*Journal of Pakistan Association of Dermatologists*. 2022;**32(3)**:567-573.

**Original Article**

# Impact of the COVID-19 pandemic on STIs and HIV services in Sleman district, Yogyakarta, Indonesia

**Satiti Retno Pudjiati, Nurwestu Rusetiyanti, Devi Artami Susetiati, Alessandro Alfieri**

Department of Dermatology and Venereology, Faculty of Medicine, Public Health and Nursing, University of Gadjah Mada, Yogyakarta, Indonesia.

## Abstract

***Background*** Sexually transmitted infections (STIs) are currently the highest risk factor for transmitting HIV infection. The incidence of HIV and STIs increase every year and there are still many obstacles for People Living with HIV/AIDS (PLWHA) to get access to care and treatment. Since the WHO declared the COVID-19 pandemic and the implementation of regional quarantine and social distancing, the mobilization of people who should receive health services, including people with HIV and STIs, has decreased. These circumstances can neither achieve the Getting to Zeros program nor the triple elimination program. Currently, there are no reports on the impact of the COVID-19 pandemic on services and coverage of STIs and HIV in Indonesia. This study aimed to determine the impact, especially in Sleman Regency, Yogyakarta.

***Methods*** This epidemiological survey was conducted with a retrospective design and used secondary data. Restrictions on community mobility were implemented to prevent the spread of COVID-19 starting in April 2020. Data were collected from three hospitals and three primary health care (PHCs) in Sleman Regency, Yogyakarta, Indonesia, with STIs and HIV services, namely Dr. Sardjito Hospital, UGM Academic Hospital, Yogyakarta, Sleman Regional General Hospital, Tempel 1 Primary Health Care, Depok 3 Primary Health Care and Mlati 1 Primary Health Care. Data came from the registry at the research sites. The data obtained were tabulated and presented in the form of a table and analyzed descriptively.

***Results*** There was a decrease in patient visits to STIs and HIV services before and during the COVID-19 pandemic, by 34.48% and 0.23%, respectively. For laboratory examinations related to the diagnosis of STIs, there were variations in changes, whereby gonorrhea examinations decreased by 49.77%, examinations for detecting genital warts increased by 42.86%, VDRL examinations decreased by 40.22%, TPHA examinations decreased by 22.54% and HIV tests decreased by 4.12% in the period during the COVID-19 pandemic. For the number of visits by patients taking ARVs, there was an increase of 11.6% during the COVID-19 pandemic compared to before the COVID-19 pandemic. In laboratory examinations related to the triple elimination program in pregnant women, there were changes, namely in hepatitis B examination, there was an increase of 4.72%, HIV examination, a decrease of 1.54% and syphilis examination, there was a decrease of 1.15%.

***Conclusion*** The COVID-19 pandemic has impacted some services related to STIs and HIV. Further research on a broader scale is needed to confirm the extent of the impact. Strategies to improve the examination and management of STIs and HIV cases must always be prepared and their effectiveness evaluated in their implementation during this pandemic or in the event of other disease outbreaks in the future.

***Key words***
COVID-19 pandemic, HIV, STIs.

## Introduction

Sexually transmitted infections (STIs) are currently the highest risk factor for transmission of *Human Immunodeficiency Virus* (HIV) infection, especially syphilis which has become a global problem. Syphilis can increase the risk of contracting HIV up to 300 times.[1] The Special

Region of Yogyakarta is ranked 13th as the province with the highest number of HIV cases in Indonesia.[2]

The incidence of HIV and STIs continue to increase every year. The response to HIV control in Indonesia has grown significantly since 2004. The number of people receiving care, support and treatment has increased from year to year, but there are still many barriers for people infected with HIV to get access to the care and treatment they need. In collaboration with various parties, the Ministry of Health has developed a comprehensive and sustainable HIV-STIs service model to ensure the implementation of comprehensive services that are decentralized and integrated into the existing system down to the First Level Health Facilities (FLHF). The HIV-AIDS control policy refers to the global Getting to Zeros policy: 1. Reducing and eliminating new HIV infections; 2. Reducing or eliminating deaths caused by AIDS-related conditions; and 3. Eliminating discrimination against People Living with HIV/AIDS (PLWHA); The policy above will be difficult to achieve if the coverage of case findings and access to treatment are still low.[3]

