



Published in final edited form as:

Sex Transm Dis. 2025 February 01; 52(2): 110–116. doi:10.1097/OLQ.0000000000002083.

Assessing Attitudes and Knowledge of Mpox Vaccine Among Unvaccinated Men Who Have Sex With Men

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Abstract

Background—The 2022 mpox outbreak disproportionately affected gay, bisexual, and other men who have sex with men (GBMSM). Mpox cases continue to be reported nationally. Vaccination is a tool to prevent the spread of and serious disease from mpox. To understand mpox vaccine uptake and hesitancy, a virtual focus group with unvaccinated GBMSM was conducted.

Methods—In November 2022, a 60-minute, virtual focus group was conducted within an artificial intelligence (AI) platform that engages participants in chat-based conversation. The AI system uses machine learning and natural language processing to analyze and provide results immediately to the moderator. Descriptive frequencies, cross-tabulations and qualitative themes were analyzed.

Results—Fifty-one GBMSM ages 18–55 participated, of whom 12 had attempted to get the mpox vaccine. The top barriers in accessing the vaccine included challenges in scheduling appointments (4/12), available vaccine locations (3/12), and transportation (2/12). Nine participants reported not wanting the vaccine and 22 were undecided; Of these, 15 (4/9 and 11/22, respectively) said they did not think they needed the vaccine due to low perceived risk or monogamy.. Among the undecided, after receiving health messaging about mpox, 12/22 said the messaging made them reconsider getting the vaccine.

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Conflict of Interest Statement: The authors have no conflicts to disclose.

Financial Disclosure: No financial disclosures were reported by the authors of this paper.

CDC Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Replication Statement: Analyses were automatically generated by Remesh. Data were replicated by Caitlin Green.

Conclusion—During an outbreak, many unvaccinated GBMSM who may be at increased risk for mpox either wanted the vaccine or, with appropriate health messaging, may be open to getting the vaccine. Messaging about mpox vaccine efficacy, potential side effects, and how to access the vaccine may improve vaccine uptake especially as cases continue to occur.

Summary

A study on mpox vaccine hesitancy found that unvaccinated gay, bisexual, and other men who have sex with men either want or are open to getting the vaccine.

Keywords

Mpox; vaccine; hesitancy; GBMSM

Introduction

In May 2022, the United States (US) experienced a Clade II mpox (previously known as monkeypox) outbreak, and by August 2022, the US Department of Health and Human Services officially declared a public health emergency¹. The peak of mpox cases occurred on August 1, 2022, with 645 cases in the US reported to Centers for Disease Control and Prevention (CDC)². By November 2022, the seven-day average of mpox cases ranged from 16–39 cases but social media campaigns and vaccination efforts were ongoing to prevent another surge. There are two types of mpox virus: Clade I, which causes deaths in up to 10% of infected people, and Clade II, which leads to less severe mpox infections and is associated with the 2022 outbreak³. Gay, bisexual, and other men who have sex with men (GBMSM) and racial and ethnic minorities were disproportionately affected by the mpox outbreak in the US⁴. The ease with which Clade II mpox virus spreads through direct contact, such as during sex or other close skin-to-skin contact, poses a significant challenge for containment efforts, particularly in communities where risk factors for transmission are prevalent⁵. While the incidence of cases continues to be lower than the height of the 2022 epidemic, new Clade II mpox cases continue to be identified in the US^{6–8}. Moreover, a recent increase in mpox cases in the Democratic Republic of Congo (DRC) has included the first documented sexual transmission of Clade I mpox virus and highlights the risk for another global spread of mpox, including to the US⁹.

Public health efforts have focused on health education messaging and using vaccination as an important tool in preventing the spread of mpox. The CDC and the Advisory Committee on Immunization Practices recommend the JYNNEOS vaccine for people at increased risk for mpox infection^{10,11}. The JYNNEOS vaccine is a two-dose series, with each dose administered four weeks apart subcutaneously or intradermally; persons vaccinated with JYNNEOS have been found to be 9.6 times less likely to contract mpox than those who were unvaccinated¹². During the first few months of the 2022 US mpox outbreak, vaccine stock was limited, the demand was overwhelming, and Black and Hispanic persons were found to be less likely to be vaccinated despite being disproportionately affected^{13,14}. Additionally, an analysis published in June 2023 found that even after vaccine rollout initiatives were implemented to expand mpox vaccine access among minority populations, three-quarters

of vaccine-eligible Black persons and American Indian or Alaska Native persons remained unvaccinated¹⁵.

