Journal of Family Violence (2023) 38:1535–1544
https://doi.org/10.1007/s10896-022-00461-y

ORIGINAL ARTICLE

Intimate Partner Violence Victimization During the COVID-19 Pandemic Among a Global Online Sample of Sexual Minority Men

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Accepted: 20 October 2022 / Published online: 4 November 2022

Abstract

Purpose We aimed to describe the prevalence of IPV victimization, changes of experiencing IPV victimization, and examined factors associated with more severe or frequent IPV victimization since the COVID-19 crisis among a global sample of sexual minority men (SMM).

Methods Data were collected between October and November 2020 through a gay social networking (GSN) application. We used multinominal logistic regression to examine correlates of experiencing any IPV during the pandemic and experiencing more severe or frequent IPV since the pandemic began.

Results Of all participants ($n=9420$), IPV victimization prevalence in the past 6 months was 17.0%, 19.5% of whom reported experiencing more severe or frequent IPV and 55.7% reported experiencing IPV that stayed the same since the COVID-19 started. Experiencing more severe or frequent IPV victimization since the pandemic began was associated with having engaged in sex work, having an income reduction by more than 20% and cutting meals since the COVID-19 crisis began. Increased tobacco use and psychological distress were also associated with increased IPV victimization. Lastly, SMM who reported having met a sexual partner through GSN apps were more likely to say that their experience of IPV had been more severe or frequently.

Conclusion Our results demonstrate relatively high levels of reporting IPV victimization during the COVID-19 pandemic among a global sample of SMM. The findings illustrate an increasing need for IPV resources and programs as the pandemic continues to evolve. New technologies such as GSN apps have the potential to deliver confidential and safe IPV screening, services, and resources.

Keywords Intimate partner violence (IPV) · Victimization · COVID-19 · Sexual minority men (SMM) · Gay social networking app

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Introduction

The COVID-19 pandemic continues to evolve rapidly with newly identified variants around the world leading to sustained levels of transmission. As of November 2022, it is estimated that there are nearly 630 million confirmed cases of COVID-19 and more than 6.6 million deaths globally (COVID-19 Map, 2022). Since the World Health Organization (WHO) declared the outbreak a global pandemic in March 2020, countries have started to implement measures to prevent the spread of the virus, including shelter-at-place orders and social distancing. While these efforts slowed down the spread of the virus, they also led to unprecedented disruptions in society and may disproportionately affect vulnerable groups such as sexual minority men (SMM) (Gibb et al., 2020; Moore et al., 2021; Torres et al., 2021).Emerging evidence suggests that the global pandemic and associated prevention measures have already resulted in interruptions to sexual health services, including HIV prevention and treatment services, increased social isolation and psychological distress, and severe economic consequences among SMM globally (Hong et al., 2021; Pampati et al., 2021; Santos et al., 2021).

Another consequence of the stay-at-home orders is the increased risk of experiencing intimate partner violence (IPV) victimization. IPV refers to behavior initiated by an intimate partner that causes physical, sexual, or psychological harm (Jewkes, 2002; Rennison & Welchans, 2000). Evidence in the literature suggested that IPV victimization among sexual minority men is associated with adverse health outcomes, such as substance abuse, mental health illness, behaviors associated with HIV infection (Buller et al., 2014; Chen et al., 2019; Davis et al., 2020; Duncan et al., 2018; Wang et al., 2018), and these impacts could be further exacerbated by the ongoing global pandemic. One pathway through which the COVID-19 pandemic may lead to increased IPV is through the need to stay at home during the pandemic, increasing the amount of time spent together in stressful circumstances, potentially triggering existing or inciting new IPV (Stephenson et al., 2021). It is also suggested that the need to stay at home led to fewer opportunities for seeking help for IPV (Peterman et al., 2020). In general, research on IPV has focused on traditional models of male perpetrator and female victim, and it wasn't until the last decade that researchers have started to pay attention to IPV victimization among SSM, including cisgender men who have sex with men (MSM). A systematic review of the literature indicated that the prevalence of IPV victimization among MSM is consistently higher than those documented among women and substantially higher than men who do not have sex with men (Finneran & Stephenson, 2013). A more recent meta-analysis on IPV among MSM found that the prevalence of IPV victimization was about 33% across all recall periods (Liu et al., 2021), suggesting the high prevalence of IPV victimization among MSM globally and highlighting the needs for corresponding prevention programs and services. There is also evidence that rates of IPV are even higher among racial and ethnic minority MSM (Stephenson & Finneran, 2017). This could be explained by the minority stress theory, that when individuals have multiple minoritized identities (race, ethnicity, sexual orientation, and gender minority, etc.), the stress they experience from each group could add to each other and impact health outcomes collectively (Meyer, 2003).

