

ORIGINAL RESEARCH

Investigating the effects of COVID-19 on global male sex work populations: a longitudinal study of digital data

Denton Callander ^{1,2}, Étienne Meunier ³, Ryan DeVeau,⁴ Christian Grov,⁵ Basil Donovan,^{2,6} Victor Minichiello,^{7,8} Jules Kim,⁹ Dustin Duncan¹

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/sextrans-2020-054550>).

For numbered affiliations see end of article.

Correspondence to

Dr Denton Callander,
Department of Epidemiology,
Columbia University, New York,
NY 10027, USA; d.callander@columbia.edu

Received 16 April 2020

Revised 26 May 2020

Accepted 8 June 2020

ABSTRACT

Objectives Recommendations of 'social distancing' and home quarantines to combat the global COVID-19 pandemic have implications for sex and intimacy, including sex work. This study examined the effects of COVID-19 on male sex work globally and investigated how men who sold sex responded to and engaged with the virus in the context of work.

Methods This study made use of an existing database of deidentified data extracted from the online profiles maintained by male sex workers on a large, international website. Website engagement metrics were calculated for the periods before (September to December 2019) and during COVID-19 (January to May 2020); Poisson regression analyses were used to assess changes over time before and after, while a content analysis was undertaken to identify modes of engagement with the virus.

Results Data were collected from 78 399 profiles representing 19 388 individuals. In the 'before' period, the number of active profiles was stable (inter-rate ratio (IRR)=1.01, 95% CI 0.99 to 1.01, $p=0.339$) but during COVID-19 decreased by 26.3% (IRR=0.90, 95% CI 0.89 to 0.91, $p<0.001$). Newly created profiles also decreased during COVID-19 (59.4%; IRR=0.71, 95% CI 0.69 to 0.74, $p<0.001$) after a period of stability. In total, 211 unique profiles explicitly referenced COVID-19; 185 (85.8%) evoked risk reduction strategies, including discontinuation of in-person services (41.2%), pivoting to virtual services (38.9%), COVID-19 status disclosure (20.9%), enhanced sanitary and screening requirements (12.3%) and restricted travel (5.2%). Some profiles, however, seemed to downplay the seriousness of COVID-19 or resist protective measures (14.7%).

Conclusions These findings support the contention that COVID-19 has dramatically impacted the sex industry; globally, male sex workers may be facing considerable economic strain. Targeted education and outreach are needed to support male sex workers grappling with COVID-19, including around the most effective risk reduction strategies. Those involved with the sex industry must have access to state-sponsored COVID-19 financial and other aid programmes to support individual and public health.

INTRODUCTION

The global COVID-19 pandemic has dramatically reshaped awareness of and approaches to public

health, with health institutions around the world recommending measures like social distancing and self-isolation to slow spread of the virus.¹ The exact mechanisms of COVID-19 transmission are still being clarified and while it has not, in any official sense, been classified as an STI, the intimate physical contact associated with much sexual activity has implications for transmission of the virus. As a result, a number of public health bodies have published guidelines recommending that, among other precautions, individuals limit sex with new and casual partners to reduce COVID-19 transmission risk.^{2–3} While these recommendations have implications for people's personal sexual and romantic lives, social distancing and self-isolation also have implications for sex workers; no empirical work has yet examined the effects of COVID-19 on populations involved with sex industry.

Although research has yet to examine the effects of COVID-19 on sex work, numerous journalistic and opinion pieces in mainstream media (many of them written by sex workers themselves) have sought to highlight challenges facing the industry, most notably serious economic hardship.^{4–8} Further, brothels and sex on premises venues have been closed in many parts of the world^{7–10}—with reports of some facing fines for remaining open¹¹—affecting working arrangements and opportunities for some sex workers. In what has been characterised as a reaction to diminishing opportunities for in-person sex work, journalists have documented rising popularity of virtual sex work services like webcamming.^{12–13} Although some have advocated for sex work to be considered an 'essential service' and, therefore, excluded from restrictions on movement and work,¹⁴ given the risks that physical intimacy poses for the transmission of COVID-19, from a health perspective it seems dangerous for sex workers to provide in-person services while the pandemic continues to threaten public health in many parts of the world.

