

COVID-19 impact on testing, diagnosis and care of people with sexually transmitted infections in a low human development region, Minas Gerais, Brazil

Impacto da COVID-19 na testagem, diagnóstico e cuidado de pessoas com infecções sexualmente transmissíveis em uma região de baixo desenvolvimento humano, Minas Gerais, Brasil

Impacto de COVID-19 en las pruebas, el diagnóstico y la atención de personas con infecciones de transmisión sexual en una región de bajo desarrollo humano, Minas Gerais, Brasil

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Abstract

This study aimed to analyze the impact of the COVID-19 pandemic on the care of people with Sexually Transmitted Infections (STIs) in a region of low human development, located in Minas Gerais, Brazil. Methods: The number of monthly procedures during pandemic period, January to December 2020, and comparison period, January to December 2019, in a SUS regional clinic, a reference for STIs, were analyzed. Visits were categorized into follow-up appointments, rapid tests, viral loads and first appointment due a recent diagnosis. Comparison between both periods was performed by frequency analysis, difference in the mean monthly attendances (DM) and prevalence ratios (PR), considering ratio between the proportion of attendances in the pandemic period/proportion of attendances in the comparative period. During the pandemic period, the average number of monthly consultations reduced for all consultations (DM = -105.25) and categories. Proportion of consultations reduced for rapid tests (PR = 0.46; 95% CI = 0.41-0.52) and first consultation due recent diagnosis (PR = 0.90; 95% CI = 0.65-1, 25), procedures that are usually scheduled by the user. There was an increase in the proportion of follow-up visits (PR = 1.18; 95% CI = 1.09-1.27) and viral load tests (PR = 1.41; 95% CI = 1.32-1, 88), monitoring procedures usually scheduled by the clinic. There was a trend to maintain risk exposure for STIs. Conclusion: These findings may guide better strategies to care for individuals with STIs.

Keywords: HIV; COVID-19; Sexually transmitted infections; Health services.

Resumo

Este estudo teve como objetivo analisar o impacto da pandemia por COVID-19 no atendimento às pessoas com Infecções Sexualmente Transmissíveis (IST) em uma região de baixo desenvolvimento humano, localizada em Minas Gerais, Brasil. Métodos: Foram analisados o quantitativo de atendimentos mensais, realizados no período pandêmico, janeiro a dezembro de 2020, e no período de comparação, janeiro a dezembro de 2019, em uma clínica regional do SUS, referência para IST. Os atendimentos foram categorizados em consultas de acompanhamento, testes rápidos, cargas virais e primeira consulta devido ao diagnóstico recente. A comparação entre os dois períodos foi realizada por análise de frequência, pela diferença nas médias de atendimentos mensais (DM) e pela razão de prevalência (RP), considerando a razão entre a proporção dos atendimentos no período pandêmico/ proporção dos atendimentos no período comparativo. No período pandêmico, o número médio de atendimentos mensais reduziu para todos atendimentos (DM = -105,25) e categorias. A proporção de atendimentos reduziu para testes rápidos (RP = 0,46; IC 95% = 0,41-0,52) e primeira consulta por diagnóstico recente (RP = 0,90; IC 95% = 0,65-1,25), procedimentos que habitualmente agendados pelo usuário. Houve aumento na proporção de consultas de acompanhamento (RP = 1,18; 95% CI = 1,09-1,27) e realização de exames carga viral (RP = 1,41; IC 95% = 1,32-1,88), procedimentos de monitoramento habitualmente agendados pela clínica. Houve uma tendência em manter a exposição de risco para IST. Conclusão: Os achados podem orientar melhores estratégias para atender os indivíduos com IST.

Palavras-chave: HIV; COVID-19; Infecções sexualmente transmissíveis; Serviços de saúde.

Resumen

Este estudio tiene como objetivo analizar el impacto de la pandemia COVID-19 en la atención de personas con Infecciones de Transmisión Sexual (ITS) en una región de bajo desarrollo humano, ubicada en Minas Gerais, Brasil. Métodos: Se analizó el número de consultas mensuales realizadas en el período pandémico, de enero a diciembre de 2020, y en el período de comparación, de enero a diciembre de 2019, en una clínica regional del SUS, referencia en ITS. Las visitas se categorizaron en citas de seguimiento, pruebas rápidas, cargas virales y primera cita por diagnóstico reciente. La comparación entre los dos períodos se realizó mediante análisis de frecuencia, por la diferencia en las asistencias medias mensuales (DM) y por la razón de prevalencia (RP), considerando la razón entre la proporción de asistencias en el período pandémico / proporción de asistencias en el período comparativo. Durante el período de la pandemia, el número medio de consultas mensuales se redujo para todas las consultas (DM = -105,25) y categorías. La proporción de consultas se redujo para pruebas rápidas (RP = 0,46; IC 95% = 0,41-0,52) y primera consulta por diagnóstico reciente (RP = 0,90; IC 95% = 0,65-1,25), procedimientos que suelen ser programados por el usuario. Hubo un aumento en la proporción de visitas de seguimiento (RP = 1,18; IC del 95% = 1,09-1,27) y pruebas de carga viral (RP = 1,41; IC del 95% = 1,32-1,88), procedimientos de seguimiento generalmente programados por la clínica. Hubo una tendencia a mantener la exposición al riesgo de ITS. Conclusión: Los hallazgos pueden orientar mejores estrategias para cuidar a las personas con ITS.

