



Sex Workers and Syndemics: A Population Vulnerable to HIV and COVID-19

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Abstract

COVID-19 has disproportionately affected vulnerable populations across the U.S. Street-based sex workers are one vulnerable population whose health and impact of COVID-19 have been understudied to date. The goal of this study was to evaluate findings from a community needs assessment with street-based sex workers on impact of COVID-19 on health behaviors and social circumstances. A brief survey was developed at a community-based harm reduction and recovery services organization. Surveys were administered by peer specialists to street-based sex workers during street outreach in April and May 2020. A total of 46 surveys were analyzed. Many individuals reported continuing to do sex work and use substances during the COVID pandemic. Slightly more than a quarter of individuals ($n = 13$; 28.3%) indicated using personal protective equipment while doing sex work and described challenges to using precautions when working with clients. Individuals had used marijuana ($n = 32$, 71.1%), cocaine ($n = 17$, 39.5%), prescription stimulants ($n = 9$, 21.4%), methamphetamines ($n = 5$, 11.9%), prescription opioids ($n = 12$, 27.3%), street opioids ($n = 12$, 27.3%), sedatives ($n = 11$, 25.0%), hallucinogens ($n = 3$, 6.8%), inhalants ($n = 3$, 7.0%), or some other substance ($n = 4$, 8.7%) in the past 30 days. About half (48.8%) reported that COVID-19 had a major impact on their lives. This study is among the first to characterize the impact of COVID-19 on street-based sex workers. From a public health standpoint, this group also represents a high-priority population given their vulnerability and close contact with others, which increases the potential for community spread.

Keywords COVID-19 · Street-based sex workers · HIV · Syndemics

Introduction

Severe acute respiratory syndrome 2 (SARS-CoV-2), which is the virus responsible for coronavirus disease 2019 (COVID-19), is a public health issue of the highest magnitude, affecting diverse populations around the globe. To date, there have been over 95 million positive cases and approximately 2.06 million confirmed deaths worldwide (World Health Organization, 2020), and 24.1 million positive cases and over 400,300 confirmed deaths in the U.S. (Centers for Disease Control and Prevention, 2020a, f). Notably, there have been significant health disparities in COVID-19 morbidity and mortality that reflect social determinants of health, biases in our medical system, and interacting forms of social marginalization leading to a higher reported number of cases among racial/ethnic minorities (Centers for Disease Control and Prevention, 2020e) and communities with fewer resources or are

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otherwise marginalized including people who report substance use (Walters et al., 2020b).

These disparities are likely due to population density of these neighborhoods, lower access to primary care, and social disadvantages that make it more challenging to engage in social distancing. Social inequities have exacerbated these disparities, as these communities are also more likely to experience job loss and resulting unemployment (Kantamneni, 2020), grief associated with loss due to the virus, and associated emotional impacts including shock, disbelief, anger, and sadness (Centers for Disease Control and Prevention, 2020c).

There have also been increased mental health and psychosocial problems resulting from loss of employment, other personal loss, and restricted access to social support (Pfefferbaum & North, 2020). Among people who use substances, there have been unique challenges posed by the pandemic including access to safe drug supply, clean needles and harm reduction supplies, and opioid substitution treatment (Vasylyeva et al., 2020). One subpopulation of individuals at high risk of poor COVID-19 health outcomes, but rarely acknowledged, includes people who trade sex for money, goods, or other services (Platt et al., 2020; Singer et al., 2020; Vasylyeva et al., 2020). Broadly, this includes individuals who engage in commercial sex work, transactional or exchange sex, and survival sex, who will be referred to as “sex workers” and/or “street-based sex workers” throughout the rest of the manuscript.

Syndemics theory recognizes that “epidemics” create a “synergy” that places individuals at risk of multiple health and social conditions (Singer et al., 2017; Singer & Clair, 2003). Applied to the current population and COVID-19, syndemics theory can be used as a lens to understand the multiple forms of structural and social disadvantage that affect street-based sex workers and their risk of COVID-19 exposure and acquisition. According to syndemics theory, social conditions create a set of circumstances that make individuals more vulnerable to various health conditions and worse health behaviors. Syndemics theory posits that co-occurring epidemics work synergistically to place marginalized individuals at risk for multiple health and social conditions. With COVID-19, we have already seen the ways in which the disease has traveled from those with relative privilege (e.g., individuals who traveled overseas for vacation, doctors in hospitals) to those with relative disadvantage (e.g., underserved minorities, people with mental illness, people who use drugs).