Since the pandemic began, there is growing evidence suggesting the increase of IPV (Boxall et al., 2020; Jetelina et al., 2021; Peitzmeier et al., 2021), but few of these studies has examined these changes among MSM. Among a sample of 696 MSM recruited online, Stephenson et al. found that from March to May 2020 when lockdown measures were first implemented, 12.6% of respondents reported experiencing some forms of IPV (Stephenson et al., 2021). Another study conducted among 214 coupled MSM found that among those who reported being an IPV victim, nearly half said it was a new or more frequent IPV experience compared to before the coronavirus pandemic (Walsh et al., 2021). Both studies, however, were conducted in the United States. There is a lack of information on whether this phenomenon exists and persists in other countries and areas, and the way it impacts this at-risk population. Therefore, identifying the correlates and subgroups of SMM that were most likely to experience IPV during the COVID-19 crisis is of significant public health importance. Hence, the objective of this study is to describe the prevalence and changes of IPV victimization among a sample of global SMM recruited online and identify the factors that were associated with IPV victimization among this population. We hypothesis that SMM with syndemic stressors such as ethnic minority, experiencing financial hardship and psychological distress experience a disproportionate burden of IPV victimization during the COVID-19 pandemic. The findings of this study will provide evidence and inform future IPV research and programs by identifying potential IPV screening and resource deliveries.

Methods

Study Procedure and Data Collection

A full description of the study has been presented elsewhere (Santos et al., 2022). This is the second wave of the COVID-19 Disparities Survey implemented by a gay social networking (GSN) app – *Hornet*, a geolocation-based mobile app

with more than 35 million users globally. Briefly, we conducted a cross-sectional survey from October 25, 2020, to November 19, 2020, on *Hornet*, during which active users were invited to complete a survey regarding the impact of the COVID-19 pandemic on a variety of health and mental health outcomes, as well as social and economic vulnerabilities. *Hornet* users were eligible to participate in the survey if they were 18 years old or older, and able to provide informed consent. For this current analysis, we only included participants who reported being cisgender men who have sex with men and had completed data on our main outcomes of interest. All study procedures were approved by Johns Hopkins Bloomberg School of Public Health Institutional Review Board. Secondary data analysis was approved by the IRB at University of California Los Angeles (UCLA).

Measures

Intimate Partner Violence Victimization

Participants were asked the following questions regarding recent IPV victimization in the past 6 months: (1) "*has a partner slapped, punched, kicked, or shoved you?"* (2) "*has a partner choked, strangled, or suffocated you; threatened you with a weapon; or used a knife or gun to hurt you?"* (3) "*has anyone physically forced you to have sexual intercourse or do something sexual when you did not want to?"* (4) "*has a partner pressured you into sexual activity by doing things like threatening to end your relationship, threatening to spread rumors about you, or wearing you down by repeatedly asking for sex or showing that they were unhappy?"*. In this survey, partner referred to their romantic or sexual partners, i.e., anyone you have been involved with romantically or sexually, which might include spouses, boyfriends, girlfriends, people you were dating, people you were seeing, or people with whom you hooked up. Response categories include "*Yes*", "*No*", "*I don't know*", and "*I cannot or do not wish to answer this question*". All items were then recoded to reflect a binary outcome, with "*No*", "*I don't know"* and refusal to answer categorized as zero (Yes/No). We created a new variable by adding all four items to describe polyvictimization, creating a variable that ranged from zero (no IPV) to four (experienced all forms of IPV). In addition, among those who reported having experienced at least one form of IPV in the past 6 months, we assessed the changes in IPV victimization by asking the following question, "*Since the beginning of the COVID-19 crisis, has a partner or ex-partner been more physically aggressive towards you, e.g., in a way that is more frequent or severe than it was in the few months before the COVID-19 crisis?*". Response options include "*Less severe or frequent*", "*about the same*", "*More severe or frequent*". We therefore created a categorical variable consisting of three levels: (*a*) did not experience any IPV in the past 6 months; (*b*) experienced IPV in the past 6 months but was about the same or less severe or frequent since the pandemic began; (*c*) experienced more severe or frequent IPV since the pandemic began.

