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Covid-19, Vaccine Hesitancy, and HIV pre-exposure prophylaxis among Black sexual minority men

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Abstract

Background: The Covid-19 pandemic has created substantial and profound barriers to several forms of healthcare engagement. For Black sexual minority men, this may include engagement with pre-exposure prophylaxis (PrEP) to prevent HIV infection, with significant implications for HIV disparities. Our study explored how the Covid-19 pandemic affected Black sexual minority men, with a focus on relationships between Covid-19 and PrEP engagement.

Setting: We sampled 24 Black sexual minority men attending HIV prevention-related events in the greater D.C. Metropolitan area (D.C., Maryland, Virginia).

Methods: We conducted qualitative phone interviews among our sample. Questions were primarily focused on the Covid-19 pandemic and how it affected engagement and considerations of PrEP use. Interviews were transcribed and qualitatively analyzed using the six stages of thematic analysis.

Results: We identified three major themes from our thematic analysis: Changes in the healthcare system, changes in sexual and relationship contexts, and Covid-19 vaccine hesitancy and

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misinformation. Relationships between Covid-19 vaccine hesitancy and PrEP hesitancy were especially prevalent, with participants describing that Covid-19 hesitancy can directly deter PrEP use through eroding medical trust further.

Conclusion: We identified changes in the healthcare system, sexual and relationship contexts, and Covid-19 vaccine hesitancy as important issues driven by Covid-19 with significant implications for PrEP use. The Covid-19 pandemic has changed the healthcare and social landscape in profound ways that impact PrEP access, sexual networks, and associated HIV vulnerability. Future research further exploring relationships between specific pandemic stressors and HIV prevention among Black sexual minority men is recommended.

Keywords

PrEP; Pandemic; Medical Mistrust; Black; Sexuality; Intersectionality

Introduction

The Covid-19 pandemic first impacted the United States (US) in early 2020, initially hitting larger cities [1]. Overall, the US has been disproportionately affected by Covid-19 with more deaths than any other country in the world [2]. These losses impacted vulnerable populations at a greater rate [3]. Racial/ethnic minorities, particularly Black individuals, have been disproportionately burdened by the Covid-19 pandemic, as many forms of interpersonal and structural racism exacerbated during this time [4-6]. Black communities are more susceptible to Covid-19 due to various forms of socioeconomic racism, such as greater poverty that leads to more crowded living conditions, limited access to healthcare services, and experiencing discriminatory barriers to jobs and education, making it harder to overcome economic hurdles when faced with unexpected Covid-19 related difficulties [6]. Similarly, throughout the pandemic, it has been shown that the LGBTQ+ community has faced large socioeconomic difficulties [4 6-8] and have been reported to suffer greater than non-LGBTQ+ peers with mental health [9 10].

Many of these stressors and adverse outcomes are particularly important for Black sexual minority men (BSMM) as an intersectional minority [11]. Intersectionality theory is an effective framework for understanding the life experiences of individuals of overlapping minority identities, including BSMM [12-14]. This theory posits that social identities like gender, race, and sexual orientation interact in intricate ways, collectively impacting well-being and health beyond the effects of each identity alone. This often occurs through experiences of identity-based discrimination, stigma, and structural contexts [12-15]. At the intersection of race and sexual orientation, BSMM have faced many of these aforementioned challenges in navigating the pandemic [16]. The risk for Black LGBTQ+ people facing Covid-19-related difficulties is greater given the increased likelihood of working service jobs with more public exposure, lower economic stability, and prevalent discrimination [8 17 18].

Many of these pandemic difficulties may adversely affect engagement with pre-exposure prophylaxis (PrEP) [19-21]. The barriers to healthcare access described, including a loss of insurance and broad socioeconomic difficulties, may directly prevent BSMM accessing PrEP or create undue complexities in navigating it [22 23]. Additionally, many BSMM

access PrEP through community-based services that often rely on strong social networks; these networks may be weakened given the increased distancing and isolation presented by the pandemic [24 25]. Distrust in healthcare systems and discrimination were exacerbated during the pandemic; these are both well-documented barriers to PrEP use [15 26 27]. As an effective strategy for HIV prevention, PrEP use is critically relevant for BSMM, who are substantially more vulnerable to HIV acquisition than their white or heterosexual peers [28].