Individuals with multiple marginalized identities are more likely to experience a range of health conditions resulting from structural disadvantage and discrimination including worse mental health and quality of life (Seng et al., 2012). Sex workers represent a vulnerable population for myriad

health conditions with notable systemic inequities which perpetuate disadvantage, including for COVID-19 (Brennan et al., 2012; Kantamneni, 2020). Interestingly, societal patterns emerging throughout the world suggest that COVID-19 may not be just pandemic, but rather a syndemic as well, as it is interacting with social forces and systematically causing more harm to those with less advantage (Horton, 2020).

Several commentaries have attempted to raise awareness around the potential impact of COVID-19 on street-based sex workers; however, the impact of COVID-19 on this population is still unknown (Platt et al., 2020; Singer et al., 2020). With respect to other conditions of public health significance, street-based sex workers have higher rates of HIV/STIs, substance use disorders, and mental health conditions (Bauermeister et al., 2017; Biello et al., 2014; Puri et al., 2017). This population also experiences a disproportionate number of social factors that affect health including trauma, poverty, homelessness, and substance use (Biello et al., 2014; Henny et al., 2007; Surratt & Inciardi, 2004; Walters et al., 2020a). For example, preliminary data from the state of Rhode Island and the country show increases in substance use severity across all substances and increases in overdoses and overdose-related deaths as a result of COVID-19 (Czeisler et al., 2020; Rhode Island Department of Health, 2020; Silva & Kelly, 2020); and, anecdotally, this has directly impacted the lives of sex workers since the start of COVID-19. These health disparities are synergistic and best understood through a syndemics lens whereby street-based sex workers are more vulnerable to these conditions as a result of societal marginalization, lack of access to health care, and stigma.

Recent publications have documented the impact of COVID-19 on vulnerable populations including ethnic/racial minorities (Centers for Disease Control and Prevention, 2020e; Kantamneni, 2020), persons experiencing homelessness (Amaral, 2020; Centers for Disease Control and Prevention, 2020b, d), and individuals who use substances (Silva & Kelly, 2020); however, few have been published on individuals who engage in exchange sex and sex work specifically. This population is a high-needs demographic that is overrepresented in homelessness and minority populations (Platt et al., 2020). A few studies have examined the impacts of COVID-19 on sex work internationally (Callander et al., 2021; Kimani et al., 2020); however, to our knowledge, there has not been a COVID-19 paper published on individuals who engage in exchange sex or sex work in the U.S. despite the fact that this population often experiences multiple co-occurring conditions, including trauma, poverty, homelessness, and substance use. To address this gap, the current study examined the impact of COVID-19 on sexual behavior, substance use, access to services, and quality of life for sex workers in a small U.S. city.

Method

Participants

These data were collected as part of a needs assessment conducted in collaboration with a local community-based organization (CBO) in New England that provides harm reduction services to individuals who use substances and engage in sex work. The needs assessment was collected by the CBO to determine how to best meet the needs of sex workers during the pandemic. All clients of the CBO who were 18 years of age or older were eligible to complete this survey. Participants were recruited primarily during community outreach and in-person visits to the CBO.

Procedure

Data were collected between April and May 2020 by CBO staff. Peer specialists explained the risks and benefits of participating, the voluntariness of the survey, and that data would not be linked back to anyone personally because it was being collected without their name or other identifying information. Peer specialists also informed individuals completing the survey that information would be shared with researchers and other stakeholders in the community who may be able to raise awareness about some of these issues. All participants verbally consented to complete the survey. Surveys did not include identifying information or protected health information.

After obtaining consent, staff administered the survey orally to participants in English. Surveys were administered either in-person employing social distancing and infection control measures in the community during outreach events, indoors at the CBO location, outdoors on the CBO property, or over the telephone.