The Survey collected information on participants' demographic characteristics including age, education level, employment status, socioeconomic status (*lower, lower-middle, upper-middle, upper*, see Table 1). We also asked the participants if they were aware of their HIV status and then recoded the variable into (*1* = HIV positive; *0* = HIV negative/unknown). Ethnicity was measured by the following question: "Do you consider yourself a member of an ethnic minority?" (Yes/No). We also assessed participants' psychological distress using the PHQ-4 scale and dichotomized the PHQ-4 scores using a cut-off of 3 or more indicating psychological distress (Kroenke et al., 2009). The Survey assessed the impact of the COVID-19 pandemic on economic status and vulnerabilities. First, we asked participants about their ability to cover basic needs using the questions, "How well are you able to meet your basic needs (e.g., food, clothing, shelter, transportation, education, and healthcare) with your current income?". Response options include *not at all, slightly, somewhat, fairly well, very well*. We also assessed participants' food insecurity by asking, "*Since the COVID-19 crisis began, have you had to cut the size of your meals or skip meals because there was not enough money for food?*" (*Yes/No*). In addition, participants were asked their income change by the question, "How much has your income been reduced due to the COVID-19 crisis?" (*0-20%, 21-40%, 41-60%, 61-80%, 81-100%*). This variable was then dichotomized into (*0* = less than or equal to 20%, *1* = more than 20%).

The Survey also assessed alcohol use disorders using the Alcohol Use Disorders Identification Test-Concise (AUDIT-C), which has 3 questions regarding participants' recent alcohol use and each question has 5 answer choices valued from 0 to 4 points (Bush et al., 1998). The higher the total scores are, the more likely one's drinking is to affect their safety. Consistent with prior works, a score of 4 or higher is considered positive and optimal for identifying hazardous drinking or alcohol use disorders for men (Bradley et al., 2003). We also asked participants about changes in alcohol use during the pandemic using the question, "How has your alcohol use changed since the COVID-19 crisis began?" (*decreased, no change, increased*). Psychological distress was measured using the PHQ-4 (Kroenke et al., 2009, p. 4). In addition, we asked the participants if they have been spending more time on GSN apps since the COVID-19 crisis begin (*1* = yes, more time; *0* = less time or about the same).

Statistical Analysis

We used descriptive statistics to present participants' sociodemographic characteristics and the prevalence of each form of IPV during the pandemic. To examine correlates of

Table 1 Characteristics of sexual minority men recruited on Hornet ($n = 9410$)

	n (%)
Age	36.40 (11.25)
18–24	1445 (15.4%)
25–34	3065 (32.6%)
35–44	2699 (28.7%)
>45	2201 (23.4%)
Socioeconomic status	
Upper	447 (4.8%)
Upper middle	4113 (43.9%)
Lower middle	3991 (42.6%)
Lower	812 (8.7%)
Education level	
College and above	6006 (63.9%)
Lower than college	3393 (36.1%)
Sexual orientation	
Gay	7199 (76.5%)
Bisexual	1467 (15.6%)
Others	744 (7.9%)
Employment status	
I am currently employed or on paid leave	6555 (69.7%)
Unemployed prior to or because of the COVID-19 crisis	1207 (12.8%)
Student	690 (7.4%)
Retired	321 (3.4%)
Unable to work due to a disability	63 (0.7%)
Others	536 (5.7%)
Relationship status	
Single	6253 (66.6%)
Married or registered relationship	906 (9.6%)
In a non-registered relationship	1539 (16.4%)
In more than one relationship	202 (2.2%)
Separated, but living together	93 (1.0%)
Widowed	107 (1.1%)
Other	190 (2.0%)
Ethnic minority	1360 (14.5%)
Engaged in sex work	1027 (11.6%)
HIV positive	1264 (13.4%)
Disabled	636 (6.8%)
Income reduction for more than 20%	3622 (38.5%)
Cut meal	1724 (18.3%)
Cannot cover basic needs well	3814 (40.7%)
Alcohol misuse	3153 (33.5%)
Increased alcohol use during the COVID-19 crisis	1471 (15.6%)
Increase tobacco use during the COVID-19 crisis	1400 (14.9%)
Increase cannabis use during the COVID-19 crisis	356 (3.8%)
Received counseling service	2475 (26.3%)
Met a sexual partner through gay social networking app	6017 (66.0%)
Increased time in using social networking app	3279 (35.5%)
Top 10 countries with most respondents	
Russian Federation	2211 (23.5%)
Turkey	1605 (17.1%)
Brazil	1402 (14.9%)
France	780 (8.3%)
Ukraine	525 (5.6%)
Mexico	301 (3.2%)
Indonesia	248 (2.6%)
Thailand	239 (2.5%)
United States	193 (2.1%)
Iran	149 (1.6%)
United Kingdom	149 (1.6%)