Informed by intersectionality theory, our study investigated how the Covid-19 pandemic affected the BSMM community, with a focus on relationships between Covid-19 and PrEP engagement. Our findings add to the literature in exploring how Covid-19 and PrEP interact among BSMM, especially related to vaccine hesitancy, as studies between Covid-19 vaccine hesitancy and PrEP hesitancy are sparse. Our focus on these factors among BSMM is particularly unique and contextually relevant given the greater medical mistrust, pandemic difficulties, and disproportionate vulnerability to both Covid-19 and HIV among this population [1 27-29]. Given how substantially the Covid-19 pandemic has changed many healthcare systems and structures, as well as how much it has changed social and sexual contexts, our findings can inform PrEP promotion approaches towards this community in the future.

Methods

Recruitment and Sample

We recruited participants at community-based events in the D.C. Metropolitan area (e.g., D.C., Maryland, Virginia) focused on health promotion towards BSMM. We assessed attendees' eligibility based on specific criteria, including being born male, Black, having had a same-sex partner within the past six months, and attending a BSMM-focused health intervention event in the past year. We focus on sexually active BSMM because they are more likely to benefit from PrEP than BSMM who are not sexually active, making our PrEP-related questions more salient. Additionally, the requirement for attending a health intervention event was based on some of the healthcare specific questions asking about these experiences (e.g., “how did the Covid-19 pandemic affect the health promotion event?”). Attendees were encouraged to refer others who met the same criteria. Interested participants were scheduled for in-depth phone interviews and provided with an electronic consent form to review in advance.

Interview Procedures

We conducted extensive phone interviews, wherein the interviewer clarified the consent form details to the participants and resolved their queries before beginning each interview, ensuring their informed consent. A semi-structured interview questionnaire was employed, and the duration of each interview ranged from 20 to 30 minutes. These interview questions mainly targeted three specific domains of interest for this study: How the Covid-19 pandemic affected their life (e.g., “What were some of the challenges you faced during the Covid-19 pandemic”), relationships between Covid-19 and PrEP engagement (e.g., “How has the Covid-19 pandemic affected the way you use or consider PrEP”), and general sociodemographics (e.g., age, sexual identity). All interviews were conducted by the study

PI, a BSMM community member with experience in BSMM community-based health service. Each participant was compensated $30 for their interview.

Data Management

We recorded all interviews and transcribed them in two steps. First, we utilized a transcription service named Descript that transcribed the audio into text, which could be edited via word processing software [30]. Second, a research team member meticulously scrutinized both the transcripts and recordings to correct any faulty initial transcription. Note that the automated transcription had a high degree of accuracy (>95%), with just minimal manual corrections required. Additionally, we erased all identifiable information from the transcripts. All study procedures were approved by the (blinded for peer review) institutional review boards.

Thematic Analysis

The analysis team consisted of two professors and two graduate students, which included two members of the BSMM community. This team analyzed interview data using an inductive approach, employing the six stages of thematic analysis to recognize and define patterns. The process started with one team member reading and re-analyzing each transcript independently, taking note of significant topics and inquiries. They then identified specific parts of the interviews that had recurring responses and met frequently to review and discuss their findings. The analysis team met every two weeks to review codes. Then one main coder (the study PI) analyzed interviews for common themes, categorizing them into conceptually appropriate groups. This was followed by a secondary coder analyzing these themes, allowing for interrater reliability assessment. The second coder also reviewed the work to correct any errors and add any missed codes. Discrepancies were discussed and resolved at a meeting between both coders. Overall, interrater agreement was very high, with all reviewers initially agreeing on 91.7% of assigned primary themes. For the remaining 8.3% of themes, these were resolved after discussion, where all team members came to consensus on coding. Then, the main coder noted keywords and phrases that summarized themes, which were then refined and finalized. The final list of themes was interpreted by the research team to identify themes describing how Covid-19 affected PrEP use and consideration among BSMM.

