determinants of sexuality are gender-dependent", and so conducted separate models for

										experiencing physical violence, being insulted, being separated from his/her spouse/partner) ***Other variables considered only in descriptive analyses:*** 1. Sexual relations with same sex persons: 7.4%	women and men; but inadequately theorized gender differences and underlying socio-cultural processes. While they mentioned a few models to interpret results (e.g., social sharing of emotions, self-regulation), none were thoroughly described. –
3	Bogart	2006	US	479 ♀ 247 ♂ hetero 586 ♂ gay 1339 total *(36% ♀ – data split by gender; interact'n b/w each correlate & gender tested in model; gender and gendered contexts are theorized esp. for gay men, but*	Women's mean age 38.6 & years w/ HIV 6.3, 83% on ART, 54% Black, 26% some /all college, 41% past/current drug dependence Most characteristics differed across gender/ orientation groups. (vs. hetero ♂: 90% ART, 52% Black, 30% college, 48% drugs; & Gay ♂: 88% ART, 75% White, 65% college, 33% drugs)	To examine correlates of deliberate sexual abstinence	Questionnaire (cross-sectional). Theoretical framework: None. But does theorize which factors may be similar and different across gender / sexual orientation groups.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Sexual inactivity in the past 6 months (31%, n=415; all genders included) *Among inactive:* 2. Asked about importance of two reasons for inactivity: "You have decided to take time off from having sex", "You have made a decision not to ever have sex again" – If "very important" for either, coded as deliberate 3. Deliberate abstinence (n=201, representing 15% of sample overall and 48% of those sexually inactive; more ♀ (18%) & hetero ♂ (18%) were abstinent than gay ♂ (11%), p<0.01)	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* ART, CD4, years since diagnosis, health-related quality of life 2. *Mental/violence:* None. 3. *Relational:* Primary relationship w/ partner or spouse (75% ♀, 74% ♂ hetero, 63% ♂ gay) 4. *Social – HIV:* Responsibility to protect others, ART optimism 5. *Social – Other:* age, race, gender, sexual orientation, education, alcohol use, drug dependence **Definition not provided,**	– In gender/orientation-stratified bivariable analyses and pooled multivariable analyses, odds of ***deliberate abstinence*** were significantly greater among people without a primary relationship partner/spouse. This was true across gender/ orientation groups. – In multivariable analyses, odds of ***deliberate abstinence*** was higher in women & hetero men, people who were older, and those with a stronger sense of responsibility to protect others, and lower among those on ART, with CD4 counts of 50 or higher, and drinkers. Factors *not* associated included: race, education, drug dependence, years w/ HIV, physical and emotional functioning. In analyses stratified by gender/sexual orientation groups, health factors were more strongly associated with deliberate abstinence among women (lower CD4 count and worse physical functioning) and heterosexual men (not on ART and worse emotional functioning) than gay men, although these differences were NOT significantly different. For gay men, more psychosocial factors were significant (non-drinkers, being black, higher responsibility for

				remain un-defined)					**Definition of sexual activity provided: any oral, anal, or vaginal sexual intercourse.**	**though authors said: if participants said 'yes' to marital status (not defined) and/or 'yes' to having primary relationship partner, they were classified as having a 'primary relationship partner/spouse'.**	protecting partners, and less ART optimism).
4	Bouhnik	2008	France	439 ♀ 1373 ♂ 1812 total *(24.4% ♀ – data NOT split by gender ; gender & gendered contexts un-theorized)*	4.4% IDU women (of entire sample), 12.5% heterosexual women born in France, 7.5% migrant heterosexual women, medium age 42, 95% on ART, 78.5% undetectable (nationally representative sample; restricted to those reporting at least 1 sexual partner during the 12 months prior to survey)	To understand psychosocial factors associated w/ perceived sexual difficulties	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual function:*** 1. Sexual difficulties during the past 4 weeks (Y/N): 33.3%, more frequent in those with low sexual activity. ***Secondary:*** 2. Sexual activity: Among 2932 surveyed, 1812 (61.8%) had one sexual partner in past year & were included in analyses. 3. Frequency of sexual intercourse in past 4 weeks: 23.2% had none, 33.4% b/w 1 and 4 times, 29.6% b/w 5 and 12 times, 13.7% had >12 times 4. Sexual dissatisfaction in past 4 weeks: 33.3%	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* Antidepressants, anxiolytics, VL, CD4, time of diagnosis, HIV treatment, perceived treatment efficacy, perceived side effects as very disturbing 2. *Mental/violence:* None. 3. *Relational:* None. 4. *Social – HIV:* knowing >4 ppl w/ HIV, knew >4 ppl who died of AIDS, HIV-related discrimination (from relatives, friends, at work, healthcare workers, sexual	– In adjusted multivariable analyses, the factors remaining significantly and independently associated w/ sexual difficulties were: knowing more than 4 people w/ HIV, having a high HIV-discrimination score, reporting lipodystrophy, perceiving side effects as very disturbing, having sex low sexual frequency (either: none and 1-4 times vs. >12 times), and antidepressant consumption. – No factors related to HIV severity (e.g., VL, CD4) were associated w/ sexual difficulties, highlighting predominant role of psychological impact of HIV experience on sexual difficulties.

									Sexual difficulties and sexual intercourse not defined.	partners, others), death of sexual partner 5. *Social – Other:* Employed, Binge drinking, lipodystrophy ***Other variables considered only in descriptive analyses:*** *1.* Number of partners in lifetime & past yr *2.* Number of steady partnerships in lifetime & at time of survey >Steady partner: 51.8% >Casual partner: 31.9% >Both: 16.3% **Steady partnership defined as "at least 6 months duration".**	
5	Bova	2003	US	101	Mean age 37, 93% heterosexual, 51% Caucasian, 29% Latina, 18% African-American, 74% <$10K, 64% history IDU (18% current), 55% history sex work, 38% undetectable, all phases of illness (32% asymptomatic, 34%	To describe sexual activity and functioning, and examine associated factors	Questionnaire (cross-sectional). Theoretical framework: None.	Bivariable analyses only. Multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** *Among sexually active women:* 1. Sexual functioning, defined using three questions re: past month: 1) has health limited interest in having sex; 2) has health limited frequency of sexual activities; 3) amount of the time you have had problems having sex (e.g., pain)	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4, illness stage, years w/ HIV, HIV symptoms, quality of life 2. *Mental/violence:* history of child (46%) and adult (40%) sexual abuse, domestic	– ***Sexual activity in past mo*** associated w/ partner status (84% of partnered women were sexually active vs. 62% not partnered). – ***Sexual activity*** associated w/ younger age & more positive appraisal of illness experience. Not associated w/ HIV disease indicators, or childhood sexual abuse. 31% said the quality of their sex life stayed the same and 21% improved after diagnosis. – ***Reasons for sexual inactivity:*** No partner (31%), no interest in sex (27%), because of HIV (19%), other (13%, incl. fear of disclosure, depressed, condom use), physical

					symptomatic, 34% w/ AIDS)				(mean=13.6, SD=3.7, range=6 – 18) ***Secondary:*** 2. Sexual activity after HIV diagnosis (90%) 3. Sexual activity in past mo (58%) **Definition of sexual activity not provided.**	violence (57.4%), mental health 3. *Relational:* Partner status (17% married and 32% co-habiting; 51% single, separated, divorced, or widowed) 4. *Social – HIV:* Appraisal of illness experience 5. *Social – Other:* Race, age, substance use, sex work ***Other variables considered only in descriptive analyses:*** 1. # of partners (57% monogamous) 2. Length (74% been w/ partner >1 yr) 3. 51% happy w/ quality of sexual relationships **Definition of partner status provided.**	symptoms (6%), partner not interested (4%). ***Sexual functioning:*** About half said HIV did *not* significantly impact interest in sex (51%) or frequency of sexual activity (54%), and 58% did not have physical problems w/ sex. Higher functioning scores associated w/ better mental health, more positive appraisal of illness experience, less severe HIV symptoms, never IDU.
6	Castro	2010	France	191 ♀ 330 ♂ 521 total *(37% ♀ – data not split by gender; gender*	Mean age 43, treatment experienced (86% on cART, 76% undetectable)	To examine factors associated with sexual dissatisfaction	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual satisfaction:*** 1. Sexual dissatisfaction (39%; no differences b/w MSM, heterosexual men, and heterosexual women; higher than general French population–17%) **Secondary:**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* HAART, CD4, VL, QoL (good/poor), health status (satisfied/not) 2. *Mental/violence:* None.	– In multivariate results, not having steady sexual partner, less frequent sex w/ partner, & discrimination in sexual relationship independently associated w/ ***sexual dissatisfaction***. – Also in multivariate results: ***sexual dissatisfaction*** was associated w/ being older (>40 years), not having a full-time job, and perception of loneliness (“I feel apart, isolated from the rest of world”); not w/ disclosure of status or biological markers such as HAART.