A total of 46 surveys were analyzed. Participants were compensated with a five dollar gift card for a local convenience store chain or fast food restaurant. The Miriam Hospital Institutional Review Board provided a waiver of consent and approved the study methods to retrospectively review and analyze deidentified data for research purposes.

Measures

Surveys included questions about demographic information (participants' age range, race, ethnicity, gender, gender identity, sexual orientation, and current housing status), as well as questions about frequency of substance use and sexual behavior in the past 30 days and whether there were changes due to the COVID-19 pandemic. Participants were also asked if they were using personal protective equipment (PPE) to protect

themselves and/or their clients while participating in sex work, such as use of face masks or gloves. Participants were asked open-ended questions verbally including "How has COVID-19 changed how you have sex or otherwise engage with clients?" and "Is there anything else you would like to share with us about how your life has changed as a result of COVID-19? This can include changes in access to services, jobs, housing, food, or other needs; changes in your relationships; and, changes in your own mood or thinking. Please feel free to share openly about how your life has been affected."

Data Analysis Plan

Quantitative data analysis. Data were analyzed using SAS version 9.4 (SAS Institute, Cary, NC). The number of individuals and percentage of the sample providing specific responses was obtained using the PROC FREQ procedure.

Qualitative data analysis. Qualitative data were analyzed descriptively by two raters (K.N. & A.P.) and a third rater reviewed codes and rated to agreement (B.G.R.). Domains were identified based on reported behaviors, which included stopping sex work or engaging in online sex work and the impacts of COVID-19 on life circumstances, such as employment and housing. Each survey answer was assigned to one or more domains, and the number of responses in each domain was calculated. Exemplary quotes were selected to represent each domain for this paper.

Results

Quantitative Findings

A total of 50 individuals completed the needs assessment, and $n = 46$ were available for analysis. Participants were incredibly diverse and ranged in age from 18 to over 55 and represented multiple racial groups (48.8% White; 37.2% Black; 2.3% Asian; 10.9% mixed/multiple), ethnicities (23.9% Hispanic), genders (50.0% men, 30.4% women, 13.0% transwomen, 2.2% transmen), and sexual orientations (66.7% heterosexual, 4.4% gay, 15.6% bisexual, 13.3% queer and other identities). Most individuals were homeless and or marginally housed (63.0%). For additional details about the sample, see Table 1.

Sexual behaviors in the past 30 days (reported as individuals endorsing each) included anal sex insertive ($n = 7$, 15.2%) and receptive ($n = 10$, 21.7%) and vaginal sex insertive ($n = 16$, 34.8%) and receptive ($n = 10$, 21.7%). When data were aggregated, within the past 30 days, individuals reported 144 total anal or vaginal sex partners and 30 of these partnerships did not use condoms. The median of sexual partners was two (range 0–30), and the median number of condomless sex partners was zero (range 0–3). However,

Table 1 Participant characteristics ($N=46$)

	<i>N</i>	%
Age		
18–24	3	6.7
25–34	23	51.1
35–44	10	22.2
45–54	8	17.8
55+	1	2.2
Race		
White	21	48.8
Black	16	37.2
Asian	1	2.3
Multiple/mixed	5	10.9
Ethnicity		
Non-Hispanic	35	76.1
Hispanic	11	23.9
Gender identity		
Man	23	50.0
Woman	14	30.4
Transwoman	6	13.0
Transman	1	2.2
Non-binary	2	4.4
Sexual orientation		
Heterosexual	30	66.7
Gay	2	4.4
Bisexual	7	15.6
Queer and other identities	6	13.3
Living situation		
Homeless and/or marginally housed	29	63.0
Rent an apartment/house (alone or with others)	12	26.1
Drug treatment, rehabilitation facility, or residential living (e.g., sober housing)	4	8.7
Client did not answer	1	2.2

there were a number ($N=13$) who did not endorse of any insertive or receptive anal or insertive or receptive vaginal sex partners in the past 30 days. The use of condoms did vary by type of sex. However, the numbers are too small to draw any meaningful conclusions. See Table 2 for more details.

