
A tale of two epidemics: gay men's mental health and the biomedicalisation of HIV prevention and care in Toronto

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Abstract There is mounting urgency regarding the mental health of gay, bisexual and other men who have sex with men (GBM). We examined how GBM are understanding the relationship between HIV and their mental health given the increasing biomedicalisation of HIV prevention and care. Our Grounded Theory analysis derived from qualitative interviews with 24 GBM living in Toronto, Canada, including both HIV-negative and HIV-positive men. Participants understood biomedical advances, such as undetectable viral load and pre-exposure prophylaxis (PrEP), as providing some relief from HIV-related distress. However, they offered ambivalent perspectives on the biomedicalisation of HIV. Some considered non-HIV-specific stressors (e.g. unemployment, racial discrimination) more significant than HIV-related concerns. These men expressed HIV-related distress as being *under control* due to biomedical advances or as *always negligible* when compared to non-HIV-specific stressors. Others emphasised the ongoing mental health implications of HIV (e.g. enduring risk and stigma). We describe a tension between optimistic responses to biomedicine's ability to ease the psychosocial burdens associated with HIV and the inability for biomedicine to address the *social and economic determinants* driving the dual epidemics of HIV and mental distress amongst GBM. We argue for more socio-material analysis over further sexual behavioural analysis of GBM mental health disparities.

Keywords: PrEP (pre-exposure prophylaxis), undetectable viral load, HIV, mental health and illness, biomedicalisation, gay men, Grounded Theory, qualitative methods

Introduction

There is mounting urgency regarding the mental health of gay, bisexual and other men who have sex with men (GBM). In Canada, suicide has surpassed HIV as the leading cause of

premature mortality amongst GBM (Hottes *et al.* 2015). When compared to their heterosexual counterparts, GBM report higher rates of depression and anxiety (Bolton and Sareen 2011, Bostwick *et al.* 2010), suicidality (Brennan *et al.* 2010), and substance use (King *et al.* 2008). These mental health disparities are even greater amongst GBM living with HIV (Batchelder *et al.* 2017, Heywood and Lyons 2016). GBM remain disproportionately affected by HIV, representing over half (55.5%) of the HIV incidence in Canada in 2016 (Public Health Agency of Canada 2016). The tales of these two health crises are deeply entwined. HIV is considered to be an essential factor behind GBM mental health disparities (Batchelder *et al.* 2017).

Below, we examine how GBM understood HIV as a potential source of emotional and psychological distress given the increasing biomedicalisation of HIV prevention and care. Our Grounded Theory analysis was derived from qualitative interviews conducted with 24 GBM. This included both HIV-negative and HIV-positive participants. We examined their accounts of coping with mental health challenges and accessing mental health services in Toronto, Ontario, Canada. In so doing, we inductively learned how these men identified social and biomedical factors as affecting their mental health.

We argue that the biomedicalisation of HIV prevention and care is playing an important role in how GBM are constructing their identities and conceptualising sources of emotional and psychological distress. HIV biomedical advances are being understood by some as offering significant relief from HIV-related distress. Nevertheless, we note a critical tension between an optimistic response to biomedicine's ability to ease the psychosocial burdens associated with HIV and the inability for biomedicine to address the social and economic determinants that have enabled the HIV epidemic, and which remain key drivers of poorer mental health amongst GBM. Our findings thus indicate a need for more socio-material analysis of GBM mental health disparities. We begin this examination with a review of the literature on GBM's mental health and HIV.

GBM, mental health and HIV

Minority stress is a leading theory employed to understand GBM mental health disparities (Meyer 2003). Minority stress connects GBM's experiences of mental distress to oppressive social environments. It maintains that those with a minority status (based on sexual orientation, race and/or gender) can experience persistent stigma, prejudice and discrimination which can foster emotional and psychological distress.

HIV is another essential dimension for understanding GBM's mental health. In syndemic theory, mental health and HIV are theorised as being in a synergistic relationship, with poor psychosocial outcomes fuelling HIV incidence and HIV producing a heavier psychosocial burden (Adam *et al.* 2017, Stall *et al.* 2003). Amongst HIV-negative GBM, the stress associated with preventing HIV transmission can facilitate anxiety and depression, discourage HIV testing and encourage substance use (Batchelder *et al.* 2017, Gaspar forthcoming). For GBM living with HIV, managing a highly stigmatised infection is associated with similar psychosocial outcomes (Heywood and Lyons 2016). Amongst both HIV-positive and HIV-negative men, poorer psychosocial outcomes are associated with sexual risk-taking (Hart *et al.* 2017, Safren *et al.* 2010).