Results

Sample Description

The sample included 24 BSMM (Table 1). All participants identified as a sexual minority and resided in the greater D.C. Metropolitan area. The majority (75%) was aged 25 to 44. Just over half the individuals' highest education level was undergraduate or graduate school. Approximately two-thirds of the sample lived in Maryland (62.5%), while the remaining third lived in Washington D.C. (20.8%) or Virginia (16.7%). Two-thirds of the sample had never used PrEP before, and 20% currently used PrEP. Just under half of the sample (45.8%) expressed hesitancy related to receiving a Covid-19 vaccine, either in receiving an initial vaccine or a Covid-19 booster. Participants who expressed Covid-19 vaccine hesitancy were more likely to have never used PrEP (81.8%) compared to those with no hesitancy (53.8%).

We identified three major themes from our thematic analysis: Changes in the healthcare system and changes in sexual behavior and relationships in relation to the pandemic, and Covid-19 vaccine hesitancy and misinformation (Table 2). Pseudonyms for all participants are provided in quotations, with age and PrEP use status provided in parentheses.

Changes in the Healthcare System

By far the most common theme identified as affecting PrEP use during the Covid-19 pandemic was changes in the healthcare system in response to Covid-19. One of the most commonly reported changes was related to modalities, with the rise of virtual healthcare services altering PrEP access. One participant, “Antoine,” (age 25-34, currently using PrEP) who was a PrEP navigator, described difficulties in getting people to enroll:

> “I feel like it's kind of been a strain as far as getting people to enroll in PrEP. I think Covid has changed a lot of how we use health overall because a lot of us were not able to go to doctor's offices necessarily. It was all virtual. And then if you needed to go and get labs and stuff done like that, you could go and do that. But as far as like talking to your PrEP provider face to face directly, that just wasn't a thing.”

“Antoine” also mentioned injectable PrEP as a potential way to mitigate barriers when asked to elaborate on some of the biggest challenges initiating PrEP during the Covid-19 pandemic:

> “Getting the needed necessary care, cause you still had to do the blood work every three months, you still need the testing every three months. I don't know how many and how often those follow ups were happening and I'd love to see the statistics around it. But with that being said, I would assume (follow ups were inconsistent), and I think that it has unfortunately put us back with the push for PrEP. But I know as we make injectable PrEP more available or as that becomes more of a mainstream thing, hopefully we can regain some of that.”

Another reported challenge was an overall loss of PrEP access. Participants described two common ways in which this occurred: Closures of healthcare facilities that were previously sources of PrEP delivery, and changes in clinic protocols that did not provide virtual options for PrEP delivery, but also did not accommodate in-person PrEP visits. Especially when many healthcare facilities were rapidly changing protocols, this was an emergent issue. “Jared” (age 35-44, previously used PrEP) described this:

> “I'm comfortable with sharing, when COVID first hit, and everybody didn't know what it was, I was a PrEP patient, and I wasn't able to get PrEP. And like, I was calling the clinic and different stuff like that. I was trying to get my PrEP and they said we couldn't come in in-person because of the protocols and stuff, and for me, I couldn't just get it at the clinic at the time.”

Jared also mentioned not having health insurance. This relates to another especially common barrier during the Covid-19 pandemic, which was general socioeconomic strain, including the loss of jobs and limited resources overall. “Daquan,” (age 18-24, never used PrEP) described some of these challenges:

> "So, you know, it's just really hard and scary times that we've gone into food shortages. It's a lot of things that Covid had caused and affected. We're trying to rebuild and get through and get back on track and just find our footing."

Finally, participants mentioned that the difficulties in accessing and navigating healthcare were a deterrent for further utilization of preventive healthcare services. This was related to cumulative complexities in the process, culminating in an overall sense of exhaustion in interacting with healthcare. "Amari" (age 35-44, never used PrEP) described this in detail:

> "Well, we know that Covid-19 made it difficult for people to get (PrEP) or get-receive care in general. In an already complex and complicated healthcare system, it made it worse. I would say that, in this regard, people might have shifted their perspective on PrEP, with Covid-19 creating more of a (healthcare) access barrier, people became a little more comfortable not using PrEP or not having it, or maybe even not necessarily having the same kind of discussions that we were before about it…and then going for a while, maybe a year, two years without it."