				and gender contexts un-theorized)					2. Sexual activity: 88% in the last 6 months, 69.5% in the last month **Sexual activity not defined.**	3. *Relational:* Have stable/steady sexual partner in past 6 mo (77%); Frequency of sex w/ partner (>3 times/ mo: 47% steady, 34% casual); Family status (couples vs single); 4. *Social – HIV:* Discrimination in sexual relationship (29%); HIV Stigma Scale (26 items including 'loneliness' which was included in multivariate model); Disclosure to significant others 5. *Social – Other:* Age, full-time job, housing, migrant	– ***Concerning HIV stigma:*** 87% careful about whom they disclose to, 71% anxious that people will judge, 70% anxious that people will tell others – all were significant in univariate results (among others), but did not remain so in multivariate.
7	Courtenay-Quirk	2009	US	193 ♀ 183 ♂ hetero 253 ♂ gay 644 total *(31% ♀ – data split by gender; models stratified by gender; gender*	Women were 79% non-Hispanic Black, 30% recently homeless, 49% housing problems	To examine rates & reasons for sexual abstinence, & identify associated factors	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Sex in past 3 mo (26.6% said no, n=169) *Among inactive:* 2. Asked whether it was their choice or just happened. 3. Deliberate abstinence (n=125, representing 20% of the sample overall and 74% of those sexually inactive; more ♀ (23%) were abstinent than hetero ♂ (15%) & gay ♂ (20%);	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4, VL, on ART, years w/ HIV, diagnosed w/ STD in past 6 mo, diagnosed w/ opportunistic infection ever, quality of life *2. Mental/violence:* physical & sexual abuse, depression 3. *Relational:* Has a main partner: Yes (18.4%) vs. No	– ***Deliberate abstinence*** less likely among those who had a main partner/spouse. True for all gender/sexual orientation groups. – ***Top reasons for deliberate abstinence:*** Not interested (n= 78); Did not want to infect someone (n= 46); Did not have a partner (n=37); among other reasons. – ***Among women: Deliberate abstinence*** was less likely among Black women and those whose social networks were aware of their HIV status (75% less likely for ech 1-unit increase in % of social network aware of status). – All other factors *not* significant in multivariable analysis, or *not* included in model (b/c *not* significant in bivariable). – VS. significant predictors in gay ♂

				and gendered contexts are theorized, but remain un-defined)					4. Amount of time they had chosen to not have sex ranged from 2 to 295 mo. (median 33.5 mo, SD=44) **Definition of 'sex' not provided.**	(81.6%), not disaggregated by gender 4. *Social – HIV:* social network aware of status 5. *Social – Other:* race, age, education, homelessness, housing problems, substance use **Definition of 'main partner' not provided; derived from a question about 'marital (or domestic partner) status' (also not defined).**	were having detectable VL, and in hetero ♂ were higher education & housing problem.
8	Craft	2007	US	96	Mean age 38, 72% African American, recruited from three large Midwestern cities	To assess depression, sexual desire & sexual importance as predictors of sexual behaviour	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Engaged in sexual behaviour in 6 past mo (59%) ***Secondary: (these were actually predictors)*** 2. How much would you like the opportunity for sexual interaction (5-point likert) 3. How much have you felt that you needed sexual interaction in the past month (5-point likert) 4. Sexual desire inventory (SDI) (endorsed low levels of desire, M=25.55) – 33% of	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* None. 2. *Mental/violence:* Depressive symptoms (high levels; M=22.87 vs. M=7.94-9.25 for general pop'n) 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* None. *(main predictors:* depression, sexual desire, sexual importance)	– A quarter (24%) felt they needed sexual interaction 'quite a bit' (28% of sexually active women & 18% of sexually inactive women). Almost half (48%) would like opportunity for sexual interaction. – Depression significantly decreased odds sexual activity, while sexual desire & importance moderately increased it. – (Specifically: 1-unit increase in total depression score reduced log odds by 3.4%; 1-unit increase in sexual desire increased log odds by 2%; and log odds increased by 1.7% for 1-unit increase in sexual importance) –

									active women and 44.7% of inactive women had a complete lack of desire for sex **Sexual behaviour assessed by asking about the individuals with whom they had sexual interactions. Sexual interactions not defined.**	*(controlled for:* Time since receiving HIV diagnosis, Age) ***Other variables considered only in descriptive analyses:*** 1. Primarily infected via condomless vaginal sex (67.7%). Most (75%) knew the person who infected them; most often it was a spouse/lover (70%) or casual/dating partner (25%). Over half (53%) stated no current relationship with the person who infected them. Less than half (45%) were now married/ partnered or dating. **No further description of terms provided.**	
9	De Vries	2013	South Africa	76 ♀ 26 ♂ 102 total *(74.5% ♀ – data NOT split by gender ; gender*	Median age 36 years, Median duration on ART 12 month,	To explore issues of sexuality among people with HIV on HAART	Questionnaire (cross-sectional). Theoretical framework: None.	Descriptive analyses only. Bivariable and multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** 1. Sexual experience: a composite score comprised of four 4-point likert scale items: sexual desire, sexual performance, sexual enjoyment, and satisfaction with frequency of intercourse (each scored 0 to 4);	***Variables examined in bivariable or multivariable analyses:*** None (descriptive only). ***Other variables considered only in descriptive analyses:***	– Authors reported that that number of partners decreased before and after HAART (38.2% to 10.8%), as did "sexual experience" (mean score 9 (SD: 4.61) to 7.37 (SD: 5.29). – Describe "drop in number of partners" as "encouraging" (assumption: HIV-positive people are not entitled to the same sexualities as HIV-negative people).

				and gendered contexts un-theorized)					higher score = better sexual experience **(definitions and measurements NOT provided)**	1. Current relationship status: 31.4% married; 57.8% single; 9.9% cohabiting; 1% divorced 2. Number of partners: none (25.5%); one (69.6%); more than one (4.9%).	
10	Denis	2003	Australia	43 + 73 – 116 total	HIV+ group was older than HIV- (44% 40+ yrs vs. 14%) & less college educated (14% vs. 56%)	To compare sexual functioning among HIV+ women and HIV- women	Questionnaire (cross-sectional). Theoretical framework: None.	Bivariable analyses only (by HIV-status). Multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** 1. Sexual functioning, as measure with the Sexual Health Questionnaire (SHQ), adapted from the Brief Index of Sexual Functioning for Women (BISF-W) Seven subscales measuring various dimensions of sexual function: interest, orgasm, satisfaction, activity relationship, masturbation, and problems **All items presented in depth. Note, the sexual activity subscale assessed: kissing, touching, hugging, holding, petting and foreplay, masturbation w/ a partner, vaginal intercourse.** ***Secondary:***	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* HIV-status 2. *Mental/violence:* None. 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* None. ***Other variables considered only in descriptive analyses:*** 1. Relationship status (HIV+: 63% married, living together, or in a relationship; 14% single; 23% divorced/widowed; *vs.* among HIV-: 75.3%, 22% and 2.7%) 2. Relationship subscale of SHQ. **Relationship status was defined using the**	– HIV+ women scored significantly lower on all subscales, except 'masturbation'. The **lowest** absolute scores for both groups were seen with the 'sexual activity' subscale (mean score: 2.31 HIV+ and 3.41 HIV- out of a possible 6). The **highest** absolute scores for both groups were seen with the 'relationship' (mean score: 4.41 HIV+ and 5.26 HIV- out of a possible 6) and 'sexual problem' (mean score: 4.47 HIV+ and 5.03 HIV- out of a possible 6) subscales. Authors concluded: HIV+ women remained satisfied with relationship despite problematic reduction in sexual functioning. – With respect to each of the six problems in the 'sexual problems' subscale, which is based on women who had sexual activity in the past month (32 HIV+ and 70 HIV-): HIV+ women were less likely than HIV- women to report they infrequently (seldom/not at all) experienced ***lack of desire*** (47% vs. 74%), ***lack of lubrication*** (44% vs. 80%), ***lack of arousal*** (56% vs. 74%). ***Painful intercourse & vaginal tightness*** was *not* common among either group (seldom/not at all: 80%), though more often among HIV+. But ***difficulties with orgasm*** were common and more prevalence among HIV+ (72% had seldom/not at all experienced