Collecting qualitative information from individuals who may be more affected by the mpox epidemic was critical to understanding their perspectives, experiences, and potential reasons for not getting the mpox vaccine. During the 2022 outbreak, this information needed to be collected rapidly to inform public health response. To better understand mpox vaccine uptake and hesitancy among vaccine-eligible persons, the National Coalition of STD Directors (NCSD) and CDC used Remesh, a web-based artificial intelligence (AI) platform, to conduct a virtual focus group with unvaccinated GBMSM in November 2022¹⁶.

Materials and Methods

A 60-minute virtual focus group was held through Remesh on November 16, 2022. Purposive sampling was used to ensure racial and ethnic diversity among participants. Recruitment was conducted through market research panels that partner with Remesh. Participants were eligible if they identified as a cisgender or transgender man, were aged 18–55, reported having sex with another man in the past 6 months, and had not received any dose of the JYNNEOS vaccine. Participants who completed the full focus group were offered an incentive of \$25 value in an award of their choosing (e.g., cash, gift card, etc.). This activity was determined to be non-research and exempt from undergoing a review from CDC's Institutional Review Board and was conducted consistent with applicable federal law and center policy (e.g., 45 CFR part 46.102.1.2; 21 CFR part 56; 42 USC §241.d; 5 USC §552a; 44 USC §3501 et seq).

Participants provided written informed consent before taking part in the study. Participation was voluntary and respondents could skip questions or exit the focus group at any time. The focus group included 62 open and close-ended questions and presented images and graphics for participants to respond to through a chat-based conversation. The development of the questions was informed by the Health Belief Model (HBM), a theoretical framework that focuses on how individuals' perceived beliefs influence their health-related behaviors¹⁷. Following HBM's constructs, questions were included on participants' perceived risk to mpox, willingness to get the mpox vaccine, and perceived barriers preventing them from getting the vaccine. The first 12 questions served as an initial screener and collected information on demographics, recent sexual history, and experience getting tested and/or vaccinated for mpox. Participants who reported having previously received any dose of the mpox vaccine were discontinued from completing the rest of the questions.

The AI system used machine learning and natural language processing in real-time to analyze participant responses and provide results immediately to the moderator. While participants did not engage directly with each other, they could see everyone's responses and engage with the input from others based on questions asked from the moderator (i.e., based on responses, the moderator could then ask participants to indicate their level of agreement with others' input). Quantitative data could be viewed in bar or pie chart format with frequencies provided and the platform allowed for cross-tabulation of respondent's answers to different questions. Qualitative data were thematically coded and categorized in

real time by the AI platform. To confirm the results from the Remesh system, the first author (C.G.) downloaded all data from the AI system and performed independent replication in Excel, including double coding the open-ended responses and validating results, categories, and emerging themes. The codes generated by Remesh were used as an initial deductive codebook and additional inductive codes were applied during analysis. Due to the inherent nature and limitations of the AI system's ability to capture all emergent themes from the qualitative data, additional codes and themes were identified through human review. To ensure consistency of the coding process, two coauthors (G.C.H., F.L.) met with C.G. to review the codes and themes, resolve any discrepancies internally and with the AI system coding, and reach consensus.

Results

Participant Characteristics

Fifty-one GBMSM ages 18–55 completed the focus group. The age distribution was diverse; a quarter of participants reported being aged 26–30 ($n=12$; 23.5%), followed by 41–45 ($n=5$; 19.8%) and 21–25 ($n=9$; 17.6%) (Table 1). Over half of the respondents identified as White ($n=27$; 52.9%), approximately one-fifth identified as Hispanic/Latino or LatinX ($n=9$; 17.6%), and approximately one-tenth identified as being multiple races ($n=6$; 11.8%). Fewer respondents identified as Black or African American ($n=4$; 7.8%), Asian ($n=4$; 7.8%), or American Indian or Native Alaskan ($n=1$; 2%). Most participants were cisgender ($n=45$; 88.2%) and 6 (11.8%) were transgender. Over half of the participants identified as gay ($n=29$; 56.9%) and almost a third were bisexual ($n=15$; 29.4%) (Table 1). Over half of participants were not in a monogamous relationship ($n=30$; 58.8%) while nearly a quarter were very sure their relationship is monogamous ($n=11$; 21.6%). Most participants had never been tested for mpox ($n=46$; 90.2%) or diagnosed with mpox ($n=47$; 92.2%). Twenty participants (39.2%) reported they wanted the vaccine while nine (17.6%) did not and 22 (43.1%) were undecided (Table 2). More White participants ($n=12$; 54.5%) and persons aged 26–35 ($n=10$; 45.4%) were undecided about wanting the mpox vaccine than participants from the other racial and age groups. All participants who had previously been diagnosed with mpox ($n=4$) indicated that they wanted the mpox vaccine and among those, two had previously attempted to get the vaccine but were unable to.