Changes in Sexual Behavior and Relationships

The second most common overall theme regarding how Covid-19 affected PrEP use was related to changes in sexual behavior and relationships. Participants described the pandemic as fundamentally changing how they interacted with friends, family, romantic partners, and sexual partners. The loss of overall relationship support was noted as an especially relevant challenge, as described here by "Marques" (age 25-34, never used PrEP):

> "Everyone was scared to be within six feet or perimeter of each other and fear of bringing it home to their loved ones. So, it hurt us a lot with, you know, just getting help and where people receive care and love, and where people go to receive, you know, constant therapy. And just to keep their head straight and, you know, take it day by day where people can go, you know, to recover. It is, it's affected a lot in such a dramatic way. In a negative way."

Regarding sexual encounters, many participants described that sexual activity had increased during the pandemic, and that this was evident in STI numbers increasing. This was noted by "Sean," (age 35-44, currently using PrEP) who described that people may be engaging in more sex and higher-risk sex in part because of how dramatically the pandemic has changed social support and the strain it has but on mental health. Though he notes that this may increase willingness to engage with PrEP given the increases in sexual activity:

> "I would have to say people will probably be engaging in more risky sex after the pandemic than any other time because it's turned everything upside down. And the (STI) numbers are up. So, I think it's, it's created a space where people are more open and you know, and willing to get on PrEP. But then, also, on the flip side, it's also created a space where people have engaged in more risky behavior due to the effects of the pandemic."

Finally, "Adrian" (age 25-44, never used PrEP) described that his increased sexual activity during the pandemic was in some part, a form of connection related to managing the challenges of the pandemic:

> "Sex is connection. And in a situation, in a pandemic where we lost so much, sex is a way to get some of that, to get that connection back. You can only stay 6 feet apart for so long. People need to connect. Humans need to connect."

Covid-19 Vaccine Hesitancy and Medical Mistrust

Finally, the last major theme identified was Covid-19 vaccine hesitancy and medical mistrust. This was described in multiple contexts, including specifically deterring PrEP engagement. "Malik" (45-49, never used PrEP) described confusion related to the overall messaging regarding Covid-19 vaccination. This included having conflicting information from various sources, which made it challenging to determine exactly how to proceed:

> "It feels like there was this big push that everyone had to get one (a vaccine) all of a sudden, and then everyone had to get boosters, and the news is saying one thing but the CDC is saying something else, and then your job is telling you something different, and it's a lot of conflict with people not being on the same page. It was overwhelming, and it made it hard to even know where to start."

"Jaden" (35-44, never used PrEP) also mentioned some additional reasons for this medical mistrust, particularly in the context of Black peoples' hesitancy related to the Covid-19 vaccine:

> "You know, a lot of people were against getting the Covid vaccine, either cause they thought that the government was experimenting on Black folk, or that the vaccine would make you sterile, or that it didn't do anything at all."

This highlights general hesitancy BSMM may have based on both historical and current medical abuses towards Black people. Related to this, "Deon" (18-24, never used PrEP) described how these sources of medical mistrust align with difficulties in having conversations with fellow BSMM regarding PrEP use, specifically mentioning some of the same concerns mentioned by "Jaden":

> "There are some people that will either do two different things: They'll start to talk about the past. So, they'll start to talk about like the Tuskegee experiment, and experimental slaves, and forced sterilizations and all those types of things that we know happened to people of color throughout time. Or they'll talk about the now and talk about actual pharmaceutical companies."

Notably, the links between Covid-19 hesitancy and PrEP are not purely parallel; some participants noted that Covid-19 hesitancy can directly deter PrEP use through eroding medical trust further. Covid-19 misinformation was the most notable source of this, as described by "Marcus" (25-34, never used PrEP):

> "And then the other part that's difficult is that with Covid-19, we also had a huge increase in misinformation. And so, in the same way that there's even more misinformation about vaccines, the risks associated and what they're supposed to do, I think that vaccine misinformation makes, or contributes to it being harder for people to have a good place or a strong sense of trust when it comes to PrEP. If the government's telling me I should be on PrEP, should I really believe that?"