Nevertheless, effective antiretroviral therapies have greatly reduced health risks for those living with HIV (Samji *et al.* 2013). HIV treatment advances have ushered in the 'normalisation of life with HIV,' making HIV a 'manageable' chronic condition (Mazanderani and Papparini 2015). Though persons living with HIV still have to confront increased comorbidity risks, which can lead to uncertainty, anxiety and increased financial burdens (Gaspar *et al.* 2018,

Grace *et al.* 2018a). From a prevention perspective, studies have confirmed that HIV-positive persons who have achieved an undetectable viral load or ‘undetectability’ (i.e. suppressed HIV in bodily fluids, which is a typical outcome of an effective antiretroviral regimen) pose negligible probabilities for transmission (Rodger *et al.* 2016). Amongst HIV-negative men, the daily use of HIV antiretrovirals as pre-exposure prophylaxis (PrEP) is highly effective at preventing HIV infection, including in instances of condomless anal sex (Pawson and Grov 2018). In 2015, Health Canada approved prescribing HIV medication as PrEP. While it remains unknown how PrEP and undetectability will affect incidence rates in Canada, collectively they represent a paradigmatic shift in HIV prevention and care. Currently, access to HIV treatment and PrEP differs by province, though primary healthcare, including HIV and sexual healthcare, is freely offered across Canada. In Ontario, those without private insurance can use the Trillium Drug Program or the Ontario Drug Benefit to cover treatment costs. PrEP is currently covered for Ontarians who are registered in social assistance programs, long-term care, or who are 24 and under or 65 and over (AIDS Committee of Toronto 2018). Without insurance, PrEP costs \$250 CAD or more per month.

Qualitative research with HIV-positive GBM has demonstrated the significance of undetectability to GBM’s identity and wellbeing (Grace *et al.* 2015). Qualitative research with HIV-negative GBM has suggested that PrEP creates some reprieve from HIV-related distress (Koester *et al.* 2017) and a potential reduction in HIV stigma (Grace *et al.* 2018b). Nonetheless, most research on HIV biomedical advances and GBM has concentrated on sexual behaviour (Gaspar forthcoming, Pawson and Grov 2018). Less is known about how these biomedical advances are influencing mental health. Moreover, despite a theoretical interest in the *inter*-action between psychosocial outcomes and HIV, research on GBM and mental health has tended to focus on examining psychosocial factors as facilitators to sexual risk-taking (Adam 2016, Adam *et al.* 2017, Tsai and Burns 2015). This has the effect of positioning GBM’s mental health as significant *because* of its associations with HIV incidence, rather than being a noteworthy problem in its own right. As Adam (2016) has noted, this proximal risk factor approach can decontextualise men’s experiences from the neoliberal structural forces informing their sexual risk-taking and identity.

This tendency is a consequence of the increased biomedicalisation of GBM’s health research, a trend which favours behavioural over social analyses (Flowers and Davis 2013, Kippax and Stephenson 2012, Rangel and Adam 2014, Young *et al.* 2016). Biomedicalisation refers to the expansion of medical ‘jurisdiction’ in defining and addressing social problems to include a broader range of complex techno-scientific and market-based strategies, such as pharmaceutical technologies (Clarke *et al.* 2003). These biomedical interventions shape scientific understandings of social problems and inform how individuals make sense of their bodies, social worlds and identities (Clarke *et al.* 2003, Young *et al.* 2016). Biomedicalisation extends upon medicalisation as a sociological framework. Whereas medicalisation examines medicine as a form of social control that advances individual level interventions as solutions to social problems (Busfield 2017), biomedicalisation also emphasises how subjectivity is formed and agency is enacted through biotechnology (Clarke *et al.* 2003).

Indeed, GBM are not strictly controlled through biomedicine, but exhibit agency through it. GBM have drawn on biotechnology such as antiretrovirals to assess their health, formulate identities and re-evaluate the moral dimensions of sexual practice (Flowers 2001, Grace *et al.* 2014, 2015, 2018b, Pawson and Grov 2018). GBM often report ambivalence to the biomedicalisation of HIV, understanding the value of pharmaceutical interventions in controlling HIV incidence, but also expressing reservations over their efficacy, the commodification of the epidemic and the increasing moral and legal obligations to self-govern vis-à-vis biomedicine

(Gaspar forthcoming, Young *et al.* 2016). Nonetheless, thinking in and through the effects of antiretrovirals has dominated GBM health research and community programming.

Critical social analysis of biomedicalisation has also examined mental health, including the medical classification of variable social phenomena as disorders (like homosexuality) and questioning the expanded use of pharmaceuticals to address social problems (Busfield 2017). Foucauldians have argued that the biomedicalisation of mental health has governmentality effects, as subjects adopt interventions such as anti-depressants as ‘technologies of the self’ to align with dominant neoliberal ideology (Brijnath and Antoniadis 2016). Neoliberal principles of ‘self-management’ are reinforced through a reliance on biotechnology, which place responsibility on the individual to adopt ‘self-care,’ rather than understanding the experiences of mental distress as consequences of socio-structural inequalities (Brijnath and Antoniadis 2016). This critical attention to the biomedicalisation of both mental health and HIV does not negate the benefits of pharmaceuticals in addressing illness or risk. It does, however, question the pervasive logic of biomedicine in organising our approaches to complex *social problems* affecting health and wellbeing by obfuscating the role of structural forces.