A major challenge to sex workers enacting social distancing and self-isolation, however, is that in many countries they have been excluded from large financial stimulus and support packages proposed in support of individuals and businesses.^{15–17} It seems likely that such exclusions are driven or at least compounded by the criminalisation of sex work in many parts of the world. Further, some



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To cite: Callander D, Meunier É, DeVeau R, *et al.* *Sex Transm Infect* Epub ahead of print: [please include Day Month Year]. doi:10.1136/sextrans-2020-054550

have also speculated that COVID-19-related job loss and economic strife may lead people to try making money through sex work.¹⁸ Although journalists and media pundits seem eager to write about sex work as it relates to COVID-19, data are needed to better understand the pandemic's effects on the industry. This information is essential for highlighting the ways in which government policies, healthcare and other services can best support sex workers who may be at increased risk of the virus as well as economic strain; there are COVID-19 prevention implications for the clients of sex work as well.

In most of the world, sex work is criminalised and endures considerable social stigma.¹⁹ As such, direct research with sex workers is rare, usually qualitative and involves small samples in limited geographies. For the male sex industry, online data offer an opportunity to investigate sex work indirectly but with incredible breadth, which is afforded by the hundreds of thousands of individual men in every part of the world who advertise sexual services online.²⁰ The online profiles of male sex workers provide a powerful source of data that can be used to investigate the sociobehavioural effects of COVID-19, building on existing methods developed to study HIV and STI-related behaviours and norms among those involved with sex work.^{20,21} This paper documents the findings of a mixed methods longitudinal analysis of the effects of COVID-19 on male sex work internationally.

METHODS

Study design

For the period September 2019 to May 2020, a longitudinal study of ecological digital data pertaining to sex work was undertaken.

Setting and participants

In August 2019, a database comprising deidentified data extracted from online profiles maintained by male sex workers on a large, international website was established. On the first day of each month, customisable digital data 'scraping' software known as *Import.io* automatically extracts, standardises, deidentifies and archives information contained within each profile's categorical fields (eg, age, location, services offered), automatically generated profile details (eg, creation date, visit count) and free-text sections (eg, headline, 'About Me' section) (*Import.io*, California, USA, 2020). No contact details or photographs were extracted, and all profile text was cleaned of any potentially identifiable information prior to analysis. No eligibility or restriction criteria were placed on profile data.

Variables

To assess the effects of COVID-19 on male sex work online, the following measures were calculated for each month of data collection: (1) number of active profiles, (2) number of new profiles, (3) number of inactive profiles, (4) the average number of visits per profile per day, and (5) proportion of profiles offering virtual sexual services (eg, webcamming, phone sex). The number of 'inactive' profiles was defined as the number of profiles active in a month but not the month following, while the average number of visits per profile was calculated as a rate per day for the prior month (ie, 'visits' reported in April actually reflect the March period). For these reasons, indicators were calculated from September 2019 to May 2020 to allow a 1 month grace period during which to calculate the retrospective measures. Profiles were identified over time using their uniquely assigned profile codes and URL addresses.

Analyses

Two distinct analyses were conducted, combining qualitative and quantitative methods. Changes over time to each measure of online activity were assessed via Poisson regression analyses with month fitted as an independent variable; inter-rate ratios (IRR) and confidence intervals (CI) were calculated for each. Poisson regression is a robust and efficient statistical test for working with frequency data. For mean-based and proportional measures we used linear regression analyses with month as the independent variable. For each measure, the analysis was separated into two time periods relative to the COVID-19 pandemic: before (September 2019 to January 2020) and during (January to May 2020). Further, the free-text sections of male sex work profiles were analysed for any references to COVID-19; a content analysis using the techniques of thematic analysis was employed to define profile users' engagement with the virus and conduct frequency analyses.²² For profiles referencing COVID-19 and appearing in multiple monthly extractions, those with unchanged text over time (ie, duplicates) were treated as a single profile while profiles with language related to COVID-19 that changed from month to month were treated separately. This approach recognised that male sex workers can adjust their profiles and, given the ongoing nature of the pandemic during the study period, may have altered their response to COVID-19 over time.