experiencing any IPV during the pandemic and experiencing more severe or frequent IPV since the pandemic began, we conducted a multinomial logistic model adjusting for World Bank regions (World Bank, 2022) as a co-variate with all the sociodemographic and behavioral characteristics above, consistent with previous analysis. We used participants who reported not experiencing or experiencing less severe/frequent IPV during the pandemic as the reference group in the analysis looking at severity or frequency of IPV. For the current study, we used a complete case approach, therefore only participants that had complete survey responses on IPV related questions were included in this analysis (a sub analysis suggests that missing data were most likely missing at random). Results reported as relative risk ratios (RRR) with corresponding 95% confidence interval. All analyses were conducted using RStudio.

Results

Sample Characteristics

Of the 9,410 SMM included in this analysis, the average age was 36.40 (SD: 11.25), although almost one in six was aged 18–24 years (Table 1). The sample largely identified as gay (76.5%) or bisexual (15.6%) and college-educated (63.9% completed college or higher). Over half (51.3%) of the respondents were reported as lower or lower-middle socioeconomic status while 74.2% were currently employed. While 66.6% of the sample reported being single, 17.8% were living together with their partner as married/registered or non-registered relationships. Eleven-point 6% of the sample reported having engaged in sex work and 13.4% of the respondents were self-reported HIV positive. Based on AUDIT-C, 33.5% screened positive for problematic drinking, and 15.6% of all participants reported increased alcohol consumption since the

start of the pandemic. Similarly, 14.9% and 3.8% of the sample reported increasing tobacco use and cannabis use during the pandemic, respectively. One in three (38.5%) reported their income has been reduced by more than 20% due to the COVID-19 crisis, and 18.3% had to cut the size or skip meals because there was not enough money for food. More than half of the participants were from three countries – Russia, Turkey, and Brazil, and 14.5% were identified as a member of an ethnic minority (Table 1).

Prevalence of Each Form of IPV and Changes in IPV Victimization During the Pandemic

Table 2 presents the self-reported rates of IPV and polyvictimization in the past 6 months. In summary, 17.0% of respondents reported having experienced IPV victimization in the past 6 months. Among these, 27.8% reported having experienced more than one form of IPV. Specifically, 8.9% reported that a partner has slapped, punched, kicked, or shoved them; 1.8% reported that a partner choked, strangled, or suffocated them or threatened them with a weapon; or used a knife or gun to hurt them. In addition, 5.4% reported that a partner had physically forced them to have sexual intercourse or do something sexual when they did not want to, and 7.6% reported having a partner pressure them into sexual activity by doing things like threatening to end their relationship, threatening to spread rumors about them, or wearing them down by repeatedly asking for sex or showing that they were unhappy. Among those who reported experiencing at least one form of IPV, 19.5% reported experiencing more severe or frequent IPV and 55.7% reported being about the same since the beginning of the COVID-19 crisis.

Factors Associated with IPV Victimization During the COVID-19 Pandemic

In multinomial model, SMM aged 18 to 24 were more likely to report experiencing IPV during the COVID-19 pandemic and experiencing more severe/frequent IPV since the pandemic began (Table 3**).** Compared to SMM categorized as being lower socioeconomic status group, those who were in lower middle and upper middle were less likely to experience IPV. However, those who categorized as being in the upper socioeconomic group were more likely to say that their experience of IPV had increased relative to not experiencing IPV. In terms of relationship status, SMM who reported being in more than one relationship or being separated but living together were more likely to say that they experienced IPV and experienced more severe/frequent IPV since the pandemic began. In addition, those who identified as ethnic minority were also more likely to say that they experienced IPV and experienced more severe/frequent IPV.