									2. Sexual inactivity in past month: 27% HIV+ women and 6% HIV- women	**categories above. The relationship subscale assessed: conflict in relationship, ability to communicate sexual desires or preferences, & overall satisfaction w/ sexual relationship (from the perspective of the women + her perception of what her partner's responses would be).**	orgasms, vs. 20% HIV-). Intensity of orgasm and ease of orgasm was also different between the groups: 82.6% of HIV+ women seldom or sometimes had orgasms (vs. 22.7%), 58.3% had very or fairly mild orgasms (vs. 16.7%), and 77.8% found it very or fairly difficult to have orgasms (vs. 34.8%). Importantly, however, conclusions are drawn from bivariable analyses that do not adjust for confounders, and participants were not matched on variables.
11	El Fane	2010	Morocco	72 ♀ 62 ♂ 134 total *(54% ♀ - some data split by gender; gender and gendered contexts un-theorized)*	Mean age 38, 51% unemployed, 39% illiterate, 80% on ART, 80% undetectable (for women: 100% heterosexual; 40.3% single, 40.3% no partner, or 19% multiple partners)	To identify sexual disorders and factors influencing sexual quality of life	Questionnaire (cross-sectional). Theoretical framework: None.	Descriptive analyses only. Bivariable and multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** 1. Sexual disorders: Before diagnosis: 7% women, 10% men; Current: 69% women, 80% men; Improvement of disorders after ART: 30% women, 10% men ***Secondary:*** 2. Maintenance of sexual activity: 56% women, 58% men 3. Sexual satisfaction: 30% women, 36% men **Measurement and definition for sexual activity and satisfaction not provided. Sexual disorders**	***Variables examined in bivariable or multivariable analyses:*** None (descriptive only).	– Prevalence of disorders further broken down by type and reason: – For women: authors report 69% have current sexual disorder, especially abstinence: ***Abstinence:*** 44%. Reasons included: religious taboos (28%), feelings of guilt (17%), fear of infecting partner (10%), and difficulty in finding partner (8%). ***Other disorders included:*** ***Desire disorder:*** 22.2%. ***Dyspareunia:*** 11.1%. ***Lack of pleasure:*** 8.3%. ***Lack of orgasm:*** 8.3%. These disorders were attributed to: sexuality reminds patient of disease (21%), fear of infecting partner (18%), condom use (16%), instability / insecurity (10%), hostility toward partner (10%). For men: authors report 80% have current sexual disorder, incl.: ***Abstinence:*** 42%. Reasons included: religious taboos (25%), feelings of guilt (10%), fear of infecting partner (5%).

									diagnosed according to DSM-IV criteria", but no explanation on how this was applied (survey or doctor).		***Other disorders included:*** Ejaculation dysfunction: 18% Erectile dysfunction: 17% Desire disorder: 15%. – These disorders were attributed to: physical fatigue related to HIV (20%), fear of infecting partner (18%), sexuality reminds patient of disease (10%), condom use (5%).
12	Florence	2004	Seven European Centres (UK, Italy, Spain, Greece, Sweden, Austria, Germany)	166	Mostly Caucasian (83%) and infected through heterosexual sex (62%), Mean age 36, Median years living w/ HIV 7.2, 79% on ART	To determine prevalence & factors associated w/ sexual dysfunction	Questionnaire (cross-sectional). Theoretical framework: None. Clinically focused.	Bivariable analyses only. Multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** 1. Sexual dysfunction, measured with Female Sexual Function Index (FSFI). This standardized questionnaire evaluates 6 domains of sexual function in the last 4 weeks: desire, arousal, lubrication, orgasm, satisfaction, and pain during sexual intercourse. Higher score = better. Max = 36. Median 25.2 (IQR: 19.3); 25% had a score =< 10. Overall satisfaction in the sexual relationship was the most affected domain (median=2.4). Scores on physical aspects of sexual function were high (i.e., not a problem) including pain (median=5.2) and lubrication (median=5.1).	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4 & VL, ART or regimen, transmission mode, time living w/ HIV 2. *Menta/violence*: none. 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* age, ethnicity, cigarette, alcohol & drug use, lipodystrophy	– Scores on all subscales did not differ b/w ART experienced and naïve women. – In bivariable analyses, depression, irritability, anxiety associated w/ a ***lower sexual function score***. *No* association w/ age, ethnicity, transmission mode, time living w/ HIV, lipodystrophy, cigarette, alcohol & drug use, CD4 & VL, ART or regimen. Authors said: "a multivariate analysis was not performed considering the lack of statistically signiciant variables in the univariate analysis." – In retrospective analyses, women reported a significant decrease in ***degree of desire, level of arousal & frequency of orgasm*** since HIV diagnosis, but no differences before & after start of ART. Concluded mainly driven by psychological factors & the HIV diagnosis itself, not ART. Additional factors such as partnership, marital status, disclosure & discordancy vital to consider in future studies.
13	Goggin	1998	US	54	Mean age 36, 46% African-	To assess prevalence of sexual disorders	Questionnaire (cross-sectional),	Bivariable analyses only. Multivariable	***Primary outcome: Sexual function:***	***Variables examined in***	– No significant relationship b/w diminished sexual desire and

	American, 27% Latina, 22% white, 70% heterosexual, 19% lesbian, 11% bisexual, 81% not working, 61% AIDS diagnosis, 61% contracted HIV through sex (Note: Women with active drug or alcohol addiction ineligible)	and whether they are related to endocrine disorders, mood disorders, psychological measures of wellbeing, or demographic variables	clinical interview, blood draw. Theoretical framework: None. Clinically focused.	analyses NOT conducted.	1. Hypoactive sexual desire disorder: diagnosed in clinical interview (39%) + self-report using 11-item questionnaire assess sexual problems in past mo. (43%) ***Secondary:*** 2. 50% had experienced a reduction in sexual activity and 37% had not been sexually active w/ partner in past mo. 3. 59% were interested (31%) or maybe interested (28%) for treatment for low sexual desire or functioning **No definition for HSDD provided, but assessed as above. No definition for sexual activity provided.**	***bivariable or multivariable analyses:*** 1. *Medical:* CD4, Endocrine disorders: androgen deficiency [testosterone or dihydroepiandrosterone (DHEAS)]; 2. Mental/violence: Diagnosed mood disorders: major depression, dysthymia, anxiety; depressive symptoms (HAM-D), life satisfaction 3. *Relational:* None. 4. *Social – HIV:* Perceived risk factor for HIV infection 5. *Social – Other:* Age, income ***Other variables considered only in descriptive analyses:*** 1. Marital status: 41% never married, 13% married, 35% divorced or separated, 11% widowed 2. 60% were in a current love relationship. Of these, 50% were HIV+, 34% negative, 16% unknown.	deficient levels of testosterone, DHEAS, or mood disorders. – However, HSDD was related to more depressive symptoms and lower life satisfaction. – Also, women whose perceived risk factor for HIV infection included sexual contact were > 5 times more likely to be diagnosed w/ a new onset HSDD than women who reported IDU as their only risk factor (47% vs. 9%). Authors suggested: “It may be that believing that they were infected with HIV through sexual contact taints some women’s view of sex.” Asked women what they believed had caused decrease in sexual desire: majority said they did not know; reasons varied: fear of rejection, lack of partner, fatigue, relationship problems, fear of infecting sexual partners. Authors suggested partners’ attitudes about sexual contact and safer sex may have also played a role.