Despite an explicit interest in the minority stress and syndemic literatures in understanding the social dimensions fuelling GBM mental health disparities, the impetus of biomedicalisation has displaced a robust analysis of social processes in favour of behavioural analyses. As such, a sociological lens attuned to understanding the individual as operating within a dynamic social context can better elucidate how GBM are enacting agency and developing identity in response to HIV and their mental health. Below, we thus concentrate less on how HIV biomedical advances and psychosocial factors affect sexual risk behaviour and focus instead on how HIV is being attributed (or not) as a source of distress within an evolving social and biomedical environment.

Methods

Data collection

We conducted 24 in-depth qualitative interviews with GBM living in Toronto about their mental health and mental health service experiences. These participants were recruited from Engage, a national socio-behavioural and biomedical surveillance study. Engage participants completed a quantitative questionnaire and were screened for sexually transmitted infections, including HIV and/or HIV viral load.

We enrolled participants for our qualitative study from the subset of Toronto-based Engage participants who agreed to be contacted for additional studies. We emailed potential qualitative participants, asking if they would be interested in participating in an interview about mental health. In this recruitment message, two eligibility requirements were identified: an individual had to have had (i) experiences with a mental health challenge; and/or (ii) experiences accessing mental health services. Substance use and addiction services were listed as meeting these criteria. A formal clinical mental health diagnosis was not a requirement. Limits on what qualified as a mental health challenge or a mental health service were not provided and psychometric measures were not used to pre-select participants. Participants self-selected based on their own interpretations of the eligibility requirements. To verify eligibility, candidates were screened over the phone or by email. Following the principles of theoretical saturation (Glaser and Strauss 2012), we ensured that we were speaking to men with mental health experiences that varied in severity and type, from participants coping with moderate daily stress to those with formal diagnoses and histories of institutionalisation. We also considered diversity in relation to age, race, sexual orientation, gender identity, and serostatus.

We consulted with our Community Engagement Committee (CEC) in Toronto four times over the year. The CEC was comprised of GBM community members and GBM service providers who ensured that the authorship team remained reflective on how their disciplinary perspectives were informing the research agenda. The CEC provided feedback on the research objectives, interview guide, recruitment strategy and analysis plans. Ethics approval was granted by the University of Toronto, Ryerson University, and the University of Windsor. One-on-one interviews took place at the University of Toronto. Participants were guided through the informed consent process. The interviews were conducted in English and were audio recorded.

An interview guide was used to organise the discussion. The guide covered four domains: (i) introductions, socio-demographic background and rapport building; (ii) current mental health state, experiences with mental health challenges and experiences with mental health services; (iii) experiences related to substance use and addiction services; and (iv) sexual health and HIV.

An active approach to interviewing was used, whereby the interviewer followed the participant's lead, asking tailored probes rather than adhering strictly to the interview guide (Holstein and Gubrium 1995). This approach was compatible with Grounded Theory as it was intensive, open-ended and allowed for iterative exploration (Charmaz 2014). Participants were directed to offer a narrative account of their mental health experiences starting as far back as they could remember up until the present. Participants tended to discuss HIV unprompted. If some dimensions of HIV and sexual health were not addressed, specific questions were asked in the last section of the interview. The interviews lasted between 40 and 120 minutes. Participants were provided with \$30 CAD in compensation and information about available health services, including mental health services. The participant names used below are pseudonyms.

Sample

Participants identified as White (58%), Black (13%), East Asian and South Asian (13%), Latino (8%) and Middle Eastern (8%). Most identified as gay or queer cisgender men (92%), with two participants identifying as bisexual (8%), one as a trans man (4%) and one as gender non-binary (4%). Participants ranged in age from 22 to 59 with a mean age of 36.8 years (SD 9.8 years). Participants reported annual incomes of less than \$20,000 (25%), between \$20,000 and \$40,000 (25%), between \$40,000 and \$80,000 (29%) and greater than \$80,000 (21%). Nearly all participants (88%) had some post-secondary education, with a majority having completed a university degree (58%). Nine participants (38%) were living with HIV, of whom eight reported having an undetectable viral load. Seven of the 15 HIV-negative participants were currently taking or had previously used PrEP.