We also examined condom use (0 = never wore condoms; 1 = wore condoms at least some of the time) by PPE use during sex (0 = never; 1 = has worn mask or gloves) ($N=44$; there were two missing responses). We found that of the eight individuals who wore PPE while doing sex work, three (37.5%) reported no use of condoms, while the remaining five (62.5%) reported using condoms at least some of the time. Of those ($N=36$) individuals who did not wearing PPE during sex, a similar number did not use condoms ($n=17$; 47.22%) as did use condoms ($n=19$; 52.78%). Additional details on the frequency of sex, use of condoms, and use of PPE are reported in Table 2.

Individuals reported a wide range of substances used during the past 30 days including marijuana ($n=32$, 71.1%), cocaine ($n=17$, 39.5%), prescription stimulants ($n=9$, 21.4%), methamphetamines ($n=5$, 11.9%), prescription opioids ($n=12$, 27.3%), street opioids ($n=12$, 27.3%), sedatives ($n=11$, 25.0%), hallucinogens ($n=3$, 6.8%), inhalants ($n=3$, 7.0%), or some other substance ($n=4$, 8.7%). Additional details on the frequency of use are reported in Table 2.

Approximately 40% of the sample reported that their sexual behavior ($n=19$, 41.3%) and substance use ($n=18$, 39.1%) “stayed the same.” Others reported a decrease in the number of partners: “a lot fewer” ($n=10$, 21.7%) or “somewhat fewer” ($n=12$, 26.1%) partners. Changes in substance use were more varied as there were just as many individuals indicating increased use as reporting decreased use (Table 3). Additional details about changes in sexual behavior and substance use due to COVID-19 are shown in Table 3.

Qualitative Findings

Changes in Sex Work Several domains emerged as important themes in the practice of sex work during COVID-19. For many, there had been no reported changes to their sex work behavior. When asked about how COVID-19 impacted sex work, these individuals simply responded “it hasn’t.” One individual expanded on that idea and said, “It hasn’t because I’m young and healthy. I don’t want to harm elderly people.” This indicates that perhaps some thought and decision-making was going into selection of sexual partners and choosing older partners was a concern for spreading the virus. For others, they reported a reduced number of clients either by their own choice, by their “regular” clients’ choices, or by lack of available new partners. For example, one individual indicated making a choice to cut down on partners, “Have cut down on partners because of stay at home order” and another indicated, “sex work is very slow.” For some, cutting down was not enough, and they decided to become celibate or completely stop sex work. Several individuals stated that they had completely stopped doing sex work during COVID-19 due to their fears of becoming sick. Many indicated they were “at risk” of COVID-19 based on their HIV status and/or were concerned that doing sex work would make them vulnerable to illness. Of note, it is possible that for some individuals this was already part of their goals. For these individuals, COVID-19 was an additional source of motivation. For those who chose to continue doing sex work, some attempted to implement precaution measures including the use of personal protective equipment or other strategies. One individual noted a “no kissing” rule with clients. Another individual stated, “I’ve had to come up with creative ways to stay safe (made sexy face masks).” Finally, one individual noted a transition to online sex work, “Doing sex work online via video instead of in person” as a way to protect their own

Table 2 Substance use and sexual behavior frequencies ($N=46$)

<i>Substance use</i>	<i>N</i>	<i>%</i>
Cannabis	32	71.1
< 1 per month	2	4.4
1–3× per month	5	11.1
1–3× per week	4	8.9
4–6× per week	6	13.3
Every day	15	33.3
Cocaine	17	39.5
< 1 per month	0	0.0
1–3× per month	4	9.3
1–3× per week	1	2.3
4–6× per week	4	9.3
Every day	8	18.6
Prescription stimulants	9	21.4
< 1 per month	1	2.4
1–3× per month	7	16.7
1–3× per week	0	0.0
4–6× per week	0	0.0
Every day	1	2.4
Methamphetamines	5	11.9
< 1 per month	1	2.4
1–3× per month	1	2.4
1–3× per week	1	2.4
4–6× per week	0	0.0
Every day	2	4.8
Prescription opioids	12	27.3
< 1 per month	1	2.3
1–3× per month	0	0.0
1–3× per week	0	0.0
4–6× per week	1	2.3
Every day	10	22.7
Street opioids	12	27.3
< 1 per month	1	2.3
1–3× per month	1	2.3
1–3× per week	2	4.5
4–6× per week	0	0.0
Every day	5	11.4
Sedatives	11	25.0
< 1 per month	1	2.3
1–3× per month	4	9.1
1–3× per week	3	6.8
4–6× per week	1	2.3
Every day	2	4.5
Hallucinogens	3	6.8
< 1 per month	2	4.5
1–3× per month	1	2.3
1–3× per week	0	0.0
4–6× per week	0	0.0
Every day	0	0.0
Inhalants	3	7.0
< 1 per month	1	2.3