										Marital status defined using categories above. "Love relationship" not defined.	
14	Hankins	1997	Canada	161	Median age 34 (range: 18-68), 88% francophone, 50% high school educated	To examine measures of sexuality by IDU status, ethnicity, and partner type across three time frames: 6 mo. before HIV test, during sexual adjustment period, and 1 mo. prior to study interview	Questionnaire (cross-sectional), with some open ended questions. Theoretical framework: None. Does theorize differences by ethnicity and class.	Bivariable analyses only. Multivariable analyses NOT conducted. Note: Analyses restricted to those with male partner (97% of sample).	***Multiple outcomes, none primary:*** 1. Partnered sex (80% before HIV+; 68% after, with 44% resuming within 1 mo. & 64% taking a median of 4 mo.) 2. Sexual adjustment period [84%; median 8.4 mo.; more common among non-IDU African (96%) vs. IDU (76%)] 3. Sexual satisfaction (None/little bit: 42% in 6 mo before HIV; 57% during adjustment period; 32% current mo) 4. Sexual pleasure (None/little: 40% before, 55% adjustment, 33% current) 5. Self pleasuring (57% before, 46% adjustment, 40% current) 6. Frequency of sex (see 'relevant findings') 7. Orgasms (see 'relevant findings') **Definition of partnered sex not provided, but does distinguish between interpersonal and masturbatory sexual activity.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4 2. *Mental/violence:* None. 3. *Relational:* Partner type: new regular partner since HIV+ (25%), same regular partner before/after HIV, casual partner. 4. *Social – HIV:* None. 5. *Social – Other:* Race and IDU groups (29% IDU, 33% non-IDU Haitian/ African, 38% non-IDU Caucasian) ***Other variables considered only in descriptive analyses:*** 1. # of partners since HIV+: 64% one, 36% multiple 2. Disclosure (76% overall; Haitian/African women less likely to disclose (42%) than IDU (88%) & White (91%)	– Frequency of sex (once per week): Higher w/ same regular partner before/after HIV (66%) vs. new regular partner (33%). – Satisfied w/ sex (moderately, a lot, extremely): New regular partner (67%) vs. 44% same regular partner 21% & casual or multiple partners. – Orgasms (sometimes, often, most of the time, each time): New regular partner (56%) vs. 43% same regular partners & 18% casual or multiple partners. – Sexual activity was associated with higher CD4 count, at any time post-test (<200: 55.3%; 200-500: 77.8%; 500+: 91.4%) and in the mo. prior to interview (<200: 23.7%; 200-500: 44.6%; 500+: 60.0%). The mean CD4 count for sexually active women was 430 cells/mm3 (vs. 296 for inactive women). – IDU women more likely to be sexually active (96%) (vs. 45% non-IDU women); have frequent (daily) sex (54%) (vs. 0% non-IDU Haitian/African, 10% non-IDU Caucasian); never/rarely have orgasms (78% IDU, 65% non-IDU Haitian/African, 41% non-IDU Caucasian); and prefer sex less often (65%) (vs. non-IDU women (41%). Feelings during sexual adjustment period: afraid to be touched, guilt, worries about infecting others, less interested in sex, no more spontaneity, sex is less natural, having to use condoms. Many resumed sex to satisfy partner expectations (50%); self-motivation 2nd reason.

										Definition of regular vs. casual not provided.	
15	Inoue	2004	Japan	9 ♀ 52 ♂ 61 total *(15% ♀ – data NOT split by gender; gender & gendered contexts un-theorized)*	Mean age 40, 82% employed, 56% undetectable	To examine social relationships & difficulties w/ sexual life, and identify predictors	Questionnaire (cross-sectional). Theoretical framework: None.	Bivariable analyses only. Multivariable analyses NOT conducted.	***Primary outcome: sexual satisfaction:*** 1. Sexual dissatisfaction (59% totally dissatisfied or dissatisfied) **Definitions of sex not provided.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* None. 2. *Mental/violence:* HADS–hospital anxiety and depression scale 3. *Relational:* Gender of partner (54% same gender – 70% of cohort was MSM); Have spouse, partner lover; Frequency of sex w/ partner (43% < once/mo; lower than Japanese public) 4. *Social – HIV:* Impaired attitude toward sex (frequency, # partners, activity) due to HIV (75%) 5. *Social – Other:* None. ***Other variables considered only in descriptive analyses:*** 1. Difficulties in personal relationships (not necessarily intimate): confidentiality breached (21%), discriminated against (21%)	– ***Dissatisfaction w/ sex life*** significantly associated w/ low frequency of sex w/ partner & impaired attitude toward having spouse, partner, lover due to HIV, as well as impaired attitude to sex. *Not* associated w/ gender of sexual partner (same/opposite) or having spouse, partner lover. – ***Degree of satisfaction w/ sex life*** lower as HADS increased (worsened) (β= -0.354). – ***Concerning HIV stigma:*** 69% always careful to conceal status.

										2. Emotional support from spouse, partner, lover (46%) Age, employment, SES, self-rated health, CD4, VL, AIDS	
16	Kaida	2015	Canada	1213	Median age 43, 23% Aboriginal, 28% African, Caribbean, Black Canadian, 41% White, 87% heterosexual, 63% had income <$20K, 82% on ART, 77% undetectable	To measure the prevalence of sexual inactivity and sexual satisfaction, and demographic, clinical, and socio-structural correlates of inactivity	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Sexual inactivity in past 6 mo.: 49% ***Secondary:*** 2. Satisfied with current sex lives: 64%, including 49% of sexually inactive and 79% of sexually active women ($p<0.001$). **Sexual activity defined as consensual sex (oral or penetrative).**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* years living w/ HIV, receipt of HIV medical care in past year, receipt of ART in past year, most recent VL, most recent CD4, Health related quality of life 2. *Mental/violence:* depression 3. *Relational:* Marital status: 34% married, common-law, in a relationship; 66% single, separated, divorced 4. *Social – HIV:* HIV stigma, having ever discussed impact of VL on risk of transmission with provider and perceptions of how ART changes personal risk of transmitting HIV 5. *Social – Other:* age, education, gender, sexual	– Sexually inactive women had significantly higher adjusted odds of not being married, common-law, or in a relationship (AOR=4.34; 95% CI: 3.13-5.88). – Sexually inactive women also had significantly higher adjusted odds of being older (AOR=1.06 per year increase in age; 95% CI: 1.05-1.08), having an annual household income below $20,000 CAD (AOR=1.44; 95% CI: 1.08-1.92), and reporting high (vs. low) HIV-related stigma (AOR=1.81; 95% CI: 1.10-3.03). – No independent association was found with current ART use, undetectable plasma HIV VL or CD4>500 cells/mL. However, sexually inactive women were significantly more likely to report not having discussed the role of VL on decreasing HIV transmission risk with a provider (AOR=1.57; 95% CI: 1.16-2.11). In unadjusted analyses, it was also associated w/ gender identity, sexual orientation, longer time living with HIV, poorer physical health, probable depression, and sexual dissatisfaction. But these were not selected for in final model. **Marital status was defined as above. Regular Sexual Partners were defined to include, but not limited to, "spouses, common law partners, long term relationships, friends with benefits, or partners seen on and off for some time."**