Experiencing IPV and more severe and frequent IPV since the pandemic began were also associated with psychological and structural vulnerabilities – SMM who reported having engaged in sex work were more likely to say they experienced IPV during the pandemic (RRR = 1.74, 95%CI:1.14–2.06) and more likely to say that they experienced more severe/frequent IPV (RRR = 2.71, 95%CI: 2.04–3.69) relative to not experiencing IPV. Similarly, SMM who reported having an income reduction of more than 20% and cutting meals since the COVID-19 crisis started were more likely to say their IPV experiences were more severe or frequent relative to not experiencing IPV (RRR = 1.60, 95%CI: 1.21–2.10). SMM who reported cutting meals during the pandemic also were more likely to report experiencing IPV and experiencing more/frequent IPV relative to not experiencing IPV. Besides, SMM who reported increase

Table 2 Each form of intimate partner violence victimization and polyvictimization

	n (%)
Each form of IPV victimization	
A partner has slapped, punched, kicked, or shoved them	835 (8.9%)
A partner choked, strangled, or suffocated them or threatened them with a weapon: or used a knife or gun to hurt them	166 (1.8%)
A partner had physically forced them to have sexual intercourse or do something sexual when they did not want to	511 (5.4%)
A partner pressured them into sexual activity by doing things like threatening to end their relationship, threatening to spread rumors about them, or wearing them down by repeatedly asking for sex or showing that they were unhappy	717 (7.6%)
Experience at least one form of IPV	1602 (17.0%)
Experience polyvictimization	*445 (27.8%)*
Changes in experiencing IPV victimization during the COVID-19 crisis*	
More severe or frequent	299 (19.5%)
About the same	858 (55.7%)
Less than before	383 (24.9%)

*did not add up to 100% due to missing data

Table 3 Multinomial logistic regression examining factors associated with more severe or frequent IPV during the COVID-19 pandemic and did not experience IPV among sexual minority men

	Experienced IPV during the COVID-19 but not more severe/frequent RRR (95%CI)	More severe or frequent IPV during the COVID-19 pandemic RRR [95%CI]
Age		
18–24	Ref	Ref
25–34	**0.78 [0.64, 0.94]**	0.93 [0.66, 1.32]
35–44	**0.60 [0.49, 0.74]**	**0.60 [0.41, 0.90]**
>45	**0.39 [0.30, 0.49]**	**0.40 [0.24, 0.66]**
Socioeconomic status		
Lower	Ref	Ref
Lower middle	**0.76 [0.62, 0.94]**	0.81 [1.11, 1.68]
Upper middle	**0.72 [0.57, 0.91]**	0.82 [1.17, 1.84]
Upper	0.84 [0.59, 1.22]	**2.32 [1.33, 4.06]**
Education level		
Lower than college	Ref	Ref
College and above	1.12 [0.98, 1.29]	1.08 [0.83, 1.40]
Sexual orientation		
Gay	Ref	Ref
Bisexual	1.00 [0.85, 1.20]	**0.66 [0.45, 0.97]**
Others	1.06 [0.85, 1.34]	0.96 [0.62, 1.47]
Employment status		
I am currently employed or on paid leave	Ref	Ref
Unemployed before or because of COVID-19 crisis	1.10 [0.91, 1.32]	0.95 [0.68, 1.33]
Student	0.88 [0.67, 1.13]	0.99 [0.62, 1.57]
Retired	0.90 [0.55, 1.44]	0.46 [0.11, 1.92]
Unable to work due to a disability	0.65 [0.28, 1.53]	1.11 [0.35, 3.61]
Others	0.96 [0.73, 1.26]	0.74 [0.42, 1.32]
Relationship status		
Single	Ref	Ref
Married or registered relationship	1.15 [0.90, 1.46]	1.12 [0.68, 1.85]
In a non-registered relationship	**1.20 [1.01, 1.42]**	1.22 [0.86, 1.73]
In more than one relationship	**1.99 [1.39, 2.86]**	**2.85 [1.55, 5.27]**
Separated, but living together	**2.50 [1.48, 4.21]**	**4.17 [1.94, 8.96]**
Widowed	1.40 [0.79, 2.49]	1.54 [0.50, 4.77]
Other	0.99 [0.68, 1.44]	1.37 [0.71, 2.63]
Engaged in sex work	**1.74 [1.146, 2.06]**	**2.71 [2.04, 3.60]**
HIV positive	1.16 [0.97, 1.39]	0.98 [0.68, 1.42]
Ethnic minority	**1.32 [1.12, 1.55]**	**1.83 [1.39, 2.42]**
Living with disability	1.11 [0.87, 1.40]	**1.54 [1.06, 2.24]**
Income reduction for more than 20%	1.14 [0.99, 1.32]	**1.60 [1.21, 2.10]**
Cut meal	**1.56 [1.32, 1.84]**	**2.27 [1.66, 2.99]**
Cannot cover basic needs well	1.02 [0.88, 1.19]	1.04 [0.77, 1.40]
Alcohol misuse	1.07 [0.93, 1.23]	0.99 [0.75, 1.32]
Increased alcohol use during the COVID-19 crisis	1.06 [0.89, 1.78]	1.32 [0.96, 1.83]
Increase tobacco use during the COVID-19 crisis	**1.27 [1.07, 1.50]**	**0.78 [0.66, 0.92]**
Increase cannabis use during the COVID-19 crisis	1.21 [0.91, 1.61]	1.46 [0.93, 2.30]
Psychological distress (PHQ-4 > 3)	**1.60 [1.39, 1.84]**	**2.27 [1.66, 0.72]**
Received counseling service	**1.20 [1.06, 1.40]**	1.10 [0.84, 1.42]
Met a sexual partner through gay social networking app	**1.60 [1.05, 1.37]**	**1.65 [1.29, 0.94]**
Increased time in using social networking app	**1.20 [1.40, 1.84]**	1.03 [0.80, 1.34]