Table 2 (continued)

<i>Substance use</i>	<i>N</i>	<i>%</i>
1–3× per month	1	2.3
1–3× per week	0	0.0
4–6× per week	1	2.3
Every day	0	0.0
Other substance	4	8.7
<i>Sexual behavior (number of people)</i>		
Did not use condoms with $n \geq 1$ sexual partner	20	45.5
Endorsed use of PPE during sex work	13	28.3
Face mask	8	17.4
Gloves	5	10.9
Anal sex insertive/top	7	15.2
Anal sex insertive/top; no condom	3	6.5
Anal sex insertive/top with HIV + partner	0	0.0
Anal sex insertive/top with partner on PrEP	1	2.2
Anal sex receptive/bottom	10	21.7
Anal sex receptive/bottom; no condom	1	2.2
Anal sex receptive with HIV + partner	0	0.0
Anal sex receptive with partner on PrEP	1	2.2
Vaginal sex insertive/top	16	34.8
Vaginal sex insertive/top; no condom	11	23.9
Vaginal sex insertive/top with HIV + partner	0	0.0
Vaginal sex insertive/top with partner on PrEP	0	0.0
Vaginal sex receptive/bottom	10	21.7
Vaginal sex receptive; no condom	6	13.0
Vaginal sex receptive with HIV + partner	0	0.0
Vaginal sex receptive with partner on PrEP	0	0.0

health and health of others. Overwhelmingly, many individuals expressed concern for themselves and for fellow street-based sex workers due to COVID-19 and were trying to adapt to their new reality, as one individual stated, “My fear of COVID has scared me out of relapse. If I go back out there to do sex work during this, I will probably die. Worry about the girls still out there” (Table 4).

Impact on Other Areas of Life Respondents identified significant challenges at structural, social, and individual levels when asked about how COVID-19 had impacted other areas of their lives. With regard to structural challenges, individuals noted more difficulty accessing services, transportation, employment/income, housing, and food. Generally, regarding access to services, an individual noted difficulty with applying for state-based services, “cannot apply for food stamps and RI state ID because registry is closed.” With regard to transportation, many rely on public transportation, and noted that these services had changed, “The city buses

Table 3 Changes due to COVID-19 ($N=46$)

	<i>N</i>	%
COVID-19 impact		
No impact	4	8.7
Minor impact	7	15.2
Moderate impact	11	23.9
Major impact	21	45.7
No response	3	6.5
Partner changes		
A lot fewer	10	21.7
Somewhat fewer	12	26.1
Stayed the same	19	41.3
Somewhat more	1	2.2
A lot more	1	2.2
No response	3	6.5
Substance use changes		
A lot less	6	13.0
Somewhat less	5	10.9
Stayed the same	18	39.1
Somewhat more	5	10.9
A lot more	4	8.7
No response	8	17.4

are not accepting you without a face mask.” With regard to employment and income, individuals felt somewhat helpless as alternatives to sex work were closed and (as noted above) sex work was limited. As one client noted, “I never imagined anything completely shutting down the industry I work in.” Housing was also a difficulty as many housing programs had restricted access, reduced capacity, and/or clients were concerned about trying to get into shared housing environments for fear they would become infected with COVID-19. Others indicated they were forced to live at home with family and the issues that were causing distress, “I am very unstably housed and being quarantined with family has been awkward for me.” Because many in the sample are unstably housed,