The outbreak of cases of Coronavirus Disease 2019 (COVID-19) on March 11, 2020, was declared a pandemic by the World Health Organization (WHO).[4] With this declaration from the WHO, the President of the Republic of Indonesia issued the Presidential Decree of the Republic of Indonesia Number 12 of 2020 concerning the Correction of Non-natural Disasters spreading COVID-19 as a National Disaster.[5] Implementation of quarantine and social distancing policies during the COVID-19 pandemic can result in problems with access to STIs and HIV services. These circumstances will impact achieving the 90-90-90 target launched globally by UNAIDS, namely 90% of people must be tested for HIV, 90% of people who are HIV positive are treated and 90% of those who are treated must adhere to treatment.[6]

There are no data or reports regarding the impact of the COVID-19 pandemic on services and coverage of STIs and HIV in Indonesia. There is a possibility that a similar trend could happen in Indonesia, which might result in not achieving the Getting to Zeros program or the triple elimination program launched by the Minister of Health as stated in the Regulation of the Minister of Health of the Republic of Indonesia Number 52 of 2017 concerning Elimination of Transmission of Human Immunodeficiency Virus, Syphilis and Hepatitis B from Mother to Child.[7]

This study aimed to determine the impact of the COVID-19 pandemic on STIs and HIV services and coverage in Yogyakarta, with the hope that the data will provide scientific evidence regarding the influence of the COVID-19 pandemic on STIs and HIV services and coverage in Yogyakarta, providing an overview of the importance of maintaining access to STIs and HIV services during the COVID-19 pandemic and changing the direction of policies for better STIs and HIV response during these difficult times.

## Methods

This epidemiological survey was conducted with a retrospective design and used secondary data. Restrictions on community mobility were implemented to prevent the spread of COVID-19 starting in April 2020. Data were collected from three hospitals and three primary health

**Address for correspondence**
Dr. Satiti Retno Pudjiati
Department of Dermatology and Venereology, Faculty of Medicine, Public Health and Nursing, University of Gadjah Mada, Yogyakarta, Indonesia.
Email: satiti_rp@ugm.ac.id

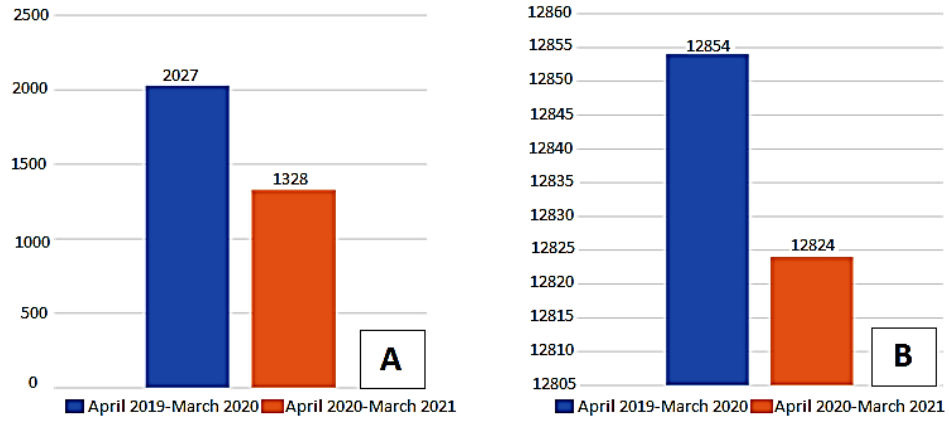


**Figure 1** Comparison of the number of patient visits to (A) STIs and (B) HIV services before and during the COVID-19 pandemic.

care (PHCs) in Sleman Regency, Yogyakarta, Indonesia, with STIs and HIV services, namely Dr. Sardjito Hospital, Yogyakarta, UGM Academic Hospital, Yogyakarta, Sleman Regional General Hospital, Tempel 1 Health Center, Depok 3 Health Center and Mlati Health Center 1.