Multinomial logistic regression adjusted for World Band regions; Bold texts suggest statistically significant

tobacco use during the COVID-19 crisis were more likely to say that their experience of IPV victimization relative to not experiencing (RRR = 1.27, 95%CI: 1.07–1.50). Similarly, those who screened positive for psychological distress were more likely to say their IPV experiences were more severe or frequent relative to not experiencing IPV (RRR = 2.27, 95%CI: 1.66, 2.72). Those SMM having received counseling services were more likely to say that they experienced IPV victimization relative to not experiencing IPV. Lastly, SMM who reported having met a sexual partner through GSN apps were more likely to say that they experienced IPV and experienced more severe/frequent IPV relative to not experiencing IPV. Those who reported increased time using GSN were more likely to say they experienced IPV victimizations relative to not experiencing IPV (RRR = 1.20, 95%CI: 1.40–0.84).

Discussion

The results of this study suggest a high proportion of SMM recruited online around the globe reported experiencing IPV victimization since the COVID-19 crisis began. We found that nearly 1 in 6 SMM in our sample reported experiencing at least one form of IPV victimization within 6 months before the survey was conducted, which corresponds with most of the lockdown measures implemented after the WHO declared a global public health emergency (Cucinotta & Vanelli, 2020). This rate is about the same as the reported IPV victimization among male couples in the U.S. since the pandemic began (Walsh et al., 2021). The most common form of IPV reported was being slapped, punched, kicked, or shoved by a partner and being pressured into sexual activity by doing things like threatening to end their relationship, threatening to spread rumors about them, or wearing them down by repeatedly asking for sex or showing that they were unhappy. Importantly, nearly a quarter of those who reported experiencing IPV victimization said they were experiencing more severe or frequent IPV since the pandemic started. These results add evidence to the literature suggesting that SMM are at elevated risk of experiencing IPV victimization during the global COVID-19 pandemic (Stephenson et al., 2021; Walsh et al., 2021). In addition, a large proportion of participants in our study were from countries and areas where sexual and gender minority identities were highly stigmatized, and the anti-LGBT and homophobic policies and movements in these settings may also increase the vulnerability of becoming of the target of sexual and gender based violence (Buyantueva, 2018; Martsenyuk, 2012; Ridwan & Wu, 2018). Public health measures and COVID-related responses could add additional barriers to help-seeking among victims of IPV. Future prevention efforts should consider culturally specific intervention programs targeting these populations.

