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How to cite

MUGGLIN, Catrina et al. Sexual Behaviour and STI Incidence in Sexually Active MSM Living With HIV in Times of COVID-19. In: Open forum infectious diseases, 2023, vol. 10, n° 8, p. ofad399. doi: 10.1093/ofid/ofad399

This publication URL: https://archive-ouverte.unige.ch/unige:173284

Publication DOI: 10.1093/ofid/ofad399

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Open Forum Infectious Diseases

BRIEF REPORT

Sexual Behaviour and STI Incidence in Sexually Active MSM Living With HIV in Times of COVID-19

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Despite decreased numbers of sexual partners, the COVID-19 pandemic had limited impact on the prevalence of attending private sex parties, traveling for sex within Switzerland, and practicing chemsex in men with HIV who have sex with men. COVID-19 risk perception was low, and STI-diagnosis incidence rates remained stable over time.

Keywords. HIV; MSM; STIs; COVID-19; sexual behaviour.

In February 2020, the Swiss government introduced public health measures to curb the spread of COVID-19 in Switzerland. The measures included restrictions of mass gatherings, promotion of physical distancing and handwashing. The most extensive restrictions were applied between March 16th and April 27th 2020 ("Lock-down") with closure of shops, restaurants, clubs and schools, travel and gathering restrictions [1]. After a gradual lift of the restrictions, different measures aimed at social distancing were applied and lifted in accordance to the pandemic activity until 2022 [2].

The non-pharmaceutical interventions aimed at reducing social contacts in the population strongly affected social life. We previously observed a decrease in the number of occasional partners during COVID-19 in men who have sex with men (MSM) in the Swiss HIV Cohort Study (SHCS) [3]. Furthermore, sexual behaviour was strongly associated with the incidence of sexually transmitted infections (STIs) [4]. In this study, we investigated changes in sexual behaviour, fear and attitudes towards COVID-19 restrictions and sexually transmitted infections (STI) incidence among sexually active MSM in order to deepen our understanding of the dynamics in sexual behaviour and STI trends during the COVID-19 pandemic.

METHODS

The SHCS (www.shcs.ch) is a nationwide prospective cohort study including more than 70% of patients receiving antiretroviral therapy (ART) in Switzerland [5]. Data are collected every six months during follow-up visits. All centres' cantonal ethical committees approved the study, and all patients provided written informed consent.

We performed a cross sectional study embedded in a large prospective cohort. From 6th January to 30th June 2021 (Supplementary Figure 1), all MSM reporting sex with occasional partners in at least one of the two former study visits were eligible to fill in an online questionnaire available in German, French, English and Italian (Supplementary material). The recall periods included the time before the COVID-19 pandemic and the time during the pandemic (Supplementary Figure 1). The link was shared with the participants by the treating physician or study nurse via QR code or email during a routine visit allowing to fill in the questionnaire outside the consultation.

We assessed changes in sexual behavior during the COVID-19 pandemic: number of sexual partners, attendance of sex parties, frequency of chemsex, traveling for sex as well as sexual satisfaction, fears and concerns regarding dating and sex. Diagnosed STIs reported by patients or physicians were recorded at six-monthly intervals during regular cohort visits from January 2018 to June 2022 in case of a positive STI test result or a presumptive STI diagnosis (syndromic approach with no or negative diagnostic tests), as described before [4].

Descriptive statistics were used to report demographic and clinical characteristics and sexual behaviour. Pre-COVID-19 behaviour was compared to current sexual behaviour using chi-squared tests, t-tests and non-parametric methods. We calculated crude STI incidence rates as events per

Received 26 May 2023; editorial decision 18 July 2023; accepted 26 July 2023; published online 27 July 2023

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https://doi.org/10.1093/ofid/ofad399