Data analysis

The interviews were transcribed verbatim and reviewed for accuracy. Analysis followed a Grounded Theory approach (Charmaz 2014, Glaser and Strauss 2012) organised in QSR NVivo 11 software. Drawing on the tenets of theoretical saturation, we followed an inductive and iterative process of data collection and conceptualisation (Charmaz 2014). We avoided applying a diagnostic lens, only using clinical terms when participants employed them. The first step was the open-ended phase, wherein we made comparisons within and across interviews to generate provisional analytical distinctions. This was followed by focused coding. This started with the generation of substantial categories by comparing initial codes with each other and to the data to determine which had greater analytic influence. This was proceeded by theoretical coding, which conceptualised how substantial categories were related and connected the disparate elements created during the coding process to generate a coherent

‘analytic story in a theoretical direction’ (Charmaz 2014: 150). Outcomes of the various analytic stages were discussed with the entire authorship team. The results below concentrate on participants’ narrative accounts regarding HIV. However, analysis required a reflection on all facets of a participant’s narrative and an iterative return to the full transcripts to ensure that quotations were being interpreted in context. The three perspective classifications described in the results were not determined a priori. These categories emerged by making sense of the complexity of the participants’ narratives, focusing on how the different dimensions participants drew on to understand HIV (i.e. PrEP, undetectability, stigma) fit together, and comparing these viewpoints within and across interviews.

Results

Participants articulated different viewpoints on the relationship between HIV treatment and prevention advances with their mental health. We label these *biopsychosocial perspectives* to encapsulate how these men drew on the interrelationship between biomedical factors (such as HIV and pharmaceutical treatment and prevention options), psychological factors (experiences of distress) and social factors (interpersonal, economic, and political context) to describe their mental wellbeing (Flowers and Davis 2013). The three biopsychosocial perspectives that emerged from the interviews were: *HIV-related distress as always negligible*, *HIV-related distress as under control* and *enduring HIV-related distress*.

In examining these perspectives, we elaborate on how participants expressed ambivalence towards HIV biomedical advances. By ambivalence we are referring to fluctuating tensions between different viewpoints and feelings, a process which is relational, structured by numerous experiences and actions, comprised of both individual and collective dimensions as well as productive implications for personal growth (Marent *et al.* 2018). Each biopsychosocial category was structured by a critical tension between participants’ *biomedical appreciation* – the positive health and social benefits they attributed to HIV biomedical advances – and their perceptions on the impact of these advances on their mental health. Though there were similarities across these categories, each biopsychosocial perspective articulated this tension in distinct and socio-politically meaningful ways. Below we examine each category, first by exploring perspectives where HIV was not considered a significant factor for mental health and moving towards viewpoints where HIV was considered more relevant for mental health.

HIV-related distress as always negligible

HIV-related distress as always negligible was the biopsychosocial perspective articulating that HIV was inconsequential to the mental health of some GBM. This group was comprised exclusively of HIV-negative men who never considered HIV to cause distress. For example, Ben (age 36) spoke favourably about the benefits of PrEP on his sex life. However, he had never worried much about HIV since he was always content with condoms. Before taking PrEP, Lee (age 31) argued that ‘I have never really had a whole lot of HIV anxiety.’ When asked about PrEP’s effect on his mental health, he responded:

Neutral. I’m glad I went on it and I’ve learned some things and done some new things. I think being on PrEP helped me enjoy bareback [i.e. condomless] sex more. But I wouldn’t necessarily say that it was doing anything for my mental health.

Though Lee demonstrated strong biomedical appreciation for PrEP, this was only positioned as a benefit to his sex life and not for his mental health. PrEP was described as being unable

to address his mental health concerns, those related to income insecurity, substance use, racial prejudice, relationship struggles and coming to terms with a friend's suicide. The social isolation associated with working multiple jobs to make ends meet, not HIV risk, was Lee's main source of distress.

Jon (age 33) was not taking PrEP, but he was appreciative of the benefits of undetectability. He argued that he had adjusted to 'not really being afraid of [HIV]. . . I guess you just kind of get used to it as something that exists.' For Jon, securing quality employment took up more time than sexual health concerns. However, he was not indifferent to HIV, because as a trans man who had dealt with mental health issues and difficulties with healthcare providers, he wanted to avoid another 'layer of stigma.'

Other HIV-negative participants were more apprehensive about undetectability and PrEP. For example, Kai (age 46) tried PrEP but stopped because of side-effects. Others feared that PrEP was going to lead to sexual behaviour that would not promote mental wellness and some expressed scepticism over undetectability's risk reduction. However, these men did not consider HIV to be a major source of distress. They either did not have concerns with their current HIV prevention strategies or they were focused on non-HIV-related stressors in their lives (e.g. employment). These men were ambivalent about HIV biomedical advances, seeing them as either beneficial *or* less useful for their sexual health, but in each instance, as inconsequential to their mental health.

HIV-related distress as under control

The *HIV-related distress as under control* biopsychosocial perspective was expressed by both HIV-negative and HIV-positive men. These participants were once encumbered by HIV-related distress but biomedical advances were now keeping their HIV-related concerns *under control*. These men considered HIV to be more significant to their mental health than those in the *always negligible* category, but less significant to their mental health than those in the proceeding biopsychosocial category. As result of their strong biomedical appreciation, these participants focused on how other factors were more consequential to their mental health than HIV, including issues such as relationships, body image, racism, abuse, loneliness and, overwhelmingly present in our sample, income insecurity, work-related stress and housing affordability. These men vocalised ambivalence between the health and social benefits of PrEP and undetectability, including explicit positive mental health impacts and biomedicine's inability to tackle other social drivers of mental distress.