Consistent with data collected prior to the pandemic (Finneran & Stephenson, 2013; Wang et al., 2018), SMM in our sample who were younger, and of lower socioeconomic status were more likely to report having experienced recent IPV victimization. SMM who were from upper socioeconomic status were experiencing more severe or frequent IPV in our study, which was different than previous studies (Finneran & Stephenson, 2013; Pantalone et al., 2012). While the reason for this association is unclear, it is plausible that those SMM were responsible for supporting their families with their income or in their relationship and potential significant income reduction may lead to IPV from their partners. Previous research suggest that financial strain adds to family stress and feelings of frustration, which may create an environment that is easy to trigger violence (Barnawi, 2017), and income reduction was highly correlated with socioeconomic status in our sample. Our finding also supports our hypothesis that ethnic minority SMM in our sample were more likely to report experiencing IPV victimization during the pandemic, which is consistent with previous findings in the U.S. (De Santis et al., 2014). Future global research should intentionally measure the intersectional minority stressors among ethnic minority SMM and examine their impact on health outcomes among these populations. We also found the association between increased tobacco use during the pandemic, psychological distress, and IPV victimization, which is consistent with another study on IPV among an online sample of SMM in the U.S. (Stephenson et al., 2021). These associations might be explained by the mechanism that individuals experiencing IPV use smoking as a coping strategy and the trauma and stress from victimization may lead to psychological distress. These findings provide evidence of the need to provide integrated IPV screening and counseling services in mental health and substance use and harm reduction setting. This is particularly important given that SMM reported experiencing increased psychological distress and substance use around the globe (Hong et al., 2022; Javanbakht et al., 2022). Our results suggest that increased structural vulnerabilities such as cutting meals, income reductions, and being unable to cover basic needs since the COVID-19 pandemic began were associated with IPV victimization. In addition, having engaged in sex work was also positively associated with IPV victimization. Due to changes in employment status, income reduction, food insecurity, survival sex may have become a necessity for SMM during the pandemic, which may in turn increase the vulnerability of experiencing IPV. These findings confirmed the multilevel factors that

put SMM at risk of IPV victimization and suggested that preventing violence should consider the social-ecological approach that addresses multilevel factors that contribute to IPV victimization (Centers for Disease Control and Prevention, 2015).

We also found that IPV victimization was associated with meeting a sexual partner through a GSN app. The reason for this association is unclear and future qualitative research could further elucidate the reasons behind this association. In addition, while we found that increased usage of GSN apps was associated with the increased risk of IPV victimization, and may have important implications in terms of service delivery. Given the limited understanding and research about men, especially SMM, seeking help in the context of IPV (Fu et al., 2020; Morgan et al., 2014, 2016), our findings may have implications for social-networking apps, which may serve as a platform to deliver confidential and safe IPV help-seeking services and an emergency reporting tool among SMM who are experiencing IPV. This is particularly important given that sexual and gender minority populations prefer to disclose their IPV victimization to informal support such as friends and coworkers (McClennen et al., 2002). Online platforms and communities on GSN apps may provide initial support to those individuals. A recent qualitative study also suggested that the use of mobile and web-based apps has the benefit of supporting survivors of violence and preventing future violence (Voth Schrag et al., 2022). Given the high prevalence of IPV victimization among SMM, programs aiming to promote formal and informal help-seeking behaviors among IPV victimization survivors should consider adapting and integrating programs into GSN apps. This could be particularly promising during the global COVID-19 pandemic when most individuals are required to keep social distancing and have reduced in-person interactions and support.

There are several limitations to the current study. First, although we asked the participants whether they had experienced more severe or frequent IPV victimization, the survey did not assess whether these were new instances of IPV victimization during the pandemic. Notably, Stephenson et al. (2021) found that among GBMSM who experienced IPV during the pandemic, half of them experienced IPV for the first time. Secondly, IPV victimization was not assessed using standardized measurement tools, such as the gay and bisexual intimate partner violence (IPV-GBM) scale. Hence, our IPV measures should be interpreted with this limitation in mind. In addition, only active users of a GSN app were recruited to participate in this survey, therefore the generalizability of our findings to SMM who do not use the GSN app and who have limited access to the internet is unknown. Lastly, recall bias and social desirability may influence participants' ability to report their previous victimization.

Conclusion

This study among a global sample of sexual minority men found that a high proportion were experiencing IPV during the global pandemic and a considerable amount of them reported experiencing more severe or frequent IPV victimization. Increased economic and structural vulnerabilities during the COVID-19 crisis may increase the risk of IPV victimization and further exacerbate the health disparities among SMM. New technologies such as gay-social networking apps may have the potential to deliver confidential and safe IPV screening and service resources.

Acknowledgements We would like to thank our participants who volunteered their time. We also thank Alex Avendaño for copyediting the manuscript.

Declarations

Conflict of Interest All authors do not have any conflicts of interest to disclose.

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