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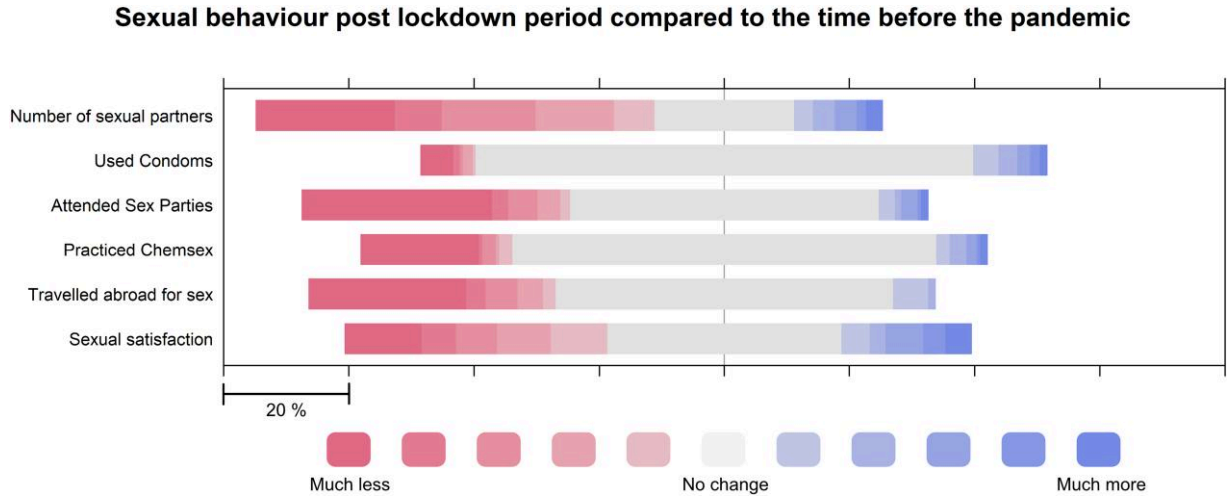

Figure 1. Changes in sexual behaviour post lockdown compared to the time before the pandemic.

1000 patient-years of follow-up (PYFU). All statistical analyses were performed with R. Version 3.6.1. [6].

RESULTS

Of 1051 MSM eligible to participate in the study, 368 (35%) accessed the online questionnaire, and of those 205 (56%) completed it. Median age was 49 years, 90% were White, median time on ART was 10 years and 96% had a suppressed viral load at the time of survey. The study participants who completed the questionnaires had similar characteristics when compared to those not completing it (Supplementary Table 1).

While almost two thirds (63%) of participants reported less occasional partners, 22% reported no change and 14% more occasional partners during the COVID-19 pandemic compared to before (Figure 1).

The proportion of men attending public sex parties, cruisings and traveling abroad for sex at least once per month decreased during the pandemic (33% −5%, $P < .001$, 26%–13%, $P = .014$, 26%–9%, $P < .001$ respectively). The proportion of men attending private sex parties, traveling for sex within Switzerland and practicing chemsex at least once per month were not significantly different (Supplementary Table 2). Nonetheless, the relative frequency of these activities changed: whereas 44% reported less attendance of sex parties (private or public), 9% reported having attended more sex parties compared to the time before the pandemic. Similarly 25% reported less chemsex, whereas 9% practiced more chemsex compared to before the pandemic (Figure 1).

Almost half of the participants (43%) reported less sexual satisfaction, whereas 38% reported no change and 22% even reported increased sexual satisfaction compared to the time before the pandemic (Figure 1). In total the proportion of men reporting sexual satisfaction decreased from 73% to 57% ($P = .008$) (Supplementary Table 2). The majority (81%) of the participants found the federal COVID-19 restrictions appropriate, and only a minority (17%) expressed fear of violating them. Fear of becoming infected with SARS-CoV-2 or seriously ill was present in 34% respectively 30%, while fear of passing COVID-19 to sexual partners was more frequent (46%) (Supplementary Figure 2).

Overall, STI incidence remained stable over the study period for all three analyzed STIs (Figure 2, Supplementary Figure 3). There was a slight decrease in the point estimates for incident STIs during the lock-down period, however this decrease was not significant.

DISCUSSION

In our study among sexually active MSM living with HIV in Switzerland, the COVID-19 restrictions were associated with changes in sexual behaviour. The number of sexual partners, travels for sex abroad and attendance of public sex parties decreased in most study participants. In contrast, attending private sex parties, traveling for sex within Switzerland and practicing chemsex remained unchanged and the incidence of diagnosed STI's remained stable over time.

This study provides insights on sexual behaviour and attitudes of sexually active MSM living with HIV during the COVID-19 pandemic and correlates it with STI diagnosis incidence rate. The low participation rate (205/1051 eligible patients) has several reasons: The main reason for not responding to the questionnaire was the low proportion of physicians who provided the link to the online questionnaire to their patients during follow-up visits. In addition not all patients had a follow-up visit during the study time. Among the 368 invited,