										orientation, ethnicity, annual household income, # children ***Other variables considered only in descriptive analyses:*** *Of sexually active women:* 1. Casual partner: 21% 2. Regular partner: 81% had 1 in past 6 mo., 6% had 2+ 3. Regular partner's HIV-status: 27% were HIV+, 64% were HIV-, 9% were unknown 4. Disclosure to regular partner: 91% knew of women's HIV status at last sexual encounter	**Casual Sexual Partners were defined to include, but not limited to, "serious sexual relationships that have recently begun, new sexual relationships that exist but you're not sure about, chance sexual encounters, or one night stands."**
17	Kilmarx	1998	US (Multi-center, Baltimore, Miami, Newark)	61 ♀ 81 ♂ 142 total *(43% ♀ – data split by gender; gender & gendered contexts un-theorized)*	Median age 35, 82% black, low SES, mostly heterosexual	To determine social consequences of testing HIV+ and if receiving needed services	Questionnaire (cross-sectional) w/ closed and open ended questions. Theoretical framework: None.	Descriptive analyses only. Bivariable and multivariable analyses NOT conducted.	***Primary outcome: sexual activity:*** 1. Change in frequency of sexual intercourse year before learning HIV compared w/ posttest: 16% said no intercourse at all (20% ♂ and 12%♀); 65% said less often (67% ♂ and 63% ♀); and 17% said same or more often (14% ♂ and 23% ♀) 2. Change in no. of casual sex partners year before learning	***Variables examined in bivariable or multivariable analyses:*** None (descriptive only). ***Other variables considered only in descriptive analyses:*** 1. Marital status: 9% married, 61% single, 26% separated or divorced, 4% widowed	– 71% overall (n=101) had main sex partner at time of diagnosis:, incl. 63% ♂ and 82% ♀ – Of those: 53.5% (n=54) had ended relationship by time of study, and 40% of these believed it was because participant had HIV – Only 38.7% reported having a main sex partner at time of study (20% were HIV-negative or unknown) – Main sex partner aware of HIV infection: 80% overall, incl. 86% ♂ and 74% ♀ – Of those informed: 56% were very or somewhat accepting, 29% had been very or somewhat rejecting – Of those not informed: most had not done so because of fear of rejection and 4 (all women) because of fear of violence

									HIV compared w/ posttest: ♂: changed from median of 3 (mean 10) to median of 1 (mean 2.6) ♀: changed from median of 2 (mean 4.2) to median 0 (mean 2.2). **Sexual intercourse not defined. Casual sex not defined.**	2. Main sex partner at time of diagnosis and study interview (See 'relevant findings') 3. Disclosure to main sex partner (See 'relevant findings') **Marital status defined using categories above (note: no option for relationship or common-law).** **Main sex partner defined as "wife/ husband, girlfriend/ boyfriend, or lover."**	
18	Lambert	2005	England	82	Mean age 37.9 (range 20-64), 75% Black African, 63% unemployed, over 75% had attended college or university, 59% on cART, 37% undetectable	To investigate sexual behaviours and associations with HIV, psychological, and relationship factors	Questionnaire (cross-sectional). Theoretical framework: None.	Bivariable analyses only. Multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** *1.* GRISS*– 7 validated subscales w/ % above cut-off for clinically significantly problem: Sexual dissatisfaction (34%) & sexual difficulties (84% infrequent sex, 84% avoidance, 69% noncommunication, 60% vaginismus, 24% anorgasmia) ***Secondary:*** *2.* Sexual activity in past month (52%)* 3. Sexual activity since HIV+ (72%) 4. Sexual enjoyment since HIV+ (moderately/greatly	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4, VL, cART, time on cART 2. *Mental/violence:* History of sexual abuse (41%), past physical abuse (34%); HADS– clinically significant mild/moderate/ severe symptoms of depression (38%) and anxiety (60%) 3. *Relational:* Number of partners since diagnosis (28%	– ***Sexual activity in past mo.*** not associated with relationship status (unclear which relational variable this was). – ***Sexual abstinence*** since HIV+ associated with past sexual abuse. – ***Reasons for current sexual inactivity:*** finding the "right partner" predominated, along with fear of disclosure, fear of infecting, & refusal of partner to use condom. Some cited loss of libido & attributed this to ART. – ***Impaired sexual enjoyment*** not associated w/ HIV disease factors (CD4, VL). – ***For sexual dissatisfaction subscale:*** not associated w/ anxiety; associated w/ infrequent sex, avoidance, and non-communication. – ***For sexual difficulties subscales:*** >Total GRISS score & avoidance subscale associated w/ depression.

									reduced for 30% & impossible to have sex for 24%, only 18% said made no real difference) **Asked to those w/ regular male partner.* **Definition of sexual activity not provided.**	none); Regular male partner (59%); Casual sexual partner (0%) 4. *Social – HIV:* None. 5. *Social – Other:* None. ***Other variables considered only in descriptive analyses:*** *Of those w/ regular male partner:* 1. Length (median= 72 mo., range 2-480 mo.) 2. Couple serostatus (46% concordant) 3. Disclosure (79%) **Definition of regular vs. casual not provided.**	>Infrequent sex & vaginismus were associated w/ impaired sexual enjoyment and past sexual abuse. >No associations with cART use or time on cART – ***Relationship status*** not associated with any factors (time HIV+, cART, VL, anxiety, depression, abuse) (Note: Only used χ^2 tests and Pearson correlations.) –
19	Luzi	2009	Italy	185	Mean age 42, mean CD4 508	To evaluate prevalence & determinants of sexual dysfunction domains, with a particular interest in the contribution of lipodystrophy (both perceived and clinical evaluated)	Questionnaire (cross-sectional). Theoretical framework: None. Clinically focused, but also focused on body image perception.	Multivariable analyses.	***Primary outcome: sexual function:*** 1. Female sexual dysfunction (FSD), assessed via FSFI and defined by score <23 (32% reported moderate to severe sexual dysfunction) **FSD defined using FSFI (female sexual function index). Also defined in paper as presence of at least 1 of 4 essential components of**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CDC stage, CD4 cell count, VL, current ART, cumulative exposure to ART classes, time since HIV-positive test, health-related quality of life, menopause, sex hormones	– ***Desire, arousal, & satisfaction domains*** associated w/ interference of body changes w/ habits, social life, & attitudinal aspects of body image. – ***Lubrication & orgasm domains*** associated w/ body image satisfaction. – No significant associations found w/ sex hormones, menopause, CDC stage, CD4 cell count, VL, ART classes. – In women with FSD, strong association b/w severity of ***sexual dysfunction*** & perception of lipodystrophy (self-percieved abdominal fat accumulation). **Do acknowledge in the limitations that they did not**

									sexual activity: decreased sexual desire, decreased sexual arousal, dyspareunia, and orgasmic dysfunction. But sexual activity not defined. Secondary: 2. Sexual inactivity (13%) – excluded from analyses of FSD	2. *Mental/violence:* None. 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* age, lipodystrophy, body appearance satisfaction, interference of body changes w/ habits, social life, and attitudinal aspects of body image	**examine relationship factors including partner's HIV status, which might "play an important role on female psychological distress related to the fear of transmitting HIV with sex activity (pp. 91)."**
20	Negin	2016	Uganda	59 ♀ 42 ♂ 101 total *(58% ♀ – bivariable data stratified by gender, but not multivariable model; gender and gender contexts un-theorized)*	**Older (50+) sample;** mean age 61; Women were more likely to be younger and widowed/ divorced/ separated	To examine gender differences in sexual behaviours, problems, and risk behaviours, and to identify physical and mental health factors related to sexual activity and importance of sex (For the purposes of this review, we only report results on sexual activity.)	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Number of partners: 72.2% not sexually active, with differences by gender (86% women vs. 50% men), while 13.8% of women had 1 partner (vs. 38.5%), and none had more than 1 partner (10.3%) 2. Frequency of sexual activity in the past 12 months: 3. Reasons for sexual inactivity: level of interest in sex (78% women vs. 46.3% men) and HIV status (42.4% women vs. 48.8% men) most common; other less common reasons were emotional problems (10.2% women vs. 7.3% men), family or kids wouldn't approve (10.2% women vs.	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* time with HIV, Physical self-rated health, health-related quality of life (MOS-HIV) 2. *Mental/violence:* depression (CES-D) 3. *Relational:* Marital status: 13.6% were married / cohabiting, 57.6% widowed, 28.8% divorced / separated (vs. men: 59.5%, 28.6%, and 11.9%) 4. *Social – HIV:* None. 5. *Social – Other:* gender, age	– Adjusted odds of sexual activity increased if married/cohabitating – Adjusted odds of sexual activity increased if better physical functioning (1.84 [1.26–2.71]) and reduced if female gender (0.19 [0.05–0.79]). – Conflates a lot of sexuality terms – e.g., mentions "sexual functioning" but doesn't even measure or define the term. – Appears more focused on risk and prevention. (Reports on condom use; spends most of discussion talking about condoms and risk; concludes on page 441 that it is "critical to understand their sexual behavior and related psychosocial variables in order to improve prevention efforts") –