The data taken in the form of patient visits to STIs and HIV services, included the number of patient visits to STIs and HIV services, number of diagnostic tests related to STIs (syphilis, condyloma and gonorrhea examinations), the number of patient visits per STIs diagnosis (gonorrhea urethritis/ cervicitis, non-specific urethritis/ cervicitis, syphilis, trichomoniasis and condyloma acuminatum), the number of patients who were tested for HIV, the number of new HIV patients, the number of visits by patients receiving antiretrovirals (ARVs), the number of pregnant women who were tested for syphilis, hepatitis B and HIV.

The research was conducted after receiving ethical permission no. KE/FK.0284/EC/2021 from the Medical and Health Research Ethics Committee (MHREC) of the Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada, Yogyakarta, Indonesia. The data obtained were tabulated and presented in the form of a table and analyzed descriptively.

## Results

Data from three PHCs and three hospitals in Sleman Regency, Yogyakarta, showed that in the period April 2019 to March 2020 (before the COVID-19 pandemic), there were 2,027 patient visits to STIs services and 12,854 patient visits to HIV services. From April 2020 to March 2021 (during the COVID-19 pandemic), there was a decrease in patient visits to STIs services by 34.48%. Meanwhile, in inpatient visits to HIV services for the same period, there was a decrease of 0.23% (**Figure 1**).

For the number of visits by patients diagnosed with STIs, there were variations, either decreasing or increasing, before and during the COVID-19 pandemic. Before the COVID-19 pandemic, there were 154 visits by patients diagnosed with gonorrheal urethritis/ cervicitis, 73 patients diagnosed with syphilis, 24 patients diagnosed with trichomoniasis, 218 patients diagnosed with bacterial vaginosis and 152 patients diagnosed with condyloma acuminatum. Meanwhile, during the COVID-19 pandemic, there was a 7.14% decrease in visits for patients diagnosed with urethritis/gonorrheal cervicitis, a 38.35% decrease in visits for patients diagnosed with syphilis, a 70.83% increase in visits for

patients diagnosed with trichomoniasis and a 109.87% increase in patients diagnosed with condyloma acuminatum.

For the number of examinations conducted for the diagnosis of STIs, in the period before the COVID-19 pandemic, there were 434 examinations for gonorrhea, namely by detecting gram-negative diplococci (DGNI), 315 examinations for condyloma acuminatum with acetowhite examination, 726 venereal disease research laboratory (VDRL) examinations and 732 examinations of treponema pallidum hemagglutination (TPHA). Meanwhile, during the COVID-19 pandemic, there was a 49.77% decrease in gonorrhea examinations, a 42.86% increase in condyloma acuminatum examinations, a 40.22% decrease in VDRL examinations and a 22.54% decrease in TPHA examinations. In the HIV examinations, in the period before the COVID-19 pandemic, 6,865 patients were tested for HIV and there was a decrease of 4.12% in the period during the COVID-19 pandemic. Before the COVID-19 pandemic, there were 117 new patients diagnosed with HIV, while in the period during the COVID-19 pandemic, there were 170 new patients diagnosed with HIV, or an increase of 45.3%. For the number of patients who received access to ARVs, there was also an increase of 11.59% during the COVID-19 pandemic compared to before the pandemic. However, one PHC just started a care, support and treatment (CST) program for HIV patients in July 2021.

Following the Regulation of the Minister of Health of the Republic of Indonesia Number 52 of 2017 concerning the Elimination of Transmission of Human Immunodeficiency Virus, Syphilis and Hepatitis B from Mother to Child, pregnant women who undergo pregnancy checks must also be tested for HIV, syphilis and hepatitis B. In this study, the data on testing for HIV, syphilis and hepatitis B in pregnant women were only done at the PHCs, because, in general, pregnant women who come to the hospital brought laboratory results that were done at the PHCs. During the COVID-19 pandemic, pregnant women tested for hepatitis B increased by 4.72%, those tested for HIV decreased by 1.54% and those tested for syphilis decreased by 1.15%.