Perceived Mpox Risk and Precautions

Nearly 40% of participants believed they had minimal risk for getting mpox ($n=20$; 39.2%), stating they were monogamous with their sexual partner(s), didn't have casual sex, and/or took precautions such as using condoms or avoiding social gatherings. A relatively equal distribution of participants believed they were at medium risk ($n=11$; 21.6%), high risk ($n=10$; 19.6%), or no risk ($n=10$; 19.6%) (Table 2). Participants who believed they were at high risk stated this was because they had sex with other men, multiple partners, and/or did not use condoms or other protection during sex. Over three-quarters of participants who were undecided about or didn't want the mpox vaccine perceived their mpox risk level to be low or nonexistent ($n=17$; 77.3% and $n=7$; 77.8%, respectively).

Top precautions participants reported taking to protect themselves from mpox included reducing their number of sex partners (n=22; 43.1%), wearing condoms or using other barriers during sex (n=14; 27.5%), reducing their use of dating applications to meet people (n=14; 27.5%), and reducing their attendance at sex parties, sex clubs, or bathhouses (n=14; 27.5%) (Table 2). Among the participants who were undecided about getting the mpox vaccine, the top precautions taken were reducing their number of sex partners (n=10; 45.5%), talking to partners about potential mpox symptoms (n=8; 36.4%), reducing number of partners met on a dating/hookup site (n=6; 27.3%), wearing a condom or using another barrier during sex (n=6; 27.3%), and looking on a partner's body for signs of mpox (n=6; 27.3%). Overall, among participants who said they did not want the mpox vaccine, fewer indicated taking precautions to protect themselves from mpox than the participants who said they wanted the vaccine or were undecided (Table 2).

Mpox Vaccine Attitudes

Seventy percent of participants who believed they were at high or medium risk of contracting mpox wanted the vaccine compared to those who thought they had low or no risk (30.0%). A quarter of participants reported trying to get the mpox vaccine but were unable to (n=12; 24%), citing barriers such as challenges in scheduling appointments (e.g., limited appointment availability, work schedule conflicts, etc.) (n=4), finding available vaccine locations (n=3), and transportation issues (n=2).

“My work schedule wouldn’t allow it. It was also quite hard getting an appointment after work or on the weekends.”

(Black or African American male aged 36–40)

When asked why they hadn’t yet gotten the mpox vaccine, 39.2% (n=20) of participants said they do not think they need it (e.g., low risk, not currently sexually active, in a monogamous relationship, etc.), 35.3% (n=18) said they had not seen the vaccine available in their community, and 27.5% (n=14) said they had challenges accessing it (Table 2). Among the participants who stated they did not want the mpox vaccine (n=9), over half said it was because they do not think they need it (n=5) or that they have concerns about many other vaccines in addition to mpox (n=5). Among the undecided participants (n=22), half said they do not think they need it (n=11) and one-fifth said they have questions about the safety or efficacy of the vaccine (n=7). Among the White participants aged 26–35 (n=10; 19.6%), four participants said they did not need the vaccine due to perceived low risk or concerns over prolonged bruising.

“I thought about getting it, but then my friends who got it were complaining about a bruise present for over 4 weeks, and I did not find myself at as high of a risk.”

(White man aged 26–30)

Top cited concerns about getting vaccinated included long-term scars or keloids at the injection site (n=16), an immediate rash following vaccine injection (n=15; 29.4%), and concerns over healthcare providers judging them for their sexual activities (n=14; 27.5%). Among the participants undecided about getting the mpox vaccine, nearly a quarter reported concerns over being judged by healthcare providers about their sexual activities (n=5; 22.7%) or sexual orientation (n=6; 27.3%) (Table 2). When asked for their opinions about

vaccine injection placement in the shoulder or upper back instead of forearm, 31.4% (n=16) of participants said they felt indifferent, 23.5% (n=12) said that having the shoulder placement as an option would help make it more discreet, and 19.6% (n=10) were supportive of people having a choice or control in the placement. One-third of participants said having a choice of vaccine placement made them more likely to get the vaccine (n=17; 33.3%) while a quarter said they were not sure (n=14; 27.5).

