Potential reduction in female sex workers' risk of contracting HIV during coronavirus disease 2019

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Female sex workers' livelihoods in Zimbabwe have been severely impacted by the coronavirus disease 2019 pandemic due to closure of entertainment venues. Competition over fewer clients has reduced ability to negotiate condom use. At the same time as partner numbers have decreased, frequency of reported condomless sex has not increased, suggesting potential reduction in overall HIV and sexually transmitted infection risk and an opportunity for programmes to reach sex workers with holistic social and economic support and prevention services.

The global coronavirus disease 2019 (COVID-19) pandemic has disrupted economies across the world, disproportionately threatening the livelihoods of people working in the informal sector with low-wage jobs [1]. These include sex workers, who are further marginalized due to the criminalization of sex work [2]. Reports from diverse regions suggest sex workers continue to work despite restrictions to survive, but struggle to find clients and experience increased vulnerability to stigma, violence and police harassment [3].

In Zimbabwe, Sisters with a Voice is a nationally scaled HIV prevention and treatment programme for sex workers that reaches over 26 000 female sex workers (FSW) annually with social and clinical services [4]. During Zimbabwe's national lockdown (April–October 2020), we collected data from FSW visiting our two largest clinics in Harare and Bulawayo on their client numbers, earned income, work conditions and condomless sex, which we compared with our most recent representative data from Respondent Driven Surveys (RDS) conducted in these sites in 2017.

We found 90% FSW attending these clinics reported reduced client numbers. In 2017 RDS, weekly client numbers averaged 14 in Harare and eight in Bulawayo but since lockdown, FSW reported mean monthly client numbers of nine and three, respectively. Of these, FSW reported condomless sex with two of nine clients (Harare) and one of three (Bulawayo) following lockdown compared with 2 of 52 and 1 of 32 in 2017, but absolute numbers of condomless partners did not increase. Anecdotally, sex workers report that closure of entertainment venues, restrictions on mobility, and male clients' fear of contracting COVID-19 have significantly reduced earnings. When FSW do procure a client, they are less likely to negotiate condom use or high fees, and are more willing to accept condomless sex and exchange sex for food.

Restrictions in Zimbabwe have constrained FSW ability to work, negotiate condom use or refuse clients, increasing their social and economic marginalization. However, it is possible that a reduction in overall client numbers without an accompanying increase in condomless sex has not increased their risk of HIV and STI, and possibly decreased it. The Sisters programme has addressed FSW precarious survival at this time by offering psychosocial support and livelihood assistance; for example, by facilitating self-help groups to set up shared savings and income support schemes, including making facemasks to sell. It is imperative to address FSWs' needs holistically as well as reinforce HIV prevention messages to take advantage of a possible reduction in HIV risk by ensuring its sustainability.

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Conflicts of interest
There are no conflicts of interest.

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Safety and antibody response to the first dose of severe acute respiratory syndrome coronavirus 2 messenger RNA vaccine in persons with HIV

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In this study of 12 people with HIV (PWH) who received the first dose of SARS-CoV-2 mRNA vaccination, anti-SARS-CoV-2 receptor-binding domain antibodies were detectable in all participants; lower antibody levels were seen in those with lower CD4+ counts, and vaccine reactions were generally mild.

People with HIV (PWH) were included in the original severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) mRNA vaccine trials in small numbers [0.6% for mRNA-1273 (Moderna) and 0.5% for BNT162b2 (Pfizer/BioNTech)], yet the immunogenicity and safety of the vaccines has not been reported in this subgroup [1,2]. Vaccination is currently recommended for all PWH; however, some have expressed vaccine hesitancy for fear of harmful side effects and unknown effectiveness [3,4]. We, therefore, studied the antibody response and reactivity to the first dose of SARS-CoV-2 mRNA vaccination in PWH.

Participants underwent SARS-CoV-2 antibody testing via the Roche Elecsys anti-SARS-CoV-2S enzyme immunoassay prior to dose 2. The assay measures total antibody (IgM, IgG) to the SARS-CoV-2 S-receptor-binding domain (RBD) protein [5]. Results range from <0.4 U/ml to >250 U/ml; positive is ≥0.8 U/ml. The assay is analogous to those used in early mRNA vaccine trials, in which, for example, 100% seroreactivity was seen by 15 days after Moderna mRNA-1273 vaccination [6,7]. One week after receiving the first dose, participants completed a questionnaire detailing local and systemic reactions and other adverse events including anaphylaxis, incident neurologic diagnoses, infections, or SARS-CoV-2 infection. This study was approved by the Johns Hopkins Institutional Review Board (IRB00248540); participants consented electronically.

Twelve participants were studied, completing antibody testing at a median [interquartile range (IQR)] of 21 (17–27) days after vaccination (50% Moderna, 50% Pfizer/BioNTech) (Table 1). Median (IQR) age was 64 years (57, 70); all were male, 8% were nonwhite. All were on ART at least 6 months and 92% had an undetectable HIV viral load. Six (50%), three (25%), one (8%), and two (17%) of individuals reported CD4+ counts at least 500, 350–499, 200–349, and less than 200 cells/μl, respectively. Anti-RBD assays were positive for all, ranging from 2.12 U/ml to >250 U/ml.

Table 1. Demographics, clinical characteristics, and severe acute respiratory syndrome coronavirus 2 anti-receptor-binding domain levels after a single dose of SARS-CoV-2 mRNA vaccination of 12 people with HIV on antiretroviral therapy.

| Participant | Age | Sex | Race | Days from vaccine to antibody testing | Vaccine manufacturer | CD4+ count (cells/μl) | Viral load | Antibody titer (U/ml) |
|-------------|-----|-----|------|--------------------------------------|----------------------|-----------------------|------------|-----------------------|
| 1           | 61  | Male| White| 27                                   | Moderna              | <200                  | Undetectable | 2.1                   |
| 2           | 75  | Male| White| 21                                   | Moderna              | <200                  | Undetectable | 2.5                   |
| 3           | 63  | Male| White| 19                                   | Pfizer/BioNTech      | 350–499               | Undetectable | 4.6                   |
| 4           | 55  | Male| White| 20                                   | Pfizer/BioNTech      | 350–499               | Undetectable | 7.7                   |
| 5           | 67  | Male| White| 28                                   | Moderna              | ≥500                  | Undetectable | 44                    |
| 6           | 68  | Male| Asian |24                                    | Moderna              | ≥500                  | Undetectable | 66                    |
| 7           | 33  | Male| White| 16                                   | Pfizer/BioNTech      | ≥500                  | Undetectable | 85.3                  |
| 8           | 72  | Male| White| 27                                   | Moderna              | 350–499               | Undetectable | 138                   |
| 9           | 56  | Male| White| 27                                   | Moderna              | ≥500                  | Undetectable | 148.6                 |
| 10          | 58  | Male| White| 14                                   | Pfizer/BioNTech      | ≥500                  | Detectable  | 234.6                 |
| 11          | 70  | Male| White| 15                                   | Pfizer/BioNTech      | 200–349               | Undetectable | >250                  |
| 12          | 65  | Male| White| 20                                   | Pfizer/BioNTech      | ≥500                  | Undetectable | >250                  |

*Viral load of participant 10 was reported as 35 copies/ml; specific viral loads were not measured.