Palabras clave: VIH; COVID-19; Infecciones de transmisión sexual; Servicios de salud.

1. Introduction

In response COVID-19 pandemic in March 2020, measures were taken to reduce the transmission of SARS-CoV-2 worldwide. By reinforcing the importance of physical and social distancing (Minas Gerais, 2020), these measures have also led to a reconfiguration of clinical services that provide care for Sexually Transmitted Infections (STI), Human Immunodeficiency Virus (HIV) and viral hepatitis (Golin et al., 2020; Adadi & Kanwugu, 2021).

Due epidemiological scenario of COVID-19 in the state of Minas Gerais, IST/AIDS and Viral Hepatitis Coordination offered new guidelines to the Specialized Care Services advising new care routines. People living with HIV with an undetectable viral load, clinically and immunologically stable, reduced from semester to annual follow-ups and viral loads (Coes Minas, 2020).

Between this annual follow-ups, these people should continue to be followed by other professionals from a multidisciplinary team. Despite this, STI care is characterized by being almost restricted to specialized services and it leads to a "discontinuity of care". Only few persons access other health care services of Brazilian National Health System (SUS) (Ministério da Saúde, 2018a). A significant part of specialized clinics are operating at full capacity, without organized flows and as a non-comprehensive process (Ministério da Saúde, 2020).

This study aims to analyze the impact of COVID-19 pandemic on provision of STI health care from a specialized STI clinic. Identifying elements that currently affect the control of HIV, AIDS, STI and viral hepatitis can direct health care policies and better strategies to assist these individuals.

2. Methodology

This is an observational, longitudinal and descriptive study in which were analyzed the number of procedures, performed from January 2019 to December 2020, by a SUS regional clinic, specialized in STI. This clinic was located in Vale do Jequitinhonha, northeast of Minas Gerais and received people over 13 years old with suspicion or diagnosis of STI, being a reference for 28 municipalities, from 3 different health regions. It acts in a lower economic and human development area than other parts of the state. Its Gross Domestic Product (GDP) represents only 2.0% of Minas Gerais GPD (IBGE, 2020). There is moderate variation (0.151) in Municipal Human Development Index (IDHM), between municipalities (IBGE, 2020).

Data collection took place from March to April 2021. This study used data regarding the monthly number of health procedures performed by reasons for visit. This data is used to launch of the Outpatient Production Bulletin (BPA), from SUS Outpatient Information System (SIASUS) (SIAUS, 2008). Reasons for visit were: follow-up appointments; rapid tests; viral

loads; and recent diagnosis appointments.

Follow-up appointments considered user origin (headquarters city or region), underlying problem (HIV, Hepatitis B, Hepatitis C, Post-Exposure Prophylaxis, Syphilis or other STI) and way of access (in person or remote). Rapid tests considered rapid tests for HIV, Hepatitis B, Hepatitis C and Syphilis. These tests are always carried out together. Thus, the total number of tests performed were registered without separating the kind of test compiled. Viral load tests considered the scheduled PCR quantitative exams by underlying disease (HIV RNA, HCV RNA or HBV DNA) and the number of absences. Recent diagnoses appointments considered the number of appointments due a confirmed diagnosis, by rapid test and viral load, organized by type of virus (HIV, Hepatitis B and Hepatitis).

Monthly number of these procedures were examined between January to December, 2019 (comparison period) and January to December, 2020 (pandemic period). Results were graphed using the WPS office spreadsheet. In addition, procedures numbers were compared using mean differences and ratios. The change in number of procedures per month, during the pandemic period and the comparison period, was calculated as the difference in mean number of each visit category ([mean number of procedures {pandemic period}] – [mean number of procedures {comparison period}]). The prevalence ratio (PR) was calculated for each procedure category as the proportion of number of procedures during the pandemic period divided by proportion of number of procedures during the comparison period ([procedures in category {pandemic period}/all procedures {pandemic period}]/[procedures in category {comparison period}/all procedures {comparison period}]). This comparing method has been used in other health institutions to study similar thematic (Hartnett et al., 2020). These analyses were conducted by both authors (PRCR and DBO), using R software (version 3.6.0; R Foundation).

The study was approved by the Institutional Ethics Committee, opinion number 4.701.418, CAAE 36223420.8.0000.5108. Procedures followed were in accordance with the ethical standards of the responsible committee on institutional, regional and national human experimentation and in accordance with the principles of Declaration of Helsinki, 1964, as revised in 1975, 1983, 1989, 1996, and 2000.