									0% men), physical health problems (6.8% women vs. 12.2% men), or partner not interested (1.7% women vs. 22% men) ***Secondary:*** 4. Importance of sex: 41% of men rated sex as extremely or very important (vs. only 5% of women) **Sexual activity and sex not defined.**	***Other variables considered only in descriptive analyses:*** 1. How infected (sex with spouse, sex with casual partner, other): 56% spouse, 30% casual partner (not split by gender) 2. Alcohol, drug use, education	
21	Oyedokun	2014	Nigeria	370	Mean age 38, about one-third had tertiary education, polygamous family setting	To determine prevalence of sexual dysfunction & associated socio-demographic, psychological & clinical factors	Questionnaire (cross-sectional). Theoretical framework: None.	Bivariable analyses only. Multivariable analyses NOT conducted.	***Primary outcome: sexual function:*** 1. Sexual dysfunction **Measured using FSFI.** Modified to measure past 6 months since cultural (polygamous family setting) may not allow women sexual access to partner frequently. Score below 26.55 deemed poor and suggestive of SD. Using that cut-off, prevalence of SD was high (61%) – most prevalent difficulty was desire (88%), least pain (42%)	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* BMI, year of diagnosis, WHO Clinical stage, year HAART was commenced, HAART, CD4 2. *Mental/violence:* distress (35%), assessed w/ General Health Questionnaire (GHQ 12) 3. *Relational:* Marriage, Duration, # of partners, Non-disclosure of status (**Did not provide any stats.)** 4. *Social – HIV:* None. *Social – Other:* age, ethnicity,	– Being married & monogamous associated with better ***sexual functioning***; whereas non-disclosure of HIV status & multiple sex partners associated w/ worse functioning. No association w/ duration of marriage. (DATA NOT SHOWN) – Other factors associated w/ ***better sexual functioning***: higher education, higher CD4, and WHO clinical stage I disease; w/ ***worse sexual functioning***: increasing age, stigma, psychological distress. Re: distress: 79.7% of those w/ distress had SD vs. 50.8% of those without. – No association with ethnicity, religion, or presence of other chronic diseases. – Concluded that mostly associated with psychological problems, problems w/ relationships, and stigma.

									Definitions not provided.	religion, education, occupation	
22	Peltzer	2011	South Africa	352 ♀ 143 ♂ 495 total *(71% ♀ – data NOT split by sex)*	Mean age 36, 62% rural, 59% unemployed, 100% on treatment	To assess sexual dissatisfaction & associated factors	Questionnaire (prospective) – interviewed at baseline (ART naïve) & 6, 12, & 20 mo after ART. Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual satisfaction:*** 1. Sexual dissatisfaction in past 2 weeks (32.6% overall; by sex: 30% ♂, 36% ♀) (Improved over time: 56.1% before ART, 32.6% 20 mo on ART) ***Secondary:*** 2. Sexual intercourse in past 3 mo (46%) **Sexual intercourse defined as vaginal and anal intercourse.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* on ART, regimen, adherence, CD4, HIV symptoms, quality of life 2. *Mental/violence:* depression 3. *Relational:* Marital Status (24% married or co-habiting, 70% never married, 6% widowed/ divorced); Disclosed to last sexual partner (60%); HIV-positive sexual partner (39.2%) vs. HIV negative or unknown (60.8%) 4. *Social – HIV:* Internalized stigma 5. *Social – Other:* Age, gender, education, alcohol use, social support **Definition of martial status provided, using categories above.**	– In bivariable analysis, marital status not significantly associated w/ ***sexual dissatisfaction***. In bivariable & multivariable, people w/ HIV+ partner less likely to be dissatisfied. – In multivariable, ***sexual dissatisfaction*** was associated w/ lower education, being sexually inactive, on meds for opportunistic infections, internalized stigma, & lack of social support. – All other variables not significant. Note: sexually inactive people *more* dissatisfied at baseline & *less* dissatisfied at T3 & T4, versus sexually active people. (e.g., happy not having sex)
23	Pinzone	2015	Italy	43 ♀ 109 ♂	For women: median age 42, median years living w/ HIV	To evaluate prevalence & risk factors for sexual dysfunction	Questionnaire (cross-sectional).	Multivariable analyses.	***Primary outcome: sexual function:***	***Variables examined in bivariable or***	– Among women, ***sexual dysfunction*** more prevalent in elderly (100% vs. 28%, p=0.033) (age range not defined), but *not*

				152 total *(28% ♀ – some data split by gender but not main model; gender and gendered contexts un-theorized)*	14, 78% infected through hetero. sex, median CD4 575, 81% undetectable (For men: comparable CD4 & VL, but older (47 yr), living w/ HIV for less time (11 yr), and 54% infected through sex w/ men)		Theoretical framework: None. Clinically focused.	(But no effect sizes or confidence intervals provided. Only p-values for two variables.)	1. Sexual dysfunction (SD), assessed for women via FSFI (<23) (34% reported moderate to severe sexual dysfunction) (vs. In men, assessed via International Index of Erectile Function (IIEF): 65% men reported ED) Overall, 58% reported SD, but higher in men as shown above (p=0.0024) ***Secondary:*** 2. Sexual inactivity (higher in ♀ 7% vs. ♂ 0%) – excluded from analyses of SD **Definitions not provided.**	***multivariable analyses:*** 1. *Medical:* on ART, regimen, CDC stage, mode of transmission, time living w/ HIV, diabetes, smoking 2. *Mental/violence:* Anxiety (52%) [Self rating anxiety scale (SAS)] 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* Age, gender ***Other variables considered only in descriptive analyses:*** 1. Single (43%) **(Not split by sex.)**	related to anxiety, diabetes, smoking, currently on ART, HIV stage, VL or other factors. In logistic regression, authors said age (p=0.008) & male sex (p=0.008) but *not* anxiety (p=0.068) associated w/ sexual dysfunction.
24	Robinson	2017	Canada	582	95% heterosexual, 39% Black, 36% White, 11% Indigenous, 13% other races; 37% married/ common-law / relationship, 71% have children	To describe sexual behaviours and quantify potential for onward HIV transmission	Questionnaire (cross-sectional). Theoretical framework: None. Heavily framed in terms of public health and risk of HIV prevention, not women's own sexual well-being. Acknowledges at very end the importance of considering relationship nuances, and	Multivariable analyses.	***Primary outcome: sexual activity*** Describe taking a "broader, holistic view sexual activity" yet their measures were focused on risk and included: number, sex, and type of sexual partners (casual or regular), and vaginal/anal intercourse with or without a condom according to partner type and HIV status.	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* time with HIV, Hep C co-infection, on ART, VL, CD4, physical health related quality of life, overall health 2. *Mental/violence*: mental health related quality of life 3. *Relational*: marital status	– Women less likely to be sexually active were older, Black/African, single/separated/widowed/divorced and unemployed Those reporting greater medical health related quality of life were more likely to be sexually active