food access also became an issue during this time. Many rely on churches or local community organizations providing food on set schedules, but with the pandemic these services were reduced or stopped completely. Many indicated there were needs for additional food services, for example, one individual stated, “There needs to be more places for homeless people to get food.” Clients also noted reduced social connections including personal relations. One client noted, “I don’t see my family as much as I used to.” Another specifically pointed out the challenges of being in early recovery and reduced recovery support due to COVID-19, “Being in early recovery, it’s hard to access meetings and support systems.” Although only one individual specifically mentioned this limitation, anecdotally, peer specialists shared that this was a more common occurrence and there was frustration among clients about their ability to attend in-person support through 12-step meetings, which many perceive is key to their recovery from substances. Finally, not surprisingly, many individuals noted that in addition to reduced access to services and social connection, they were experiencing worsened mental health and increased substance use. Individuals noted increases in mental health symptoms including depressive, anxious, and psychotic symptoms like delusions and paranoia. For example, one individual noted “worse mood, more paranoia and delusions” and another noted “Isolation has been a trigger for depression and anxiety.” Others noted these increases in worsening mental health symptoms interacted with their increased use of substances. Many expressed that their existing mental health and substance use issues were exacerbated by fears of getting COVID-19. For this population, it is extremely difficult to avoid potential exposures given marginalized housing, sex work, and existing health conditions including HIV. For example, one individual noted, “Makes it more concerning doing sex work. Already have a compromised immune system.” Finally, through all of these challenges, there were expressions of resilience. As one client noted, “I’m just grateful to be alive and staying safe as much as possible” (Table 5).

Table 4 Impact of COVID-19 on sex work

Domain	Example quote
No change (in sex work)	“It hasn’t because I’m young and healthy”
Reduced number of clients	“Sex work has been extremely slow and strip clubs where I normally work to find clients is closed.” “Have to cut down on partners because of stay-at-home order.” “One ‘regular’ has chosen to wait until the end of COVID-19 to meet up.”
Stopped sex work	“Not engaging in sex work due to COVID-19.” “My fear of COVID has scared me out of relapse. If I go back out there to do sex work during this, I will probably die. Worry about the girls still out there.”
Implement precaution measures	“I’ve had to come up with creative ways to stay safe (made sexy face masks).” “No kissing.” “Scared to see clients who don’t want me to wear PPE.”
Online sex work	“Doing sex work online via video instead of in person.”

Discussion

Our study evaluated the impact of COVID-19 on the lives of street-based sex workers in the U.S. In the open-ended questions, many respondents expressed concerns about the possibility of transmission and the challenges posed by wearing personal protective equipment or practicing social distancing guidelines while trying to support themselves financially. The number of total sex acts also indicates there were many episodes of close, interpersonal contact, which is a known risk factor for COVID-19 transmission. While we did not ask about the frequency of use of PPE, the low number of persons using PPE suggests that several of these encounters had the potential for COVID-19 transmission.

In addition to potential risk of COVID-19 transmission, there was also potential for HIV transmission, as only half of the sample endorsed using condoms during sex. Interestingly, when we examined condom use by PPE use, we found that at least three individuals who had not used condoms were using PPE during sex, suggesting that for those individuals COVID-19 might have posed a more salient health risk than STIs/HIV. These findings suggest that in addition to COVID-19 transmission, there was also the possibility of STI or HIV transmission, a dual model of risk. To our knowledge, we are the first to report on the use of PPE or other precaution measures (e.g., no kissing, reduction of partners) taken by street-based sex workers during COVID-19.

Syndemics theory posits that co-occurring social epidemics create a synergy that places individuals at risk of disease (Singer et al., 2017; Singer & Clair, 2003) and has primarily been used to describe the forces that place individuals at increased risk of STIs and HIV (Singer, 1994; Singer et al., 2006). Our data are interpreted through this lens, recognizing that behaviors such as condomless sex and poor adherence to social distancing are influenced by larger structural and social systems that affect individual behavior. From the syndemics lens, our data indicate that multiple, co-occurring risk factors (homelessness, food insecurity, mental health problems, substance use disorders, and STIs/HIV) place street-based sex workers at higher risk of COVID-19 and associated social impacts.