This analysis relied on publicly accessible data that were deidentified; as such, it was exempt from review by the Institutional Review Board of Columbia University. Stakeholders representing communities of sex workers, however, were consulted on the design of this study and interpretation of the results. To further protect the online identities of male sex workers, quotations shared in this paper have been modified slightly to ensure that search engines cannot be used to identify individual profiles.

RESULTS

During the 8 months of study data, 78 399 data points were collected representing 19 388 individual profiles. At each profile's first appearance during the study period, the self-reported age of users ranged from 18 to 80 years old ($M=27.5$, $SD=6.1$). Male sex workers included in our analysis were based around the world but primarily in North America (49.8%), Europe (23.8%) and Asia (16.6%) and, to a lesser extent, the Oceania (4.2%), South American (3.1%) and African (1.6%) regions. In terms of race and ethnicity, male sex workers used the website's fixed categorical options to self-describe as 'Caucasian' (32.6%), 'Latin' (23.9%), 'Asian' (11.4%), 'Mixed' (10.6%), 'Black' (10.1%), 'Mediterranean' (5.6%), 'Other' (3.5%), 'Arab' (2.0%) and 'Native American' (0.4%).

Our primary outcome measures are presented in [figure 1](#) and reported in online supplementary appendix A, all of which demonstrated changes that appeared to be associated with COVID-19. The total number of active profiles remained stable in the 'before' period (ie, September 2019 to January 2020; $IRR=1.01$, 95% CI 0.99 to 1.01, $p=0.052$) but decreased by 26.3% over the 'during' COVID-19 period (ie, January to May 2020; $IRR=0.90$, 95% CI 0.89 to 0.91, $p<0.001$). The number of newly created profiles was stable in the before period ($IRR=0.98$, 95% CI 0.95 to 1.01, $p=0.192$) but decreased by 59.4% during the COVID-19 period ($IRR=0.71$, 95% CI 0.69 to 0.74, $p<0.001$); the number of inactive profiles was stable in the before period ($IRR=0.99$, 95% CI 0.98 to 1.01, $p=0.578$) but increased 19.5% during COVID-19 ($IRR=1.08$, 95% CI 1.06 to