							broader societal context.		1. 46% of women had a sexual partner in past 3 months 2. Most had one partner (76%), a regular partner (76%), male partner (96%), and partners who were HIV negative/unknown (75%) 3. Condom use more likely in discordant relationships (81% vs 59%) 4. 8% of sexually active women reported condomless sex with discordant partner when viral load was detectable	4. *Social – HIV*: none. 5. Social – Other: age, race, has children, lives alone, income, employment, immigration status, education, injection drug use	
25	Rosenberg	2017	South Africa	2714 ♀ 2345 ♂ 5059 total *(54% ♀ – data split by gender; gender and gender contexts un-theorized)*	36% married / cohabiting (vs. 68% men), 50% no formal education, older cohort ranging from 40 to 80+	To compare sexual behavior profiles across HIV status categories	Questionnaire, population-based (cross-sectional). Theoretical framework: None. Public health / prevention focus.	Multivariable analyses.	***Primary outcome: sexual activity*** Focused on sexual behaviours from risk lens, including # lifetime sex partners and # past-year sex partners, "sex" not defined. Also explored if recent partners were casual or anonymous vs. regular, and frequency of condom use. 1. Recent sexual activity common across all HIV statuses: 56% 2. Condom use varied: lowest among HIV-negative (15%) and	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical*: HIV-status 2. *Mental/violence*: none 3. *Relational*: marital status 4. *Social – HIV*: none 5. *Social – Other*: age, education, household composition, employment status	– Men maintained sexual partnerships at higher rates across older ages, only dropping to 52% at age 80 and older. Decreased more steeply for women, dropping from 78% at age 40– 44 years, to 30% at age 60– 64 years, to 6% at age 80 years and older. – Concludes: behaviours described as consistent with transmission and acquisition of disease – low condom use, casual sex, and multiple partnerships (but do not individual or community levels of viral suppression)

									unknown (27%), vs. HIV-positive (75%) 3. Casual sex (18-20%) and multiple partnerships (9-13%) higher in HIV-positive adults		
26	Schrooten	2001	8 European countries *(Portugal, Spain, Germany, Greece, France, Sweden, Austria, UK)*	167 ♀ 727 ♂ 904 total *(20% ♀ – data NOT split by gender; gender & gendered contexts un-theorized)*	Mean age 39 years, 43% undetectable (Note: restricted to those on ART)	To describe prevalence and risk factors for sexual dysfunction, specifically particular components of HAART regimens	Questionnaire (cross-sectional). Theories: None. Clinically focused.	Multivariable analyses.	***Primary outcome: sexual function:*** 1. Sexual dysfunction: 37% complained of a decrease in sexual interest (38% of men and 29% of women) since starting ART (Also for men: 31% decrease in sexual potency.) **Assessed with Yes/No question.** **Sexual dysfunction defined in abstract as "encompassing a lack of desire or erectile dysfunction."**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* HIV disease stage (asymptomatic, symptomatic, AIDS), PI therapy (current and history), CD4, VL, duration of HIV infection 2. *Mental/violence:* None. 3. *Relational:* None. 4. *Social – HIV:* transmission mode (homosexual, heterosexual, IVDU, other) ***5.*** *Social – Other:* Age (For potency outcome w/ men: Tranquilizers, Anti-depressants)	– Decrease in sexual interest more frequently reported in subjects using HAART containing PIs (40%) vs. PI-naive (16%). – In multivariable model, following factors associated w/ decrease in sexual interest: current PI-containing regimen, history of PI-containing regimen, symptomatic HIV, age, and homosexual contact as HIV transmission. – Acknowledged no information recorded on psychological well-being. – Duration of HIV infection, CD4 count, and VL not associated with SD. – (For potency: current PI-containing regimen, symptomatic HIV, age, and use of tranquillizers.)
27	Taylor	2015	US	1927 + 742 –	Majority were >30 years old, Black, at least high school education and premenopausal. White and Hispanic women were more likely to be undetectable.	To examine the impact of aging and menopause on sexual activity (SA) and unprotected anal or vaginal intercourse among three groups (HIV–, HIV+ and detectable VL, HIV+ and undetectable VL)	Questionnaire (longitudinal, 13-years of follow-up). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Sexual activity (SA): majority were sexually active at baseline, with higher rates among HIV- women (87%) vs. HIV+/detectable (74%) or HIV+ / undetectable (73%) women ($p<0.0001$).	***Variables examined in bivariable or multivariable analyses:*** *1.* *Medical:* Menopause status *2.* *Mental/violence:* None. *3.* *Relational:* None. *4.* *Social – HIV:* None.	– Adjusting for covariates, for every 10-year age change, the odds of any SA declined by 62% for HIV+ /detectable women (0.38 [0.34–0.41]), 64% for HIV+ /undetectable women (0.36 [0.33–0.40]) and 62% for HIV- women (0.38 [0.33–0.44]). Declines significant for all three groups. Differences in the effect of age on SA between groups non-significant ($p = 0.693$). – For women aged 40-57, after

						(For the purposes of this review, we only report results on sexual activity.)			Averaged across all visits, SA declined to 70%, 69%, and 65% respectively ($p<0.0001$) – declines were similar across groups ($p > 0.05$). **Sexual activity defined as vaginal or anal sex.**	5. *Social – other:* Age ***(main variables of interest)*** ***Other covariates adjusted for (but not reported on):*** 1. *Physical/medical:* physical function 2. *Relational:* None. 3. *Mental/violence:* depression 4. *Social – HIV: None.* 5. *Social – other: Race, education, heavy drinking, current drug use*	menopause, the adjusted odds of any SA declined in these groups by 22% (0.78 [0.68–0.90]), 25% (0.75 [0.64–0.87]), and 18% (0.82 [0.65–1.04]) respectively. Declines significant for HIV+ groups only. Differences in the effect of menopause on SA between groups non-significant (p=0.724).
28	Trotta	2008	Italy	171 ♀ 441 ♂ 612 total *(28% ♀ – data not split by gender; gender and gendered contexts un-theorized)*	Mean age 37, 64% undetectable, all on HAART	To assess prevalence of self-reported sexual dysfunction and associated factors, particularly adherence to ART	Questionnaire (cross-sectional). Theoretical framework: None. Clinically focused.	Multivariable analyses.	***Primary outcome: sexual function:*** 1. Sexual dysfunction: 21% reported some degree, with only 6% saying moderate/severe No significant differences by sex: >Mild: 12.4% ♀ 15.3% ♂ >Moderate/severe: 5.9% for both **SD defined as 'alterations' in sexual activity over past 4 weeks. Sexual activity not defined.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* Non-adherence, worsening of viral immunological parameters, higher symptom score, stage of HIV disease, CD4 cell, HAART drugs and classes, number of previous medication switches, reason for switches, duration of ART 2. *Mental/violence:* None. 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* abnormal fat accumulation,	– In adjusted analyses, moderate / severe sexual dysfunction was associated w/: ART non-adherence, worsening of viral immunological parameters, higher symptom score, and abnormal fat accumulation. – No association found w/ gender, age, active drug use, heavy alcohol use, or HIV transmission mode. – No association found w/ stage of HIV disease, CD4 cell, HAART drugs and classes, number of previous medication switches, reason for switches, duration of ART

										age, active drug use, heavy alcohol use ***Other variables considered only in descriptive analyses:*** 24% reported HIV-positive partner (Not split by sex)	
29	Valadares	2014	Brazil	128 + 178 – 306 total	**Older women (40–60 years)** HIV+ women were younger and less likely to have a steady partner, to be employed or to have a formal education. 75% acquired HIV via heterosexual sex, mean time with HIV 9.5 years,	To evaluate whether dyspareunia is associated with HIV status in menopausal women, and to assess which factors are associated with dyspareunia among HIV-positive menopausal women.	Questionnaire (cross-sectional). Theoretical framework: None. Clinically focused.	Bivariable and multivariable analyses conducted. Used Poisson, but didn't have count data or rates.	***Primary outcome: sexual function:*** 1. Dyspareunia: 41.4% + vs. 34.8% – (p=0.242) **Dyspareunia was defined as pain during intercourse, graded on a scale from 1 (no pain) to 6 (maximum pain). Dichotomized into <2 vs. >=2 (dyspareunia).** **Sexual intercourse not defined.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical/physical:* vaginal dryness, urinary incontinence **(only ones included in multivariable model)** **In bivariable model:** 1. *Medical/physical:* vaginal dryness, urinary incontinence, muscle/joint pain, use of lamivudine/ zidovudine, HIV status 2. *Mental/violence:* physical/ emotional violence 3. *Relational:* having a steady partner; the woman's partner having undergone HIV testing	– In full sample: Dyspareunia was not associated with HIV status (authors suggested b/c "few HIV related symptoms"), but was associated with vaginal dryness (prevalence ratio (PR)=2.06, 95% CI 1.37 to 3.10, p=0.001) and urinary incontinence (PR=1.68, 95% CI 1.14 to 2.46, p=0.008). – Among HIV-positive women: Dyspareunia again associated with vaginal dryness (PR=1.96, 95% CI 1.10 to 3.50, p=0.023) and urinary incontinence (PR=1.86, 95% CI 1.06 to 3.27, p=0.031). – Did not report on any other variables, nor did they describe variable selection procedures. They do note, however, that bivariate analysis revealed an association between dyspareunia and all the factors listed in column to the left. Unclear why they only focused on vaginal dryness and urinary incontinence. They described these as the "principal factors" associated with pain and encourage doctors to focus attention on vulvovaginal atrophy. (authors have OB/GYN affiliations)