The HIV-negative men expressing this viewpoint enthusiastically described the mental health benefits of PrEP. These participants had previously been burdened by HIV-related anxieties. As a solution for addressing this distress, PrEP was prominently presented as a turning point towards mental wellness, as these men described now feeling empowered and having more agency to manage other factors causing distress. PrEP, as well as increased knowledge about HIV transmission, tended to lead to a more accepting attitude towards the benefits of undetectability and less concern negotiating serodifferent sex (i.e. sex between HIV-negative and HIV-positive men). For example, Marco (age 34), who was in a serodifferent relationship, discussed how after starting PrEP a 'huge weight was lifted off my shoulders.' PrEP played a significant role in improving his self-esteem and mental health:

But lately, or let's say since I started PrEP, I don't know, I just felt a lot more in control and healthy. . . PrEP just kind of gave me that empowerment to not be scared anymore, not feeling like I had to be reckless. I can do what I want and decide things for myself.

Cameron (age 32) similarly described how HIV-related concerns were previously a major contributor to his generalised anxiety disorder. However, because of PrEP, HIV was taken 'out of the equation' and he was able to 'deflate an elephant, so to speak.' He became more

confident navigating his sexuality and creating a closer relationship with his physician that allowed him to address his other mental health needs. He argued that this relationship was 'more comforting to me than the PrEP itself.' Cameron's biomedical appreciation of PrEP was so strong that he described feeling 'trapped' at his underwhelming job because he relied on its health insurance to pay for his prescription. Though PrEP was a helpful solution for addressing his anxiety, it paradoxically reinstated the main matters Cameron discussed as causing distress: income insecurity and underemployment. Other participants who desired to be on PrEP, but who could not afford it, vocalised similar discontentment over the challenges of access.

The *under control* biopsychosocial perspective also included HIV-positive men with strong biomedical appreciation. Biomedical advances reduced HIV-related concerns in their lives so considerably that HIV was no longer a principal factor causing them distress. For example, after his HIV diagnosis 4 years ago, it took Arthur (age 35) some time to make 'peace with it.' However, he declared:

I think I'm pretty healthy, like, in regards to HIV, I guess. I've been managing it really well. I haven't had any like, any difficulties with it or any complications. I'm taking really well to medication. I don't often really think of it as, you know, a defining thing. It's just kind of something that is.

Arthur expressed no mental health concerns related to HIV and instead vocalised anxieties over finances and housing affordability. He described how prior to his HIV diagnosis he stayed at an underwhelming job and worked long hours despite feeling ill, because he was waiting for a promotion and better health benefits:

So, I was working to get benefits and I was afraid to get tested [for HIV] until I had benefits because I felt that, the way the insurance policies work, that they would deny me if they knew I had a pre-existing condition.

He thus presented the fear of being able to afford living with HIV as a main source of distress and a barrier to accessing healthcare care. After he was denied the promotion, Arthur worked until he 'physically could not go on anymore.' He was soon after hospitalised with a severely compromised immune system.

Similarly, Corey (age 22), who had recently seroconverted and had just started antiretroviral treatment, stated that knowing about the prevention benefits of undetectability made accepting his diagnosis 'a lot better.' He expressed less concern about how HIV was going to impact his mental health and was more interested in gaining control over his substance use and precarious housing situation.

Christopher (age 45) described how biomedical advances have reduced the social challenges associated with living with HIV:

But I think with PEP and PrEP, and now the undetectable being uninfected or untransmissible, I just think things are changed. I personally feel much more relaxed around the disclosure [of being HIV-positive] part. . . It just doesn't seem to be like, an issue now.

He presented HIV as being distinct from the matters affecting his mental health. The current impact of HIV on his life was also evident in the way he framed his mental health service needs:

Well, I don't really talk too much about HIV [with my psychotherapist]. I'm talking more about why I have bad body image, why I, you know, panic at work sometimes, 'cause I think I'm in trouble and going to lose my job. . . . But like, the HIV thing seems not to be what my main issues are for seeing a psychotherapist. It's the other stuff.

Like Christopher, Henry (age 51) made a distinction between living with HIV – which he had been managing for 20 years with antiretrovirals – and living with bipolar disorder and anxiety. For him, HIV was not a ‘front and centre’ issue. Henry rarely spoke about HIV with his psychiatrist because ‘It’s just this kind of illness that, yeah, I take pills every day and I’ve been really fortunate.’ The main stressors he described were a demanding career, retirement planning and a separation from his long-term partner. Amir (age 35) also described his HIV as being under control with antiretrovirals and distinct from his mental health concerns. Though he experienced panic attacks, he associated these attacks mostly with his unemployment status.