“...people who are afraid to be outed by receiving the vaccine could benefit from it.”

(White male aged 21–25)

Participants could select multiple options for which locations they would prefer to be vaccinated; pharmacies (n=34; 66.7%), private doctor’s offices (n=29; 56.9%), and urgent care clinics (n=27; 52.9%) received the most responses (Table 2). Out of the non-clinical site answer options, participants were interested in getting the vaccine at a community-based organization (n=21; 41.2%), a pop-up event such as a Pride festival (n=17; 33.3%), or a bathhouse, sex club or other social venue (n=8; 15.7%).

Mpox and Vaccine Knowledge and Messaging

Nearly all participants had previously heard about the mpox outbreak in the US, with 80.4% (n=41) having heard some information about mpox (e.g., generally familiar with the outbreak) and 17.6% (n=9) having heard a lot of information (e.g., which groups were most impacted, mpox symptoms, etc.). Among 71 open-ended responses from 50 participants (one participant did not respond), the most common source of mpox information was from the news (e.g., CNN, New York Times, etc.) (n=29 responses; 40.8%) followed by social media (n=13; 18.3%), friends (n=7; 9.9%), the internet (n=7; 9.9%), and the CDC (n=7; 9.9%). As for which sources the participants trusted the most to receive mpox information, 61 open-ended responses from 50 participants (one participant did not respond) showed that about one-third trusted physicians (n=18 responses; 29.5%), followed by CDC (n=11; 18.0%), research or scientific studies (n=8; 13.1%), and the news, such as CNN (n=5; 8.2%).

“I prefer to get vaccines from my primary care physician’s office since I know they’re competent and have all the information I might want/need.”

(White man aged 26–30)

Participants were provided a list of symptoms that people with mpox may experience, including genital rashes, rashes or pimples on other areas of the body, rectal bleeding and/or pain, fever, chills, exhaustion, etc. After reviewing the list of symptoms, over one-third said the information surprised them (n=19; 37.3%). Among 21 write-in responses from those participants, the symptoms they were most surprised by were rectal bleeding and pain (n=8 responses; 38.1%), respiratory issues (n=4; 19.4%), and rashes and pimples (n=3; 14.3%).

Participants were also asked to review and react to mpox health messages developed to convey information about vaccine effectiveness (Figure 1). Over one-third of participants said the messaging surprised them (n=19; 37.3%), especially the messages about unvaccinated people being 14 times more likely to be at risk for mpox than vaccinated people (n=11; 57.9%), which was the estimated risk reduction at the time.

When asked what additional information is needed after reading the health messages, about one-third of all participants said no additional information is needed (n=16; 31.4%); others said they would like to learn more about vaccine efficacy (n=8; 15.7%), findings from future mpox vaccine research (n=8; 15.7%), and transparency about existing mpox vaccine research (n=4; 7.8%). Over half of the participants said the provided messaging made them consider getting the mpox vaccine (n=27; 52.9%); among these participants, 12 (44.4%) had initially indicated they were undecided about getting the mpox vaccine and one (3.7%) had said they were not interested in getting the mpox vaccine. Notably, five of the undecided group (41.7%) stated the messaging about unvaccinated people being 14 times more likely to be at risk for mpox was what made them reconsider getting the vaccine.

Discussion

The findings from this study demonstrate that many unvaccinated GBMSM who may be at increased risk for mpox either wanted the vaccine or, with appropriate health messaging, may be open to getting the vaccine. Participants were particularly interested in the statistic around the risk reduction the mpox vaccine offers compared to those who are unvaccinated. Notably, at the beginning of the focus group, 22 participants were undecided about getting the mpox vaccine, and after receiving health messaging that addressed their concerns, 12 of those participants said the messaging made them reconsider getting the vaccine. When asked to share what other information about mpox is needed, most responses related to wanting more research, data, and transparency about the vaccine.