**Table 1** Comparison of data related to STIs-HIV between before and during the COVID-19 pandemic

| | April 2019-March 2020 (Before the Pandemic) | April 2020-March 2021 (After the Pandemic) | Percentage |
|---|---|---|---|
| Number of STIs Diagnosis | | | |
| • Urethritis/cervicitis GO | 154 | 143 | 7.14% decrease |
| • Urethritis/cervicitis non-GO | 206 | 127 | 38.35% decrease |
| • Syphilis | 73 | 75 | 2.74% increase |
| • Trichomoniasis | 24 | 7 | 70.83% increase |
| • Condyloma acuminata | 152 | 319 | 109.87% increase |
| Number of STIs Examination * | | | |
| • Gonorrhea examination | 434 | 218 | 49.77% decrease |
| • Examination of genital warts | 315 | 450 | 42.86% increase |
| • Syphilis screening (VDRL) | 726 | 434 | 40.22% decrease |
| • Syphilis Test (TPHA) | 732 | 567 | 22.54% decrease |
| Number of HIV Tests | 6.865 | 6.582 | 4.12% decrease |
| Number of New HIV Patients | 117 | 170 | 45.3% increase |
| Number of ARV Access | 10.854 | 12.108 | 11.6% increase |
| Number of Pregnant Women Checkup + | | | |
| • Hepatitis B | 932 | 976 | 4.72% decrease |
| • HIV | 521 | 513 | 1.54% decrease |
| • Syphilis | 521 | 515 | 1.15% drop |

*Data from RSUP Dr. Sardjito Hospital
+Data from three PHCs

## Discussion

During this pandemic, there are restrictions applied in travel, business and large-scale gatherings, including in the health sector, to reduce the transmission of COVID-19. Many health services have delayed patient visits that are considered non-essential.[8] The most crucial question today is how to position STIs and HIV clinics as health services that still have to run during the COVID-19 pandemic. Data available in the United States showed that STIs are constantly increasing and are associated with high morbidity and costs.[10] Likewise, with HIV clinics, the disruption of HIV services due to the COVID-19 pandemic may increase mortality and morbidity among PLWHA.[11,12]

In this study, it was observed that there was a decrease in patient visits to STIs services in three hospitals and three PHCs in Sleman Regency, Yogyakarta, which was 34.48%. Then for laboratory tests to diagnose STIs, there was also a decreasing trend, such as examinations to detect gonorrhea and syphilis. An increase was only seen on the acetowhite examination to detect genital warts. Patients with STIs diagnosis visits have varied results.

Visits diagnosed with gonorrheal and non-gonorrheal urethritis/ cervicitis, trichomoniasis and syphilis decreased during the COVID-19 pandemic compared to before the COVID-19 pandemic period. However, visits with a diagnosis of condyloma acuminatum had an increasing trend. There was a decreasing trend in acute STIs, but for more chronic diseases, namely genital warts, there was an increase.

There have been no studies reporting changes in data on visits to STIs and HIV services. However, several studies show a decline in new diagnoses associated with STIs. A study conducted in Italy showed a decrease in the number of patients associated with STIs from 2019 compared to 2020.[13] A Greek study also revealed a decrease in the number of cases of gonorrhea and syphilis when compared between 2020 and 2019.[14] In Madrid, Spain, there was reported a 73.2% and 81.4% decrease in the number of new cases of syphilis and gonorrhea in 2020 compared to 2019.[15] In China, it was reported that there was an 8.2% decrease in the number of new syphilis cases in 2020 compared to 2019.[16] Data from these studies show that there is a decrease in STIs cases diagnosed in 2020 compared to 2019. This circumstance may also affect visits from patients to STIs services. However, whether this decrease is due to a decrease in sexual relations with risk factors in the community or because people are reluctant to seek medical attention is still unknown and requires further study.