Thus, both HIV-positive participants who were recently diagnosed and longer-term survivors drew on their biomedical appreciation to make distinctions between their experiences living with mental distress and/or HIV. Nonetheless, Henry and Arthur mentioned not disclosing their HIV status to family and friends. Arthur discussed how difficulties negotiating safer sex led to a break-up with his HIV-negative partner. Christopher mentioned experiencing trepidation over disclosing his serostatus to prospective partners and Amir mentioned that he experienced ‘a lot of pity’ and that ‘there’s a lot of education still required’ regarding HIV prevention. HIV stigma clearly impacted these participants, even though they did not explicitly frame this stigma as a core cause of distress.

Enduring HIV-related distress

HIV-negative and HIV-positive participants who expressed the *enduring HIV-related distress* biopsychosocial perspective described HIV as being a more significant contributor of distress than the first two groups. Additional social determinants of mental health (e.g. employment issues) and assessments of HIV biomedical advances were often interpreted through this standpoint. For example, despite not engaging in ‘high risk’ sexual activities, Sameer (age 37) explained that he went on PrEP mainly to alleviate his anxieties over HIV transmission. However, he still worried about HIV:

I’m still a child of the nineties. I grew up with that fear of sex as something to be frightened of. . . I’d be like, yeah, you know what, you’re undetectable, I’m on PrEP, we take precautions, and then one day I could just lose my shit.

Sameer described his HIV-related anxieties as ‘life stopping.’ They prevented him from being social and negatively affected his self-esteem. He had hoped PrEP would allow him to be more sexually adventurous and more comfortable as a gay man. However, his remaining HIV-related anxiety prevented him from having sexual experiences, which increased his discontentment. Sameer’s scepticism of HIV biomedical advances, a generational effect of growing up during the AIDS crisis, was also noted by younger participants. For example, Nick (age 27) claimed that he could not have sex with men living with HIV because he was ‘too much of a hypochondriac.’ He was also disinterested in PrEP because of the cost and side-effects.

Several HIV-negative participants knew that the quality of life for those living with HIV had improved due to treatment. However, they still expressed concerns about contracting HIV. For example, Simon (age 35) stated: ‘I know a lot of people that are [HIV-]positive and they’re living great lives and they’re healthy,’ but also mentioned experiencing anxiety with each HIV testing experience, despite being at ‘lower risk.’ Some HIV-negative participants were conflicted by their decisions to not have sex with HIV-positive men, given their awareness of undetectability. For a few, this conflict was another source of distress. These HIV-negative participants did not contest the prevention benefits of PrEP or undetectability. Nonetheless, their strong fears negotiating the stigma of HIV and their sexual minority status

created an apprehensive relationship towards these biomedical advances, which in turn concretised their fears of HIV.

HIV-positive participants expressing this viewpoint were less sceptical about the physical and sexual health benefits of antiretrovirals. However, unlike those men expressing the *under control* perspective, they presented HIV as a more persistent contributor to distress in ways which minimised the positive implications of treatment. For example, several discussed the mental health side-effects and 'vivid nightmares' associated with some antiretrovirals. Samuel (age 58) argued that the psychotic effects of HIV treatments played a role in his suicide attempt. He presented HIV and medication side-effects as aggravators to the core dimensions of distress in his life—unemployment, debt and demanding contract work.

Hamid (age 38) suggested an incongruity between the biomedically controlled nature of his HIV and its continued psychological impact:

Well, I'm taking medication, so I'm undetectable. It's been not the most fun journey psychologically. I think I'm still not dealing with it very well, or haven't really learned to accept it all that well.

While Hamid considered achieving undetectability important, his anti-depressants had reduced his sex drive. Undetectability thus had a negligible impact on the emotional challenges affecting his mental health. Hamid described a history of anxiety, depression, post-traumatic stress disorder and suicidality. He rooted these in experiences of physical, emotional and sexual abuse as a child, growing up in a repressive homophobic state, immigrating to Canada as a refugee and dealing with subsequent racism, income insecurity and isolation. As a result, Hamid partook in the 'chemsex' scene in Toronto (i.e. a drug and condomless group sex party milieu) as a 'kind of methodical self-destruction, where I kind of, you know, instead of sort of trying to kind of kill myself, like, you know, like quickly, I was just going to kind of disappear into a void.' Though he was 'disappointed' by his HIV diagnosis, he also considered it to be a passive suicide method and thought about stopping his antiretroviral treatment.

While HIV was central to Hamid's mental health, it was not because he feared increased morbidity and mortality risks. Rather, his HIV-related distress was connected to the trauma, underemployment, existential ennui and suicidal ideation that contributed to his seroconversion. Living with HIV was a sustained reminder of his precarious socioeconomic position and his long-term confrontation with mental illness, violence and oppression.

This perspective was also presented by Jeff (age 59) – who articulated similar challenges with substance use, physical and sexual abuse and financial struggles – in his reflections on undetectability:

It's okay for other people to be HIV[-positive] and it's safe [to have sex with them]. I mean we have the 'U=U' [the 'Undetectable Equals Untransmittable' education campaign] and all this stuff. I believe all that kind of stuff. I just feel like... I just feel dirty. I feel like a pervert. A dirty old man. All those kinds of things. Things that I was petrified of when I first became comfortable with being gay and [was still] suffering with internal homophobia.