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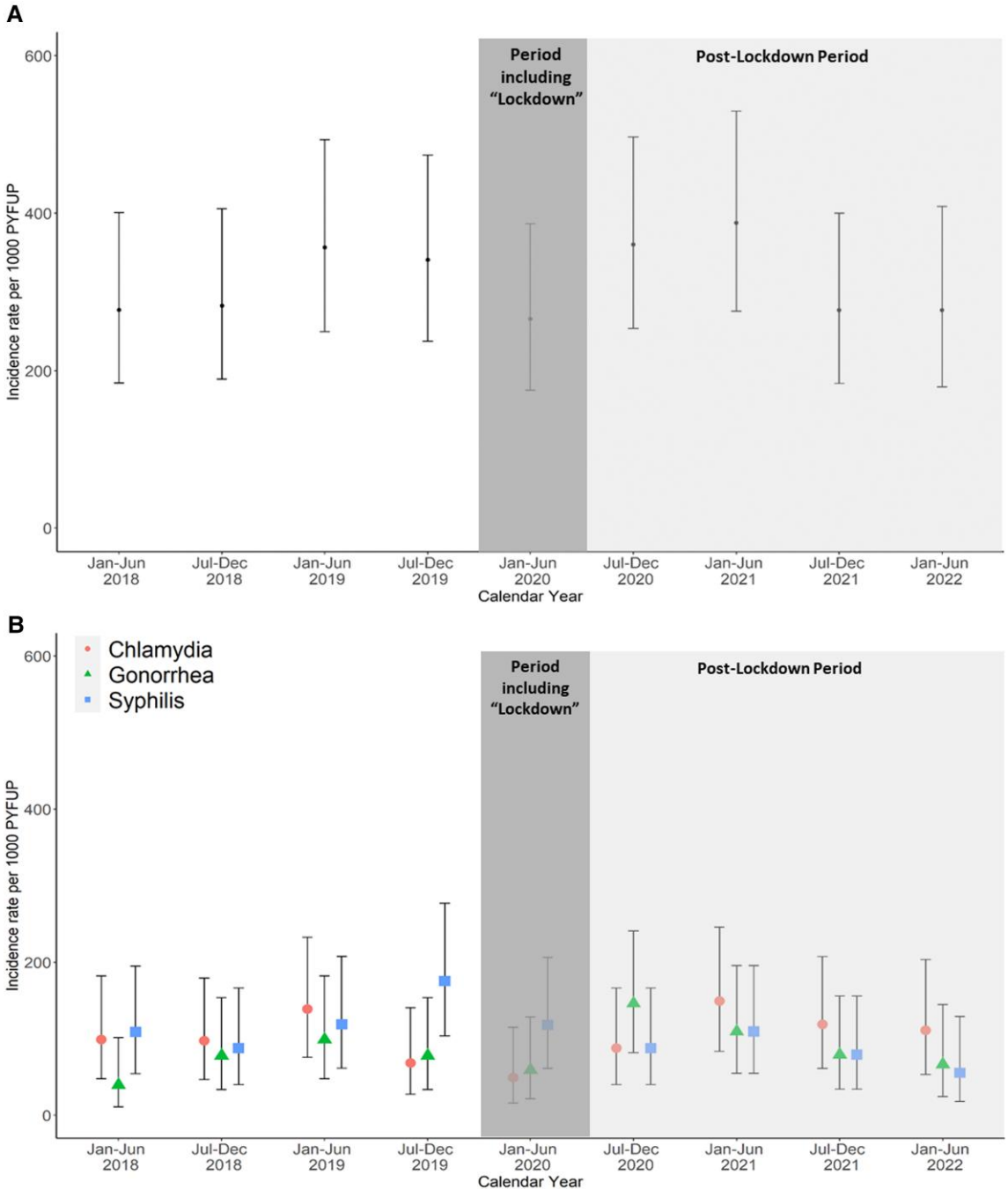

Figure 2. 6-Monthly sexually transmitted infection (STI) diagnosis Incidence rate per 1000 person years follow-up (PYFUP) over time, n = 205 (*A*) Overall STI incidence rate (*B*). Incidence rate stratified by STI type.

56% completed the questionnaire, exceeding previously reported participation rates [7]. The demographic and clinical characteristics and STI diagnosis incidence rates did not differ between the two groups, suggesting that our findings are representative. Using self-administered questionnaires reduces the social desirability bias, and increases reporting of sensitive behaviours [8–10]. Recall bias, changes in COVID-19 restrictions over the study period and access to vaccinations at the end of the study period might have influenced the answers. However, in this study, we could not evaluate the extent of potential recall bias, nor could we assess whether specific restriction measures or the vaccination status of the participants or their partners had an impact on sexual behaviour.

Although the total number of sexual partners decreased, participants continued to be sexually active with occasional partners. This is consistent with similar findings in Preexposure

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Prophylaxis (PrEP) users and in people living with HIV [3, 11]. Similar to our findings, considerable proportions of PrEP users in Australia respectively MSM in the UK had unchanged or even increased number of sexual partners, group sex and chemsex [12, 13]. A report about Dutch MSM showed that being sexually active with occasional partners during the pandemic was associated with higher number of sexual partners before the pandemic [14]. This observation also applies to our participants, who all had occasional partners before the pandemic and continued to be sexually active. The Dutch study additionally described the influence of COVID-19 risk perception on sexual behaviour. They found a majority (64%) agreeing with the national measures and a minority (38%) expressing fear of getting COVID-19, and could show an association of low COVID-19 risk perception with having occasional sex partners.