For visits to HIV services, in this study, only a slight decrease was found, which was around 0.23%. There was also a slight decrease in HIV tests, by 4.12%. However, these results were inversely proportional to the number of visits by patients taking ARVs. During the COVID-19 pandemic period, it increased by 11.6%. Changes in HIV services during the COVID-19 pandemic were also felt in other countries. According to the WHO report, between April and June 2020, there were 73 countries at risk of disrupting the distribution of ARVs, which affected 17.7 million people living with HIV.[17] A model study developed by WHO and UNAIDS estimates that a 6-month interruption to antiretroviral therapy (ART) could result in an additional 500,000 AIDS-related deaths in Sub-Saharan Africa in 2020-2021.[18] It is remarkable that one study mentioned a decrease in inpatient visits to take ART at the start of the lockdown due to the COVID-19 pandemic compared to before the lockdown, as happened in South Africa.[19] In contrast to what happened in this study, patient visits associated with taking ART

increased. To find out the differences in this phenomenon, it may be necessary to deeply study each region's demographic and patient characteristics related to the COVID-19 pandemic.

The COVID-19 pandemic risks complicate previously challenging health problems, one of which is related to antenatal screening and its management.[20] Following the Regulation of the Minister of Health of the Republic of Indonesia number 52 of 2017 concerning the Elimination of Transmission of Human Immunodeficiency Virus, Syphilis and Hepatitis B from mother to child, a pregnant woman is required to have an HIV, syphilis and hepatitis B examination early in her pregnancy. If diagnosed, treatment must be given immediately to reduce the risk of contracting it to the child. Until now, no data can show the effect of the COVID-19 pandemic on the success of the triple elimination program, either in Indonesia or in other countries. From this study, it is known that there was only a small decrease in testing for pregnant women for HIV and syphilis examinations, namely 1.54% and 1.15% in the COVID-19 pandemic period compared to the period before the COVID-19 pandemic. However, the data obtained only came from the three PHCs included in this study. It is possible that it still did not describe the actual situation in the population of pregnant women in Indonesia.

For STIs and HIV services to continue to run during the COVID-19 pandemic, several rules must be followed, such as every patient who will visit the service must still be screened for possible exposure and or have symptoms of COVID-19, perform good infection control, use reasonable personal protective equipment for health workers, the use of teleconsultation per government regulations, providing an appropriate schedule of examinations for each patient to reduce crowds and providing presumptive therapy and laboratory tests for patients who have exposures and symptoms related to STIs and or HIV. [21]

## Conclusions

One main limitation in conducting this study was that some of the data needed, especially those taken from the PHCs, were still not properly recorded, especially those related to STIs. Better record-keeping is needed to make data collection and analysis easier and more accurate.

The COVID-19 pandemic has impacted STIs services, especially for acute diseases, such as gonorrhea and syphilis. As for HIV-related services, this pandemic has had no significant impact. Further research on a broader scale is needed to confirm this lack of impact. Strategies to improve the examination and management of STIs and HIV cases must always be prepared and their effectiveness evaluated in their implementation during this pandemic or in the event of other disease outbreaks in the future.

## References

1. Kementerian Kesehatan Republik Indonesia. Pedoman Nasional Penanganan Infeksi Menular Seksual. 2016. Jakarta: Kementerian Kesehatan Republik Indonesia.
2. Direktorat Jenderal Pencegahan dan Pengendalian Penyakit. Laporan Perkembangan HIV AIDS & Penyakit Menular Seksual (PIMS) Triwulan I. 2021. Jakarta: Kementerian Kesehatan Republik Indonesia.
3. Direktorat Jenderal Pencegahan dan Pengendalian Penyakit. Program Pengendalian HIV AIDS dan PIMS Fasilitas Kesehatan Tingkat Pertama. 2017. Jakarta: Kementerian Kesehatan Republik Indonesia.
4. World Health Organization. Listings of WHO's response to COVID-19. 2020. Available from: https://www.who.int/news/item/29-06-2020-covidtimeline