While Jeff was appreciative of the sexual health benefits of undetectability, its broader benefits to his self-esteem were presented as limited. He was 'horrified' by his HIV diagnosis, having 'literally locked myself in my bedroom for 3 months' after his first appointment with a HIV counsellor. A generational perspective was also noted, as HIV was understood through the traumatic experiences of suffering, loss and homophobia that characterised the early years of the epidemic.

In this biopsychosocial perspective, a key tension arose between understanding the health benefits of HIV biomedical advances and resisting how these advances could improve one's mental health. Nonetheless, while Sameer, Hamid and Jeff concentrated heavily on HIV-related distress, it was not solely because they were concerned with managing transmission risk or a chronic illness. Rather, HIV operated as a way to render intelligible various social determinants (i.e. homophobia, unemployment, isolation, sexual desirability) fuelling distress in their lives.

Discussion

Participants' narratives were determined by complex readings of the interrelationship between biomedical, psychological and social factors (Flowers and Davis 2013). The significance of HIV risk and/or chronic infection was informed by interpretations of the benefits of HIV pharmaceutical advances, which were shaped by lived experiences of emotional and psychological distress and social vulnerability. Biomedical appreciation – degrees of enthusiasm for HIV pharmaceutical advances – was not simply a factor shaping sexual behaviour, but was a *process* developed through participants' active engagements with, and reflections on how, HIV biomedical advances could improve their *overall* quality of life, including their mental health.

GBM who were living with HIV placed strong emphasis on HIV biomedicine when describing their health and identities and HIV-negative participants discussed PrEP and undetectability as methods to control distress and enact agency. HIV biomedical advances thus operated as 'technologies of the self,' tools to construct identity and to present oneself as a responsible subject effectively managing HIV and the distress associated with HIV (Brijnath and Antoniadis 2016). While antiretrovirals are not mental health medications, some participants, especially those using PrEP to address anxiety, did think about these treatments as quasi-mental health interventions, demonstrating the capacious reach of biomedical tools beyond antidepressants in the construction of identity and the management of mental health. The participants' narratives also demonstrate the expansive logic of 'mental health' as an interpretative tool to evaluate the benefits of non-mental health specific biomedical technologies. Biomedicine not only influenced interpretations of mental wellness, but experiences of distress also influenced interpretations of non-mental health specific pharmaceuticals, such as HIV antiretrovirals.

Nonetheless, participants' narratives were not circumscribed by biomedicine. They articulated ambivalent views towards the biomedicalisation of HIV and their mental health (Gaspar forthcoming, Grace 2014, 2018b, Young *et al.* 2016). Understanding this ambivalence was critical to interpreting their relationship to emergent biomedical technologies (Marent *et al.* 2018). Many participants asserted the structural vulnerabilities compounding their emotional and psychological distress and exposed the inability of HIV pharmaceuticals to address these factors. This was the case amongst those critiquing the financial barriers to accessing PrEP or HIV-positive men contesting HIV as a greater stressor than employment and housing concerns. Some HIV-negative participants considered HIV to be a minor concern compared to other dimensions of minority stress and to issues such as racial prejudice, income insecurity and abuse.

Thus the participants were not passive agents of biomedicalisation or dupes of neoliberal governmentality. While many took responsibility for their mental and sexual health with biomedicine, they did not reduce their health experiences or identities to matters of 'self-care' characteristic to neoliberalism (Brijnath and Antoniadis 2016). Undoubtedly, neoliberal logics of risk management informed how our participants self-governed, as many took individual

level responsibility to address social and biomedical risks to their mental health (Adam 2016, Rangel and Adam 2014). However, participants were also reflexive of how their health decision-making was shaped by socio-structural forces beyond their control, such as homophobia, HIV stigma and income insecurity. All participants elucidated a critical tension between the considerable health benefits of HIV biomedical advances and questioning pharmaceutical technology's inability to address the fundamental social determinants fuelling GBM mental health disparities. This ambivalence existed across the sample, but was articulated in different ways.

The men expressing the *always negligible* perspective presented HIV as having never really been a major contributor of distress. Whether they accepted or were more sceptical of the *sexual* health benefits of biotechnology, these men were critical about PrEP or undetectability being able to improve their mental wellbeing. The HIV-negative and HIV-positive men expressing the *under control* perspective presented HIV as becoming a less significant contributor to distress over time because of biomedical advances. However, these first two groups emphasised how biomedical interventions could not directly improve the social conditions producing distress. Meanwhile, the men expressing the *enduring HIV-related distress* perspective presented HIV as a significant contributor of distress. HIV's continued ability to be a source of suffering, particularly due to stigma, trauma and internalised homophobia, minimised the enthusiasm by which these men reflected upon the health and social benefits of HIV biomedical advances. These participants blended their discussions on the broader social determinants of their mental health with their HIV-related concerns.