Discussion

Overall, we found that changes in the healthcare system, changes in sexual relationships and relationships, and Covid-19 vaccine hesitancy and misinformation were key themes that emerged in this exploration of the relationships between Covid-19 and PrEP. These findings, particularly regarding the difficulties in accessing and navigating the healthcare system, are largely consistent with the literature [21-23]. Covid-19 has significantly changed the way PrEP is accessed and delivered through a loss of access for many, leading to reductions in preventive care such as PrEP [21 23]. PrEP promotion strategies must adapt to these difficulties. Having more accessible means of navigating PrEP delivery systems and appointments is also especially important, with telehealth in particular creating several new opportunities for PrEP access.

Participants had somewhat divergent responses regarding sexual behavior during the pandemic, with different implications for PrEP use. While some participants reported a reduced sexual frequency given the increasing restrictions of the pandemic and distancing as a strategy to avoid contracting Covid, others reported greater frequency. These participants also noted that the many stressors of the pandemic took a significant toll on social and mental health, leading to sex as a means of coping. One participant noted that sex may become riskier as well, which is consistent with the literature; previous studies on SMM have found associations between mental (e.g., depression) and social stressors and greater sexual risk [9 31 32]. Contrary to the idea that sexual activity broadly decreased during the pandemic, many participants reported maintained or increased sexual activity, and greater vulnerability to HIV and STIs. This highlights the continued, and even increased need for PrEP promotion during this time.

Links between Covid-19 vaccine hesitancy and PrEP hesitancy are intuitive given that both are in part driven by medical mistrust [27 29 33]. Studies have examined medical mistrust as a significant barrier to healthcare engagement among minority populations, including Black populations [27 29]. Covid-19 vaccine misinformation directly facilitating greater distrust of PrEP, however, is novel. Covid-19 vaccine misinformation has amplified skepticism of healthcare to a harmful level [34]. This may deter engagement with PrEP providers and lead to distrust of PrEP promotion messaging. It also may lead individuals to further believe that PrEP is not effective at all or believe that PrEP may be intentionally harmful. As we continue to navigate the pandemic, and the ever-present misinformation related to Covid-19 and vaccines, addressing PrEP misinformation and mistrust is increasingly critical to HIV prevention efforts.

The limitations of our study must be considered. Given the population and regional restriction, it is uncertain if our findings apply to BSMM populations in different regions or to SMM of different ethnicities. The heightened vulnerability of BSMM to both HIV acquisition, greater Covid-19 related stressors, and high prevalence of HIV in the D.C. Metropolitan area all support a focus on this population, however. . Our sample was fairly small, though we were able to gain a comprehensive understanding of participants' experiences through the saturation of themes. Finally, social desirability bias may have

influenced responses to sensitive topics like sexual behavior, though the interviewer established good rapport with participants.

Conclusion

We found that changes in the healthcare system, changes in sexual and relationship context, and covid-19 vaccine hesitancy and misinformation were important issues driven by Covid-19 that have significant implications for PrEP use among BSMM. The Covid-19 pandemic has changed our healthcare and social landscape in profound ways. This impacts how BSMM evaluate and access PrEP, as well as sexual networks and associated HIV vulnerability. Relationships between Covid-19 vaccine hesitancy and PrEP hesitancy are especially relevant. Efforts to adapt PrEP access and delivery in this context are critical to address health equity for the BSMM community. Future research further exploring relationships between pandemic stressors, such as emergent socioeconomic challenges, and HIV prevention among BSMM is recommended.

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Table 1.

Covid-19 vaccine hesitancy and characteristics of Black sexual minority men interviewees (n=24).