5. Keputusan Presiden (KEPPRES) tentang Penetapan Bencana Nonalam Penyebaran Corona Virus Disease 2019 (COVID-19) Sebagai Bencana Nasional. 2020. Jakarta: Presiden Republik Indonesia.
6. Jiang H, Zhou Y, Tang W. Maintaining HIV care during the COVID-19 pandemic. *Lancet HIV*. 2020;**7(5)**:e308-e309. doi:10.1016/S2352-3018(20)30105-3
7. Menteri Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan Republik Indonesia nomor 52 tahun 2017 tentang Eliminasi Penularan Human Immunodeficiency Virus, Sifilis, dan Hepatitis B dari Ibu ke anak. 2017. Jakarta: Sekretariat Negara.
8. Napoleon SC, Maynard MA, Almonte A, *et al*. Considerations for STI Clinics During the COVID-19 Pandemic. *Sex Transm Dis*. 2020;**47(7)**:431-3. doi:10.1097/OLQ.0000000000001192
9. STDs Continue to Rise in the U.S. Press Release. 2019. Available from: Centers for Disease Control and Prevention. https://www.cdc.gov/nchhstp/newsroom/2019/2018-STD-surveillance-report-press-release.html
10. Centers for Disease Control and Prevention. CDC Fact Sheet: Incidence, Prevalence and Cost of Sexually Transmitted Infections in the United States. 2013. Available from: https://www.cdc.gov/std/stats/sti-estimates-fact-sheet-feb-2013.pdf.
11. El-Sadr WM, Justman J. Africa in the Path of Covid-19. *N Engl J Med*. 2020;**383**:e11.
12. Drain PK, Garrett N. SARS-CoV-2 pandemic expanding in sub-Saharan Africa: Considerations for COVID-19 in people living with HIV. *EClinicalMedicine*. 2020;**22**:100342. Published 2020 Apr 22. doi:10.1016/j.eclinm.2020.100342
13. Cusini M, Benardon S, Vidoni G, Brignolo L, Veraldi S, Mandolini PL. Trend of main STIs during COVID-19 pandemic in Milan, Italy. *Sex Transm Infect*. 2021;**97(2)**:99. doi:10.1136/sextrans-2020-054608
14. Apalla Z, Lallas A, Mastraftsi S, *et al*. Impact of COVID-19 pandemic on STIs in Greece. *Sex Transm Infect*. 2022;**98(1)**:70. doi:10.1136/sextrans-2021-054965
15. de Miguel Buckley R, Trigo E, de la Calle-Prieto F, Arsuaga M, Díaz-Menéndez M. Social distancing to combat COVID-19 led to a marked decrease in food-borne infections and sexually transmitted diseases in Spain. *J Travel Med*. 2020;**27(8)**:taaa134. doi:10.1093/jtm/taaa134
16. Chia CC, Chao CM, Lai CC. Diagnoses of syphilis and HIV infection during the COVID-19 pandemic in Taiwan. *Sex Transm Infect*. 2021;**97(4)**:319. doi:10.1136/sextrans-2020-054802
17. World Health Organization. Disruption in HIV, Hepatitis and STI services due to COVID-19. 2020. Available from: https://www.who.int/docs/default-source/hiv-hq/presentation-disruption-in-services-international-aids-conference-2020.pdf?sfvrsn=d4bf1f87_7.
18. Jewell BL, Mudimu E, Stover J, *et al*. Potential effects of disruption to HIV programmes in sub-Saharan Africa caused by COVID-19: results from multiple mathematical models. *Lancet HIV*. 2020;**7(9)**:e629-e640. doi:10.1016/S2352-3018(20)30211-3
19. Dorward J, Khubone T, Gate K, *et al*. The impact of the COVID-19 lockdown on HIV care in 65 South African primary care clinics: an interrupted time series analysis. *Lancet HIV*. 2021;**8(3)**:e158-e165. doi:10.1016/S2352-3018(20)30359-3
20. Walker D & Walker G. Still Neglected and Still Not Gone: The Implications of COVID-19 for the WHO Policy of Elimination of Congenital Syphilis. 2021. Available from: https://www.cgdev.org/blog/still-neglected-and-still-not-gone-implications-covid-19-who-policy-elimination-congenital
21. Napoleon SC, Maynard MA, Almonte A, *et al*. Considerations for STI Clinics During the COVID-19 Pandemic. *Sex Transm Dis*. 2020;**47(7)**:431-3. doi:10.1097/OLQ.0000000000001192.