We observed an overall stable STI diagnosis incidence rate over time with only a slight and non-significant incidence decline during the lock-down period. Transient declines in STI incidence during COVID-19 restrictions among MSM have been reported before [15–17].

During the pandemic, the number of occasional sexual partners decreased in most participants, however a small proportion intensified their sexual activity and the proportion of men attending private sex parties, cruising places and traveling to have sex within Switzerland remained unchanged. This suggests limited impact of restrictions and prohibitions on sexual behaviour. Most participants were neither afraid of travelling despite federal pandemic restrictions, nor of acquiring COVID-19. This might partly explain the relatively modest impact of the COVID-19 pandemic on sexual behaviour or STI incidence in our study.

This study reveals behavioural heterogeneity of a group, which in clinical research is most often perceived as a homogenous group. Our study indicates that stereotypic preconceptions on sexual behavior among MSM do not adequately capture behavioural diversity. Future research should aim at gaining a more differentiated insight in sexually active MSM allowing to understand why some increased their sexual activity despite governmental restrictions and health threats, while others reduced it. A deeper understanding of intrinsic motivation driving sexual behaviour and its interaction with external factors is needed. Moreover, a better understanding of factors leading to sexual satisfaction could explain the discrepant experiences of the participants, and provide important insights for STI prevention programs.

Supplementary Data

Supplementary materials are available at *Open Forum Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

Notes

Members of the Swiss HIV Cohort Study. Abela I, Aebi-Popp K, Anagnostopoulos A, Battegay M, Bernasconi E, Braun DL, Bucher HC, Calmy A, Cavassini M, Ciuffi A, Dollenmaier G, Egger M, Elzi L, Fehr J, Fellay J, Furrer H, Fux CA, Günthard HF (President of the SHCS), Hachfeld A, Haerry D (deputy of "Positive Council"), Hasse B, Hirsch HH, Hoffmann M, Hösli I, Huber M, Jackson-Perry D (patient representatives), Kahlert CR (Chairman of the Mother & Child Substudy), Kaiser L, Keiser O, Klimkait T, Kouyos RD, Kovari H, Kusejko K (Head of Data Centre), Labhardt N, Leuzinger K, Martinez de Tejada B, Marzolini C, Metzner KJ, Müller N, Nemeth J, Nicca D, Notter J, Paioni P, Pantaleo G, Perreau M, Rauch A (Chairman of the Scientific Board), Salazar-Vizcaya L, Schmid P, Speck R, Stöckle M (Chairman of the Clinical and Laboratory Committee), Tarr P, Trkola A, Wandeler G, Weisser M, Yerly S.

Financial support. This study has been financed within the framework of the Swiss HIV Cohort Study (SHCS), supported by the Swiss National Science Foundation (grant numbers 201369 and 179567), by SHCS project #872 and by the Swiss HIV Cohort Research Foundation. The data are gathered by the Five Swiss University Hospitals, two Cantonal Hospitals, 15 affiliated hospitals and 36 private physicians (listed in http://www.shcs.ch/180-health-care-providers).

Potential conflicts of interest. None of the authors has declared a possible conflict of interest related to this study. **AH**'s institution has received travel grants, congress and advisory fees from MSD, Viiv and Gilead, unrelated to this work. **AR** reports support to his institution for advisory boards and/or travel grants from MSD, Gilead Sciences, Pfizer and Moderna, and an investigator initiated trial (IIT) grant from Gilead Sciences. All remuneration went to his home institution and not to AR personally, and all remuneration was provided outside the submitted work. **AC** reported unrestricted Education grants from Gilead Sciences, MSD and ViiV; research grant from MSD. **DLB** reported honoraria payed to himself for advisory boards from the companies Gilead, MSD and ViiV outside of the submitted work. **EB**'s institution has received travel grants and advisory fees from MSD, ViiV Healthcare, Gilead Sciences, Pfizer, Astra Zeneca, Ely Lilly, and Moderna, unrelated to this work. **MC**'s institution received research grants and expert opinion honoraria from Gilead, MSD and Viiv outside of the submitted work. **RDK** reports research grants from Gilead Sciences, unrelated to this work.

Patient Consent Statement. All centres' cantonal ethical committees approved the study, and all patients provided written informed consent.

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