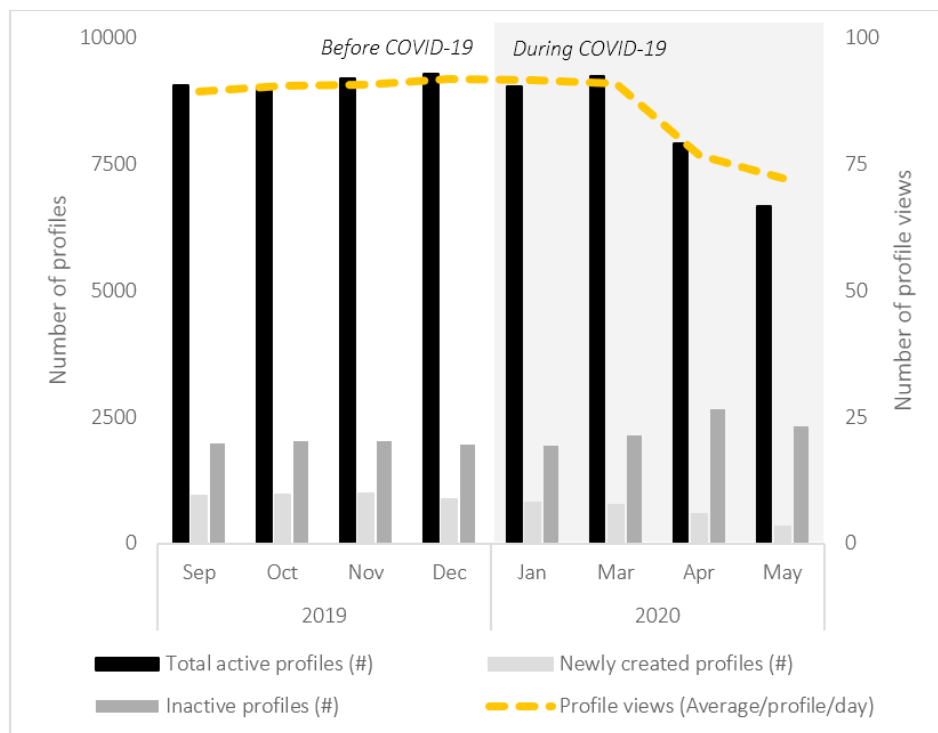


Figure 1 Number of active, inactive and newly created male sex work profiles and average daily views per profile before (September 2019 to January 2020) and during (January to May 2020) the COVID-19 pandemic, by month. (Data were not extracted in February 2020 due to an error with the extraction software, which was corrected for subsequent extractions.)

1.10, $p < 0.001$). The average number of views per profile per day also decreased during the COVID-19 period after a period of stability in the months prior, decreasing by 21.3% from January to May 2020 ($F = 163.09$, $\beta = -0.08$, $p < 0.001$; figure 1). Similarly, while no trends were observed in the proportion of male sex work profiles offering virtual services (eg, webcamming, phone sex) before COVID-19 ($F = 0.86$, $\beta = 0.01$, $p = 0.354$), this measure increased from 50.3% in January to 55.0% in May 2020 ($F = 37.07$, $\beta = 0.03$, $p < 0.001$).

In March 2020, only three profiles contained any reference to COVID-19 (0.03%) but this increased to 119 profiles (1.5%) in April and 132 profiles (2.0%) in May. After removing profiles duplicated across months and also profile content (ie, profiles with references to COVID-19 that were unchanged from month to month), a total of 211 unique profiles referenced COVID-19 at some point during the study period. Individual male sex workers based in the regions of North America (1.3%) and

Oceania (1.3%) were more likely than others to reference the virus ($p < 0.001$) while the average age of male sex workers who explicitly referenced COVID-19 was higher than those without any reference (30.7 vs 27.5 years, $p < 0.001$). Analysing the content of profiles that referenced COVID-19, we defined two themes of engagement: (1) risk reduction and (2) social reactions (table 1).

1. *Risk reduction* strategies were outlined in 181 of the 211 unique profiles that referenced COVID-19 (85.8%), which mainly focused on describing the ways in which male sex workers were enacting public health recommendations and trying to minimise transmission risk for themselves or their clients. Most commonly, 41.2% of profiles advised of discontinued in-person services. ‘Social distancing is sexy’, as one profile headline read. Some profiles advised of virtual services on offer specifically because of COVID-19 concerns (38.9%), including 70.7% of men who chose to discontinue

Table 1 Content analysis results of online male sex workers’ reactions to and engagement with COVID-19*

| Theme | Subtheme | Example | n (%) |
|------------------|------------------------------------|---|------------|
| Risk reduction | | | 181 (85.8) |
| | In-person service discontinuation | ‘Due to COVID-19 I will not be doing any in person modeling, massaging, etc.’ | 87 (41.2) |
| | Virtual sex work services offered† | ‘Webcam sessions only provided during COVID-19.’ | 82 (38.9) |
| | COVID-19 status disclosure | ‘Tested for Covid 19 antibody 04/28/20 negative.’ | 44 (20.9) |
| | Enhanced client requirements | ‘Social distancing is priority so screening clients to be safe.’ | 26 (12.3) |
| | Restricted sex work travel | ‘Travels are subject to change if further government restrictions put in place.’ | 11 (5.2) |
| Social reactions | | | 51 (24.2) |
| | Expressions of solidarity | ‘We can meet after! For your safety and mine. For now let’s help each other stay safe.’ | 20 (9.5) |
| | Dismiss or downplay pandemic | ‘Grounded and ready to play #Covid mode!’; ‘Don’t let COVID ruin all our fun!’ | 31 (14.7) |

*Analysis conducted using 211 unique profiles that referenced COVID-19.