The syndemics framework clarifies how multiple factors are also associated with increased risk of COVID-19. Street-based sex workers often operate at the margins of society and experience multiple, syndemic conditions including homelessness, hunger, poverty, substance use, and mental health issues (Bauermeister et al., 2017; Biello et al., 2014; Parsons et al., 2018; Walters et al., 2020a). Paradoxically, despite challenges experienced by this group, they are often forgotten in the identification of vulnerable communities and not considered in relief programs (Platt et al., 2020).

We also recognize that in addition to experiencing multiple co-occurring syndemic conditions, identity as a sex

worker likely also intersects with other unique identities including race, gender, and sexual orientation, all of which impact the ability to navigate through society with relatively more ease or difficulty. Our sample of street-based sex workers was incredibly diverse with regard to sex, gender, ethnicity, and race; and, although our sample is not large enough to compare groups and find significant differences, we may expect that individuals' intersectional identities might differentially impact how they are affected by COVID-19. This group is also heterogenous with regard to whether they self-identify as sex workers, consider sex work a form of employment, and/or engage in exchange sex only occasionally for money, drugs, or things they may need. We recognize that each of these identities likely intersects with empowerment and perceived control or ability to engage in behaviors to protect their health.

Many individuals in our sample expressed they did not feel they had the power to assert themselves to wear PPE with clients or practice other precautions. Individuals who did not use condoms may have also been affected by similar concerns. The theory of gender and power (Connell, 1987) has been applied to HIV risk among women and posits that individuals may be unable to assert their sexual health needs due to inherent power differences with their sexual partners (Wingood & DiClemente, 2000). Street-based sex workers, regardless of gender identity, often hold less social capital and power than their clients and may similarly struggle with asserting their health needs with regard to wearing PPE to prevent COVID-19 and/or condoms to prevent STIs/HIV.

Our findings that street-based sex workers have been greatly affected by COVID-19 are consistent with work conducted by Callendar et al. (2020) in an international study of male sex workers using an online forum. They reported that COVID-19 impacted the sex industry and reduced the number of individuals entering sex work, obtaining sex work, and engaging in online services instead of in-person as much as possible. However, the study also identified that sex workers with fewer options for other work downplayed the significance of the risks posed by COVID-19 (Callander et al., 2021), suggesting that cognitive dissonance may contribute to justifications of persons who need to expose themselves to COVID-19 to survive. Cognitive dissonance theory (Festinger, 1957) suggests that when individuals notice a discrepancy between their attitudes and behaviors, they are motivated to change one or the other to reduce dissonance or internal conflict. Applied to this situation, when individuals are forced to continue to work in unsafe conditions and potentially expose themselves to COVID-19, they may alter attitudes to perceive this as safer than it is to protect their self-image and reduce dissonance (Fischer et al., 2020).

For street-based sex workers experiencing homelessness, COVID-19 has represented an additional challenge. People who are experiencing homelessness are at a significant

Table 5 Impact of COVID-19 on other areas of life

Domain	Example quotes
Structural	
Access to services	“Cannot apply for food stamps and RI Stated ID because registry is closed.”
Transportation barriers	“The city buses are not accepting you without a face mask.”
Employment/income	“I find myself looking for help for things I thought I would have before. I never imagined anything completely shutting down the industry I work in.” “Can’t find real work”
Housing	“I am very unstably housed and being quarantined with family has been awkward for me.” “Being in a shelter and possibly being exposed to carriers of COVID-19.”
Food access	“There needs to be more places for homeless people to get food.” “Food stamp card was stolen; taking forever to get it back.”
Social	
Reduced social connections	“I don’t see my family as much as I used to.”
Reduced recovery support	“Being in early recovery, it’s hard to access meetings and support systems”
Individual	
Worse mental health	“worse mood, more paranoia and delusions...lonely and depressed”
Substance use	“Depressed, drinking more, cocaine use.”
Fear of getting COVID-19	“I am an at-risk person. Being in a shelter possibly being exposed to carriers of COVID-19.” “Makes it [COVID-19] more concerning doing sex work. Already have a compromised immune system.” “Disabled and at high risk for COVID-19 complications”
Resilience	“I’m just grateful to be alive and staying safe as much as possible”