Examining the mpox epidemic through a historical lens is critical to better understanding of and ability to mitigate the stigma that impacts GBMSM seeking and receiving healthcare²⁰. When HIV was identified in the early 1980s and predominantly impacted GBMSM, intense homophobia and stigma greatly hindered the public health response and affected access to care^{20,21}. To this day, stigma remains one of the biggest challenges to fighting HIV and remains a prevalent challenge for GBMSM seeking healthcare -- this may well have contributed to participants' concerns over being judged by their healthcare provider if they were to ask for the mpox vaccine or visible scarring that may occur after receiving it^{20,22}. Creating a stigma-free space between healthcare providers and GBMSM is crucial to bridging gaps in essential care, especially during times of national epidemics. Additionally, participants who had attempted but were unable to get the mpox vaccine noted barriers such as low vaccine availability and scheduling issues, which are consistent with other studies^{18,19}. At the time of this study, vaccine stock was low, but as of April 2024, the JYNNEOS vaccine is commercially available in the U.S. and can be accessed at local pharmacies and clinics²³. Offering the mpox vaccine in alternative or non-clinical locations, such as community-based locations or Pride events, in addition to traditional sites, like pharmacies and doctor's offices, may help increase overall access to the vaccine, improve cultural competency among providers, and improve vaccine uptake among GBMSM.

Results from this study were used to directly inform outreach and health communications messaging during the mpox response, including social media content and a toolkit released by NCSD^{24,25}. The concerns over scarring caused by the vaccine and positive responses regarding the options for the vaccine injection placement led to health messaging

emphasizing that patients could ask providers for the mpox vaccine in their shoulder or upper back. This finding is consistent with other studies that found that stigma associated with the mpox vaccine, particularly the fear of being publicly outed as “gay” from forearm scarring following the injection, contributed to people feeling hesitant to get the vaccine¹⁹. Additionally, health messaging emphasizing that the mpox vaccine is a two-dose series and that both shots had the best efficacy for protection was incorporated into outreach materials^{24,25}. Lessons learned from this study may be of particular concern given the recent increase in Clade I mpox virus in the DRC, including its severity and sequelae, and its unprecedented spread through sexual transmission, including among GBMSM⁹.

Even with targeted recruitment, the sample size of this study is too small to be generalizable and the representation of minority participants was very low, which limited the external validity of these results. However, conducting this virtual focus group during the height of the 2022 mpox epidemic allowed us to collect real-time information from individuals who may have been most impacted and quickly inform response efforts in a way that would have been limited by traditional methods. Future studies should prioritize recruitment from Black, Asian, American Indian or Native Alaskan, and Hispanic individuals to ensure their perspectives are shared. Individuals within the GBMSM community have been historically reluctant to participate in qualitative studies due to a myriad of factors, including stigma, societal discrimination, and privacy concerns²⁶. The anonymity and convenience of an online platform mitigated many of these challenges and allowed a safe space for GBMSM to share their experiences and perspectives without fear of judgement. Because participation was based on an individual’s ability to access and navigate and engage with an AI system, selection bias may have occurred. However, logistical challenges with in-person recruitment and data collection were mitigated by allowing GBMSM to contribute their experiences in locations convenient to them at a time where their perspectives and experiences needed to be heard. Finally, we were unable to collect information about whether participants later received the mpox vaccine and were thus unable to determine whether the health messaging was effective in increasing mpox vaccine uptake among individuals who were previously undecided or against getting it. However, as noted previously, results were used to inform a communications toolkit which has been widely disseminated and used as a model for mpox outreach communications in the response.

Conclusion

During an outbreak, many unvaccinated GBMSM who may be at increased risk for mpox either want the vaccine or, with appropriate health messaging, may be open to getting the vaccine. The use of Remesh allowed us to conduct a virtual focus group with GBMSM during the height of the 2022 mpox epidemic and produced quick results that were used to inform and change ongoing response efforts and health communications messaging. Messaging about vaccine efficacy, potential side effects, and how to access the vaccine may improve vaccine uptake especially as cases continue to occur. Improving healthcare provider cultural competency and expanding vaccine availability at both traditional (e.g., pharmacies, doctor’s offices) and non-traditional (e.g., community-based organizations, Pride events) spaces may also improve uptake.