†Virtual services in this context include only those with specific reference to COVID-19.

in-person work (eg, 'Because of social distancing and self-isolation, only phone and video meetings at this time'). Other profiles self-disclosed COVID-19 status as 'negative' (20.9%) with some every providing the date their test was carried out, while several profiles (12.3%) described enhanced protocols for clients, which included requirements like temperature checks, the provision of hand sanitiser and even one profile that claimed to offer, 'on-site COVID-19 testing', despite such technologies not being available to the general public during the study period. In other cases, male sex workers referenced enhanced screening protocols but provided no further details. A number of profiles also advised that male sex workers were restricting or cancelling any work-related travel (5.2%), for example: 'Due to corona virus all future travel is cancelled, and clients will be refunded their deposits' (table 1).

2. *Social reactions* were displayed on 51 unique profiles (24.5%) maintained by male sex workers, which mainly involved some kind of comment on COVID-19 reflecting the circumstances generally or specific to sex work. As outlined in table 1, several profiles voiced solidarity for the sex work and broader communities (9.5%; eg, 'Unavailable until the COVID-19 crisis is resolved: stay safe, stay strong'). Other profiles (14.7%) shared sentiments that seemed to resist the public discourse of the time that stressed the seriousness of COVID-19. Such dismissals manifested through humour (eg, 'Hit me up boys, I'll take a salt and lime with my Corona'), discounted rates, and offerings of pandemic-tailored services (eg, 'I'm here if you need a good shag in your quarantine').

DISCUSSION

Following the rise of COVID-19 as a global pandemic in the early months of 2020, there was a significant decline in global activity on one of the world's largest and most popular English-language websites for male sex work. Particularly in North America and Europe, since the start of the pandemic the number of male sex workers advertising on a popular and highly trafficked website decreased substantially as did the amount of visitor traffic to the profiles that remained. We observed some male sex workers engaging directly with COVID-19 via their online profile. Most commonly, men used their profile text to advise of discontinued in-person sex work services while pivoting to the provision of virtual options and the overall proportion of profiles offering virtual services increased slightly during the COVID-19 period.

Aside from the discontinuation of in-person sex work, some profiles shared other approaches to COVID-19 risk reduction. Notably, we observed male sex workers disclosing their COVID-19 status and, in some cases, providing the date of test, a finding that calls to mind practices around HIV status disclosure. HIV prevention efforts have long promoted regular testing and status disclosure as important health initiatives among populations of sex workers and others²³ and the fact that male sex workers would seek to adapt these kinds of strategies to face the emerging threat of COVID-19 suggests their attention to and engagement in public health issues. Indeed, previous work has suggested that sex workers are often more engaged with public health concerns than the general population.^{24–26} While it is promising that sex workers were engaged in finding ways of protecting themselves and their clients, it is unclear if some of the strategies described (eg, temperature checks) would be sufficient to prevent COVID-19 transmission. The deployment of potentially ineffective risk reduction strategies likely reflects uncertainty and confusion among

the general public amid an ongoing public health emergency. Given the intimate contact associated with sex work, however, targeted resources and outreach efforts to help sex work communities understand the most effective risk reduction strategies in the face of viral pandemics such as COVID-19 should be made available to support better preparedness now and into the future. There is evidence that sex work support organisations have already started to distribute targeted educational resources,²⁷ but ongoing effort is required to ensure meaningful dissemination of the most recent and evidence-based information.

As mentioned, many sex workers globally rely on sex work as a form of income. Although the number of active profiles decreased significantly during the study period, as of April 2020 the total number remained relatively high. While it was clear from the text of several profiles that some male sex workers were maintaining their profiles to only accept future bookings or provide virtual services, for others it may be that they could not do without the income generated by sex work. Along with declining profile views, men who continue selling sex during the COVID-19 pandemic may be doing so because of few economic alternatives, a contention that aligns with much reporting in mainstream media to date.^{4–8} Further, given that we documented a decline in newly established male sex work profiles, media reports that other forms of economic hardship may be driving an uptick in those involved in sex work seem unfounded.

This analysis provides an assessment of the effects of COVID-19 on male sex work globally. Our findings, however, are limited by the fact that the website from which data were drawn is predominantly English language. Although data were extracted from profiles in every region of the world, care should be taken in generalising our results; it is also possible that male sex workers operating on other websites may have had different reactions to COVID-19. Similarly, male sex workers who operate online often have different practices and needs than those who operate in other spaces; given that street-based sex workers typically face greater substance use and financial hardship than their peers online,^{28–30} their needs in terms of COVID-19 are likely greater and more complex. Specific research on and attention to street-based sex workers and COVID-19 is needed. Further, at the time this analysis was conducted COVID-19 remained a serious and ongoing public health emergency, which means that ongoing health surveillance of behaviours and norms is needed to monitor future effects of COVID-19 on sex work.