disadvantage when it comes to preventing infection as they often lack access to regular hygiene and sanitation (Centers for Disease Control and Prevention, 2020d). Many shelters or housing facilities that would normally take new residents declined to do so because of COVID-19, and those that did take in residents often saw outbreaks of COVID-19 due to poor hygiene and close living quarters (Amaral, 2020). Additionally, soup kitchens and religious organizations who provide meals to people experiencing homelessness ceased operations leaving these individuals without sources of food (Tsai & Wilson, 2020).

Access to PPE at the time of data collection globally and locally was limited, and this impacted not only risk of COVID-19 acquisition and transmission during sexual encounters, but also barriers to accessing general services. For example, one participant mentioned that the public bus system was requiring masks, which means that for those individuals without masks who rely on the bus system, they were not allowed to enter. Since data collection, PPE has become much more available and the CBO has also made efforts to distribute PPE to their clients and the larger community of street-based sex workers to ensure that individuals are able to wear masks when accessing public services like transportation.

Several changes have been made to try to address some of the issues identified in this survey to better improve the lives of clients through statewide initiatives, non-profit support, and actions taken at the CBO. These include but are not limited to providing clients with surgical masks during outreach, continued HIV/HCV testing and referrals to

PrEP and other HIV prevention services, delivering basic groceries and food items to clients, and providing clients with cell phones to access various service organizations and make and attend telehealth appointments. These efforts have been useful in addressing the needs of clients and helping improve their quality of life. However, we recognize that systemic challenges that affect street-based sex workers generally, and even more so during COVID-19, will not be ameliorated with small efforts. As such, we hope that dissemination of these findings can be used to raise awareness and increase change at a larger level to address some of these systemic disadvantages that continue to place street-based sex workers at risk of COVID-19 related morbidity and mortality.

Our study was limited by the use of data collection methods employed. Namely, peer specialists administered brief surveys during community outreach. Thus, there were missing data, and a few surveys were lost during the data collection process. However, the use of trusted outreach workers and peer specialists with lived experience through a CBO that works with the population likely also conferred specific benefits including truthful responses and willingness to participate from a population that is often excluded from traditional research on the impact of COVID-19. Our study was also limited by the same factor as all cross-sectional data collection—we are unable to comment on the temporality of associations observed. Finally, we were limited by a small sample size in that we were not able to undergo inferential

statistics to understand more complex relationships between the variables studied.

Conclusions

In conclusion, our study documents the impact of COVID-19 on sex work, substance use, and other areas of life among a group of street-based sex workers utilizing survey data with open-ended qualitative sections. Importantly, we identify street-based sex workers as a population at risk of COVID-19 due to their marginalization from society, as well as life circumstances including relying on shelter housing and close interpersonal interaction with multiple partners to survive. The use of a syndemics framework provides a lens to understand the multiple social circumstances that affect the health of this high-needs population and potentially place them at high risk of COVID-19. We hope these findings serve as a call to action for institutions and communities and national- and state-level funding agencies to identify sex workers as a population of public health importance given the risks implied by the nature of their work and limitations to services, housing, and food which, in turn, places them—and thus the larger community—at greater risk of COVID-19.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10508-021-01940-x>.

Author's Contributions BGR and PAC contributed to the study conception and design. Material preparation was performed by BGR and SHS. Materials were reviewed by CDN, RH, and Project Weber/RENEW staff, and data collection was performed by staff. Analyses were performed by BGR, AP-B, KN, and AY. The first draft of the article was written by BGR, and all other authors reviewed, edited, and provided feedback on versions of the article. All authors read and approved the final article.

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Compliance with Ethical Standards

Conflict of interest There is no potential conflict of interest to report.

Ethics Approval All procedures were approved by The Miriam Hospital Institutional Review Board. The study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent A waiver of written informed consent was obtained from the Institutional Review Board at The Miriam Hospital. The study was a secondary analysis of needs assessment data conducted with partners from a community-based organization that provides harm reduction services to at-risk individuals.

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