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Provided Health Messaging on Mpox Vaccine

Below are health messages about the JYNNEOS vaccine being used for mpox and its effectiveness:

- According to a recent study, unvaccinated people had 14 times the risk of monkeypox disease compared to people who were vaccinated.
- It is not known yet how much protection one dose (or shot) of the monkeypox vaccine provides, but studies have shown that one dose offers some protection against monkeypox infection.
- Doctors and scientists believe that 2 doses of the vaccine provide the best protection against monkeypox infection.
- Studies are currently being done to determine how long one dose provides protection versus two doses.

Figure 1.

Health Information Messaging Shared With Study Participants, November 2022

Table 1.

Characteristics of Study Participants: Mpox Unvaccinated GBMSM and Willingness to Receive Mpox Vaccine, November 2022 (N=51)

Demographics	Total (n=51)		Yes – want vaccine (n=20)		No – don't want vaccine (n=9)		Undecided about vaccine (n=22)	
	N	%	N	%	N	%	N	%
Age								
18–20	3	5.9	0	0.0	0	0.0	3	13.6
21–25	9	17.7	6	30.0	0	0.0	3	13.6
26–30	12	23.5	3	15.0	4	44.4	5	22.7
31–35	8	15.7	2	10.0	1	11.1	5	22.7
36–40	7	13.7	3	15.0	1	11.1	3	13.6
41–45	5	9.8	2	10.0	1	11.1	2	9.1
46–50	4	7.8	2	10.0	1	11.1	1	4.5
51–55	3	5.9	2	10.0	1	11.1	0	0.0
Race/Ethnicity								
White	27	52.9	10	50.0	5	55.6	12	54.5
Black/African American	4	7.8	2	10.0	1	11.1	1	4.5
Hispanic/Latino or LatinX	9	17.7	5	25.0	2	22.2	2	9.1
American Indian or Native Alaskan	1	2.0	0	0.0	0	0.0	1	4.5
Asian	4	7.8	2	10.0	0	0.0	2	9.1
Multiple Races	6	11.8	1	5.0	1	11.1	4	18.2
Gender Identity								
Cisgender man	45	88.2	19	95.0	8	88.9	18	81.8
Transgender man	6	11.8	1	5.0	1	11.1	4	18.2
Sexual Orientation								
Gay	29	56.9	15	75.0	3	33.3	11	50.0
Heterosexual/Straight	5	9.8	1	5.0	2	22.2	2	9.1
Bisexual	15	29.4	4	25.0	3	33.3	8	36.4
Another sexual orientation	2	3.9	0	0.0	1	11.1	1	4.5
Total	51	100						

MpoX Knowledge, Concerns, and Attitudes among MpoX Unvaccinated GBMSM and Willingness to Receive MpoX Vaccine, November 2022 (N=51)

Table 2.

	Total (n=51)		Yes – want vaccine (n=20)		No – don't want vaccine (n=9)		Undecided about vaccine (n=22)	
	N	%	N	%	N	%	N	%
Tested for mpox								
Yes	5	9.8	4	20.0	0	0.0	1	4.5
No	46	90.2	16	80.0	9	100.0	21	95.5
Diagnosed with mpox								
Yes	4	7.8	4	20.0	0	0.0	0	0.0
No	47	92.2	16	80.0	9	100.0	22	100.0
Tried to get mpox vaccine								
Yes	12	23.5	10	50.0	1	11.1	1	4.5
No	39	76.5	10	50.0	8	88.9	21	95.5
Reason for not getting mpox vaccine *								
I have not seen it available in my community	18	35.3	12	60.0	1	11.1	5	22.7
I am worried about a physical reaction like a rash or scar	8	15.7	3	15.0	2	22.2	5	22.7
I am worried about being judged or someone thinking negatively about me	2	3.9	2	10.0	0	0.0	0	0.0
I do not think I need it	20	39.2	4	20.0	5	55.6	11	50.0
I have concerns about many vaccines, not just mpox	13	25.5	5	25.0	5	55.6	3	13.6
I have had challenges accessing the vaccine (i.e., transportation, not being able to pay)	14	27.5	8	40.0	0	0.0	5	22.7
I have questions about the safety or efficacy of the vaccine	11	21.6	2	10.0	2	22.2	7	31.8
Perceived mpox risk level								
No risk	10	19.6	1	5.0	2	22.2	7	31.8
Low risk	20	39.2	5	25.0	5	55.6	10	45.5
Medium risk	11	21.6	6	30.0	1	11.1	4	18.2
High risk	10	19.6	8	40.0	1	11.1	1	4.5
MpoX precautions *								
Avoided sex because you suspected you or a partner had mpox	4	7.8	2	10.0	0	0.0	2	9.1
Cleaned personal items like bedding or sex toys	7	13.7	3	15.0	1	11.1	3	13.6
Engaged in virtual sex	8	15.7	4	20.0	0	0.0	4	18.2