The economic hardships faced by male sex workers are likely compounded by the criminalisation of sex work (eNCA, 2020). Criminalisation and explicit policy directives currently work to exclude sex workers from opportunities for state-sponsored financial aid,^{15–17} which would in turn make it very difficult for some to reduce or discontinue in-person services. Given that intimate physical contact significantly increases the risks of COVID-19 transmission, it is alarming that some sex workers may be forced to choose between their health and their income. While it may be tempting to pass judgement or think harshly of male sex workers who continue to work while the pandemic endangers public health and causes considerable social turmoil, it seems logical that social distancing and self-isolation can only be implemented if these men have access to the financial and social support programmes offered to workers in other industries.

Attention must also be paid to the immediate and long-term effects of social distancing programmes—active already for several months in some areas and mired with uncertainty about if, how and when they will be discontinued—on male sex workers

and others involved in the sex industry. Along with the economic effects hinted at through our analysis, extended social distancing may give rise to mental health challenges for sex workers who, due to fears of social stigma and criminalisation, are unable to access the kinds of social support that can help alleviate depression, anxiety and other challenges. In the longer term, a plan is desperately needed to help sex workers return to in-person work in a way that accounts for the risks posed by COVID-19. To be effective, such planning must involve sex workers in its design and implementation and should be complemented by the expansion of existing financial and other aid programmes alongside targeted education and outreach campaigns to support sex work communities during and after the COVID-19 pandemic.

Key messages

- ▶ Male sex work activity on a highly popular website decreased significantly during the COVID-19 pandemic.
- ▶ Male sex workers displayed numerous COVID-19 risk reduction strategies, including the discontinuation of in-person services and promotion of virtual forms of sex work.
- ▶ Targeted COVID-19 outreach is needed to support sex workers in employing only the most rigorous risk reduction strategies.
- ▶ Decreases in visitor traffic suggest that male sex workers are likely facing considerable economic hardship; programmes of state-sponsored aid must include sex work communities.

Author affiliations

¹Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY, USA

²The Kirby Institute for Infection and Immunity in Society, University of New South Wales, Sydney, New South Wales, Australia

³Sociomedical Sciences, Columbia University Mailman School of Public Health, New York, NY, USA

⁴Faculty of Arts, The University of Melbourne, Melbourne, Victoria, Australia

⁵CUNY Graduate School of Public Health and Health Policy, New York, NY, USA

⁶Sydney Sexual Health Centre, Sydney, New South Wales, Australia

⁷University of New England, Armidale, New South Wales, Australia

⁸Queensland University of Technology, Brisbane, Queensland, Australia

⁹Scarlet Alliance, Australian Sex Workers Association, Sydney, New South Wales, Australia

Handling editor Tristan J Barber

Twitter Denton Callander @dentoncallander

Acknowledgements The authors acknowledge the contribution of Alicia Singham Goodwin in helping code and organise the qualitative data. The authors also acknowledge Taylor Harrington, Ryan McNally and the staff of *Import.io* for their assistance in establishing the profile database extraction processes.

Contributors DC conceived this analysis along with EM. DC, VM, BD and RD conceived the idea for the database. RD developed and oversaw the processes of data extraction. Data analysis was conducted by DC with support from EM and DD. CG, VM and BD provided topical guidance, while JK guided interpretation of the study's implications from a policy and practice perspective. All authors contributed to the manuscript's creation, providing numerous reviews and signing off on the final version.

Funding Funding for the database from which this study draws was provided by a project grant from the Australian Research Council (DP170104575).

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval This study used publicly-available, de-identified data. As such, it was classified as non-participant research and exempt from ethical review.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

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ORCID iDs

Denton Callander <http://orcid.org/0000-0002-4116-4250>

Étienne Meunier <http://orcid.org/0000-0002-2810-8633>

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