	Total (n=24)	No Covid-19 Vaccine Hesitancy (n=13)	Covid-19 Vaccine Hesitancy (n=11)
Age			
18-24	20.8%	23.1%	18.2%
25-34	37.5%	**46.2%**	**27.3%**
35-44	33.5%	**23.1%**	**45.5%**
45-49	8.3%	7.7%	9.1%
Ethnicity			
Non-Hispanic/Latino	83.3%	**92.3%**	**72.7%**
Hispanic/Latino	16.7%	**7.7%**	**27.3%**
Highest Completed Education Level			
High School	25.0%	**7.7%**	**45.5%**
Undergraduate College	58.3%	**69.2%**	**45.5%**
Graduate College	16.7%	**23.1%**	**9.1%**
State of Residence			
District of Columbia	20.8%	15.4%	27.3%
Maryland	62.5%	69.2%	54.5%
Virginia	16.7%	15.4%	18.2%
PrEP Use			
Never	66.7%	**53.8%**	**81.8%**
Previous Use	12.5%	15.4%	9.1%
Current Use	20.8%	**30.8%**	**9.1%**

Proportion differences >15% are bolded.

Table 2.

Covid-19 and PrEP related themes identified in interviews with Black sexual minority men and example quotes (n=24).

Healthcare Changes	
Changes in Healthcare Navigation (91.6%)	*"I think that (the Covid-19 pandemic) probably stopped a lot of people from taking PrEP because they weren't able to go to their doctor visits."* *"I think Covid has changed a lot of how we view health overall because a lot of us were not able to go to doctor's offices necessarily."*
General Socioeconomic Strain (66.7%)	*"So, you know, it's just really hard and scary times that we've gone into food shortages. It's a lot of things that Covid had caused and affected."* *"They (my job) closed. And things got hard fast."*
Telehealth Strengths and Weaknesses (54.5%)	*"I think that there are increasing(ly) more telehealth visits and telehealth opportunities just in case that you don't want to go into the office."* *"It was all virtual. And then if you needed to go and get labs and stuff done like that, you could go and do that. But as far as like talking to your PrEP provider face to face directly, that just wasn't a thing."*
Loss of Access (27.8%)	*"They (clinics) were offering limited services and the hours and stuff like that, and the (HIV) numbers just continued to rise. And I guess people thought "I'll do all the things that I've been doing prior to this". Some of that had to go out the window because they (clinics) weren't open."* *"When COVID first hit, and everybody didn't know what it was, I was a PrEP patient, and I wasn't able to get PrEP."*
Changes in Sexual and Relationship Context	
Changes in Sexual Risk (75.0%)	*"I would have to say people will probably be engaging in more risky sex after the pandemic than any other time because it's turned everything upside down. And the (STI) numbers are up."* *"The pandemic has most definitely affected how people navigate their health, most definitely sexual health, because the STI numbers have continued to go up."*
Changes in Relationship Support (58.3%)	*"Everyone was scared to be within six feet or perimeter of each other and fear of bringing it home to their loved ones. So, it hurt us a lot with, you know, just getting help and where people receive care and love, and where people go to receive, you know, constant therapy."* *"I've never felt more alone than I did since it (Covid-19) started."*
Changes in sexual frequency (50.0%)	*"I think it affects a lot of things. For some, it's changed how frequently people have sex."* *"Sex is connection. And in a situation, in a pandemic where we lost so much, sex is a way to get some of that, to get that connection back."*
Covid-19 Vaccine Hesitancy	
Covid-19 vaccine-related hesitancy (45.8%)	*"You know, a lot of people were against getting the Covid vaccine, either cause they thought that the government was experimenting on Black folk, or that the vaccine would make you sterile, or that it didn't do anything at all."* *"It feels like there was this big push that everyone had to get one (a vaccine) all of a sudden, and then everyone had to get boosters, and the news is saying one thing but the CDC is saying something else, and then your job is telling you something different, and it's a lot of conflict with people not being on the same page."*
General medical mistrust (41.6%),	*"There has been times when there's been some pushback (regarding conversations about PrEP), especially when people start to talk about medical mistrust and things like that."* *"So, they'll start to talk about like the Tuskegee experiment, and experimental slaves, and forced sterilizations and all those types of things that we know happened to people of color throughout time. Or they'll talk about the now and talk about actual pharmaceutical companies."*
Misinformation facilitating PrEP mistrust (20.8%)	"*I think that vaccine misinformation makes or contributes to it being harder for people to have a good place or a strong sense of trust when it comes to PrEP.*" *"I thought the (PrEP) disinformation was bad before. It's ramped up a lot more now."*

Parentheses after each theme contain the percentage of participants interviews where that theme was observed.