	Total (n=51)	Yes – want vaccine (n=20)	No – don't want vaccine (n=9)	Undecided about vaccine (n=22)
Looked on a partner's body for signs of mpox	13 25.5	6 30.0	1 11.1	6 27.3
Masturbated in person with someone but at a distance to avoid mpox exposure	5 9.8	2 10.0	0 0.0	3 13.6
Reduced going to events or venues like sex parties, sex clubs, or bathhouses	14 27.5	6 30.0	3 33.3	5 22.7
Reduced number of partners met on a dating/hookup app	12 23.5	6 30.0	0 0.0	6 27.3
Reduced number of sex partners	22 43.1	10 50.0	2 22.2	10 45.5
Reduced use of apps to meet people	14 27.5	7 35.0	0 0.0	7 31.8
Talked with a partner about any mpox symptoms or new/unexplained rashes	13 25.5	5 25.0	0 0.0	8 36.4
Tried to get vaccinated	9 17.6	8 40.0	0 0.0	1 4.5
Used apps only to reconnect with previous partners but not to meet new partners	8 15.7	4 20.0	1 11.1	3 13.6
Wore more clothing to an event than normal	4 7.8	2 10.0	0 0.0	2 9.1
Worn a condom or used another barrier during sex	14 27.5	6 30.0	2 22.2	6 27.3
None of the above	13 25.5	4 20.0	3 33.3	4 20.0
Mpox vaccine concerns *				
Being judged by a healthcare provider because of my sexual activities	14 27.5	7 35.0	2 22.2	5 22.7
Being judged by a healthcare provider for getting a mpox vaccine	7 13.7	3 15.0	1 11.1	3 13.6
Being judged by a healthcare provider for my sexual orientation	11 21.6	4 20.0	1 11.1	6 27.3
Being seen at a mpox vaccination event	10 19.6	5 25.0	2 22.2	3 13.6
Being seen entering a place where mpox vaccines are available	4 7.8	2 10.0	1 11.1	1 4.5
Having an immediate injection site reaction, like a rash, that other people can see	15 29.4	6 30.0	4 44.4	5 22.7
Long-term scars or keloids from the injection	16 31.4	6 30.0	5 55.6	5 22.7
Not being able to afford the mpox vaccine	13 25.5	4 20.0	1 11.1	8 36.4
Other	14 27.5	4 20.0	2 22.2	8 36.4
Preferred sites to get mpox vaccine in community *				
Bathhouse, sex club, or other social venue	8 15.7	11 55.0	0 0.0	10 45.5
Community-based organization (e.g., nonprofit organization, local agency, community center)	21 41.2	11 55.0	0 0.0	10 45.5
Health department	23 45.1	10 50.0	1 11.1	12 54.5
Pharmacy	34 66.7	16 80.0	1 11.1	17 77.3
Pop-up event at Pride or another community event	17 33.3	9 45.0	1 11.1	7 31.8

	Total (n=51)	Yes – want vaccine (n=20)		No – don't want vaccine (n=9)		Undecided about vaccine (n=22)		
Private doctor	29	56.9	12	60.0	4	44.4	13	59.1
Retail walk-in clinic	24	47.1	12	60.0	1	11.1	11	50.0
Specialty STI or HIV clinic	16	31.4	10	50.0	1	11.1	5	22.7
Urgent care	27	52.9	13	65.0	3	33.3	11	50.0
I would not get a vaccine	5	9.8	0	0.0	5	55.6	3	13.6
Other	3	3.0	0	0.0	0	0.0	3	13.6
Concerns over rash or scarring from mpox vaccine								
Very worried	5	9.8	3	15.0	0	0.0	2	9.1
Somewhat worried	16	31.4	8	40.0	1	11.1	7	31.8
Not at all worried	17	33.3	7	35.0	1	11.1	9	40.9
Not applicable – doesn't plan to get vaccine	13	25.5	2	10.0	7	77.8	4	18.2

* Not mutually exclusive