										4. *Social – HIV:* None. 5. *Social – Other:* None. **Martial status not defined, and described in three ways: 1) having a stable partner; 2) with partner vs. without partner; 3) married/live together vs. do not live together.**	
30	Wessman	2015	Denmark & Finland	560	Median age 44, 58% European white, 84% infected through heterosexual sex, 89% on ART, 91% undetectable, median time w/ HIV 18 yr	To explore sexuality and fertility (for purposes of review, only the former described here)	Questionnaire (cross-sectional). Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Sexual activity (62%) – less than US population of HIV– women aged 25-54 living w/ partner (96%) *Of sexually active women:* 2. Frequency of sex (49% within last wk; 29% last mo; 17% last 6 mo) **Definition of 'sexual activity' not provided.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* CD4 count, VL 2. *Mental/violence:* None. 3. *Relational:* Civil status: > Overall: 65% were in 'steady relationship' (comprised of 38.5% married, 12% cohabiting, and 14% steady relationship), while the remaining were single (21.5%), divorced (9%) or widowed (3%) > Among sexually inactive women: 32% were in a 'steady relationship'; *Among all women in steady relationship:* Partner's HIV status (59%	– Steady relationship (vs. single) associated w/ 5 times greater odds of sexual activity. – Women w/ positive or negative partner (vs. unknown) had increased odds of sexual activity, though non-significant. – Women >= 35 years (vs. <35), w/ CD4 <200 (vs. >350), w/ VL >50 (vs. <50) had reduced odds of sexual activity, though non-significant. – Asian women had reduced odds and African women had increased odds (vs. European women), though also not significant. – Education and children variables also non-significant –

										discordant, 34% concordant, 6% unknown) 4. *Social – HIV:* None. 5. *Social – Other:* Age, ethnicity, education, children 6. **Definition of civil status provided, using categories above.**	
31	Wilson	2010	US	1279 + 526 – 1805 total	Largely Black women (56% HIV+ vs. 60% HIV-) between the ages of 30 and 49 (70% HIV+ vs. 65% HIV-), 69% on ART, 77% adherent, 55% undetectable	To examine psychosocial, clinical, and behavioural correlates of sexual function	Questionnaire (cross-sectional). Theoretical framework: None. Clinically focused.	Multivariable analyses.	***Primary outcome: sexual function:*** 1. FSFI– desire, arousal, lubrication, orgasm, satisfaction, & pain [HIV+ had lower (worse) mean FSFI scores (13.8, SD = 12.7) than HIV– (18.0, SD = 13.2) (P<0.001)]. **Sexual activity is broadly defined in the FSFI as including caressing, foreplay, masturbation and vaginal or other sexual intercourse.**	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* HIV status, on ART, adherence, PI vs. NNRTI regimen, VL, CD4, hormone therapy, depressive symptoms, diabetes, BMI, on medications for mental health / BP / heart disease 2. *Mental/violence:* None. 3. *Relational:* Married or living with partner (Y/N): roughly equal proportions seen in + (30.8%) and – (32.1%) women 4. *Social – HIV:* None. 5. *Social – Other:* Age, alcohol, substance use	– Among both + and – women, married or co-habiting predictive of better ***sexual function*** (higher FSFI scores). – Being HIV+, older, menopausal, & depressed predictive of lower sexual function. – Univariate associations w/ diabetes, hormone therapy, BMI, on medication for mental health / BP / heart disease but *not* sustained in multivariable model. – Sexual function also associated w/ CD4 (< vs. > 200), but *not* other HIV clinical & disease variables, or alcohol or substance use.

										Sexual partner was defined as either a man or woman with whom the participant had engaged in vaginal, oral, or anal sex. ***Other variables considered only in descriptive analyses:*** 1. Number of sexual partners: 32% reported none (35% HIV+ *vs.* 23% HIV–), 60% reported one (59% HIV+ vs. 61% HIV-), and 8% reported two or more (6% HIV+ vs. 15% HIV-) *Among women w/ sexual partner:* *2.* Sex of sexual partners: HIV+: 93% male, 5% female, 2% both VS. HIV–: 89% male, 9% female, 2% both)	
32	Zierler	1999	US (Multi-center, Baltimore, Detroit, New York, Providence)	873+ 438-	75% African American or Hispanic, with incomes below poverty line, 23% had learned of HIV status within 6 mo.	To compare frequency and patterns of sexual activity b/w + and - women	Questionnaire (cross-sectional), part of prospective study. Theoretical framework: None.	Multivariable analyses.	***Primary outcome: sexual activity:*** 1. Ever sex w/ women (18.9% + vs. 23.7% -) 2. Sexually active in past 6 mo.: w/ men: 75.4% + and 84.5% - w/ women: 6.2% vs. 10.2%	***Variables examined in bivariable or multivariable analyses:*** 1. *Medical:* HIV-status, CD4, time with HIV, HIV symptoms	– *In model w/ entire cohort:* Controlling for drug and alcohol use, sex work history, and child at home, + women were 2.28 times as likely to be sexually inactive (95% CI: 1.44, 3.71) compared w/ - women. Duration of awareness of HIV infection did not modify this association. Independent of HIV status, younger women (18-29 and 30-39 vs. 40+) and women using

	(Note: Eligibility for study included: IDU, sex w/ IDU male, sex w/ +/unknown status person, >5 sex partners, sex work)	w/ no one: 23.2% + vs. 10.9% - *Among sexually active women:* 3. Of those having sex w/ men: No. male sexual partners in past 6 mo. (74% + said 1, 57.4% - said 1) 4. Of those having sex w/ women: No. female sexual partners in past 6 mo. (77.8% + said 1, 73.3% - said 1) 5. Frequency of sex w/ men in last 6 mo (+: 15.3% daily, 49.7% at least weekly, 33.8% less than weekly) (-: 19.4% daily, 47.2% at least weekly, 31.8% less than weekly). 6. Sexual practices w/ men in last 6 mo: vaginal-penile (98.2%), anal-penile (11.1%), fellatio (50.3% + vs. 63.6% -), cunnilingus (50% + vs. 71.2% -) **Sexual activity defined as having sexual partners (but nature of 'sexual' not described).**	2. *Mental/violence:* None. 3. *Relational:* None. 4. *Social – HIV:* None. 5. *Social – Other:* Age, alcohol, crack, sex work, child at home, sexual identity ***Other variables considered only in descriptive analyses:*** 1. Living w/ sexual partner (33%) **No further measures or definitions provided.**	alcohol or crack had reduced odds of sexual inactivity. – *In the model with only + women:* those w/ CD4<200 were nearly 2 times more likely to be inactive (OR=1.69, 95% CI: 1.03-2.76). – *+ women's reasons for inactivity:* fear of infecting partner (72.8%), decreased sex drive (55.9%), no one around to have sex w/ (51.5%), too depressed (41.6%), too painful (12.4%), worry about pregnancy (8.4%). Similar reasons regardless of time since diagnosis. – *Among sexually active women: sexual practices varied little by HIV status, apart from a few distinctions:* + women were more likely to have had only one recent male sexual partner rather than multiple (OR=1.76, 95% CI: 1.99, 3.92); and less likely to have engaged in sex w/ men at least daily (OR=0.75, 95% CI: 0.53, 1.04). And – women were more likely to give (OR=1.73, 95% CI: 1.33, 2.24) or receive (OR=2.5, 95% CI: 1.88, 3.23) oral sex.