Men with different serostatuses and pharmaceutical usage histories were found across the three biopsychosocial categories. PrEP users in the *under control* category discussed PrEP and undetectability as being able to reduce the omnipresent effect of HIV in their lives. This confirms that some HIV-negative men are thinking about PrEP as a tool to manage HIV-related distress (Grace *et al.* 2018b, Koester *et al.* 2017). However, PrEP users in the *always negligible* category did not consider PrEP to be an effective mental health intervention since it could not address broader social and economic stressors and some did not view PrEP as practical. Sceptical PrEP users expressing the *enduring HIV-related distress* perspective demonstrated that some men can remain encumbered by HIV-related fears and stigma. Participants thus had different motivations for taking PrEP and different interpretations of its benefits, which were informed not just by sexual health concerns, but also by reflections on their mental wellbeing.

HIV-positive participants expressing the *under control* perspective support the literature demonstrating the significance of undetectability to HIV-positive men's identities and wellbeing (Grace *et al.* 2015). However, men living with HIV expressing the *enduring HIV-related distress* perspective demonstrated that this 'normalisation' of HIV narrative does not register with all of those living with HIV, as some continue to struggle with stigma (Mazanderani and Papparini 2015). Even those HIV-positive men who expressed the *under control* perspective discussed secrecy and conflict related to HIV status disclosure, demonstrating a tension between the desire to present HIV as 'normalised' in the context of the interview, with what happens in everyday life (Mazanderani and Papparini 2015). Strong biomedical appreciation allowed these participants to feel more assured about living with HIV. However, a desire to present HIV as *under control* may have obfuscated how HIV was negatively affecting their mental health, predominately by influencing their social relationships.

Concomitant with syndemic theory, some participants discussed how poorer psychosocial outcomes played a role in sexual decision-making in ways that either increased risk for or led to seroconversion (Batchelder *et al.* 2017). However, even when a participant charted an explicit pathway between psychosocial trauma and condomless anal sex, emphasis was placed on those social conditions producing the psychosocial trauma rather than the sexual activity.

Indeed, participants often vocalised ambivalent reactions to sex, presenting it as sometimes critical but at other times trivial to their identities and mental wellness.

For HIV-positive men and HIV-negative men expressing the *always negligible* and *under control* perspectives, HIV and sex were often positioned as less central to their mental health than income security, employment and housing affordability. Even those enthusiastic about PrEP discussed the challenges of affording medication and being tied to unsatisfying and insecure work in the context of insufficient publicly funded health insurance programs. Those presenting the *enduring HIV-related distress* perspective also tended to focus on the social and economic dimensions that lead to seroconversion and that made managing HIV difficult. Our participants' consistent gesturing to the socioeconomic determinants facilitating distress deconstructed a myopic reading of their mental health through an HIV or sexual behavioural lens. This substantiates literature demonstrating socioeconomic vulnerabilities as formative causes of distress amongst GBM (Ferlatte *et al.* 2018) and indicates a need for more socio-material analysis versus just sexual behavioural analysis of syndemics and minority stress.

Our study's findings are limited by having focussed exclusively on men living in an urban setting who spoke English. While we consistently indicated how the intersectional social locations that the participants inhabited (e.g. race, serostatus, gender identity, etc.) were necessary to interpret their narratives, it was not possible to analyse all of the nuances of privilege and oppression affecting our participants given limited space. It was also not possible to comment on the disparate mental health experiences of the participants, which ranged in severity and type. Nonetheless, we offer original insight into the impact of the biomedicalisation of HIV on mental health and make a clear case for further socio-material analysis of GBM mental health disparities. Research and interventions beyond HIV and sexual health are required for addressing GBM's mental health.

Conclusion

For over three decades, the tales of the HIV epidemic and GBM mental health disparities have been tightly entwined. Our analysis indicates that HIV remains an important factor for understanding the mental health of GBM and that HIV biomedical advances are being understood by some GBM as offering relief from HIV-related distress. However, participants offered ambivalent viewpoints about the biomedicalisation of HIV and their mental health. Some articulated HIV-related distress as being less significant to their mental health, either because HIV was *always negligible* to their mental health or because HIV was *under control* due to biomedical advances. Others presented HIV as still being very significant to their mental health due to stigma and *enduring HIV-related distress*. All of these biopsychosocial perspectives revealed a tension between the possibilities for improved mental wellbeing that are afforded by the biomedicalisation of HIV, with the inability for pharmaceutical interventions to address the social determinants that have fundamentally enabled the HIV epidemic and that will continue to produce mental health disparities amongst GBM even after HIV incidence declines. Nonetheless, while the biomedicalisation of HIV cannot solve the mental health crisis amongst GBM, it can allow us to focus more intently on addressing those fundamental social conditions that can.

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