3. Results and Discussion

The difference between mean number of procedures during pandemic and comparison period, reduced for all category procedures and is presented in Table 1.

Table 1: Differences in mean monthly numbers of procedures and prevalence ratios comparing proportion of procedures in each category. Diamantina, 2019 (comparison period) and 2020 (pandemic period).

Procedure category	Change in mean n ^o of monthly procedures*	Prevalence Ratio (95% CI)**
All procedures	-105.25	
Follow-up appointments	-25.25	1.18 (1.09 - 1.27)
Rapid tests	-56.67	0.46 (0.41 - 0.52)
Scheduled Viral loads	-19.92	1.41 (1.32 - 1.51)
Performed Viral loads***	-17.25	1.17 (1.05 - 1.30)
Recent diagnosis	-3.42	0.90 (0.65 - 1.25)

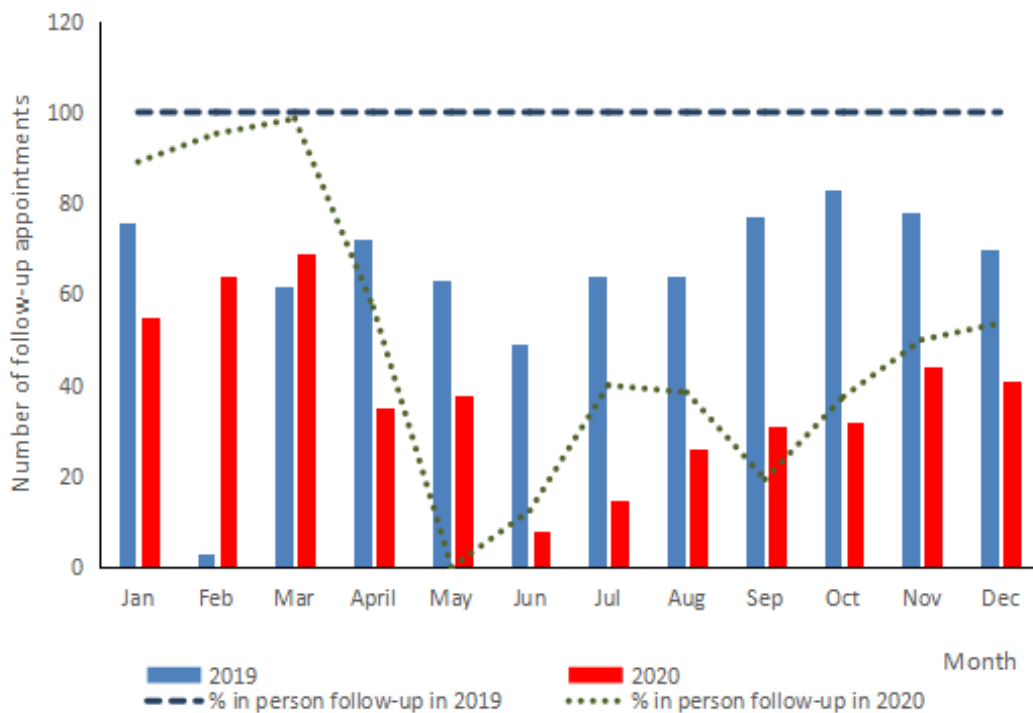
Notes: CI: confidence interval; * The change in procedures per month during pandemic and comparison periods was calculated as the mean difference in procedures between the two periods (mean number of procedures in visit category, {pandemic period} – mean number of procedures in visit category, {comparison period}); **Ratio calculated as the proportion of all procedures in each visit category during the pandemic period, divided by the proportion of all procedures in that category during the comparison period ([procedures in category {pandemic period}/all procedures {pandemic period}]/[procedures in category {comparison period}/all procedures {comparison period}]). Ratios >1 indicate a higher proportion of visits in that category during the pandemic period than the comparison period. Ratios <1 indicate a lower proportion during the early pandemic than during the comparison period; ***Consider difference between scheduled viral loads and absences in this exam.

Source: Authors (2021).

Proportion of visits during pandemic period were lower than comparison period for rapid tests (PR = 0.46; 95% CI = 0.41-0.52) and recent diagnosis (PR = 0.90; 95% CI = 0.65-1.25). Proportion of visits during pandemic period were higher than comparison period for follow-up appointments (PR = 1.18; 95% CI = 1.09-1.27), scheduled viral loads (PR = 1.41; 95% CI = 1.32-1.88) and performed viral loads (PR = 1.17; 95% CI = 1.05 - 1.30).

In 2020, there were only 60% of follow-up appointments carried out in 2019. Figure 1 shows a downward trend from January to June 2020, followed by recovery after July, but the number of follow-ups reported in December 2020 was still 58% of reported in December 2019, before pandemic announcement in country.

Figure 1: Number of follow-up appointments and proportion of in-person consultations. Diamantina, January 2019 to December 2020.



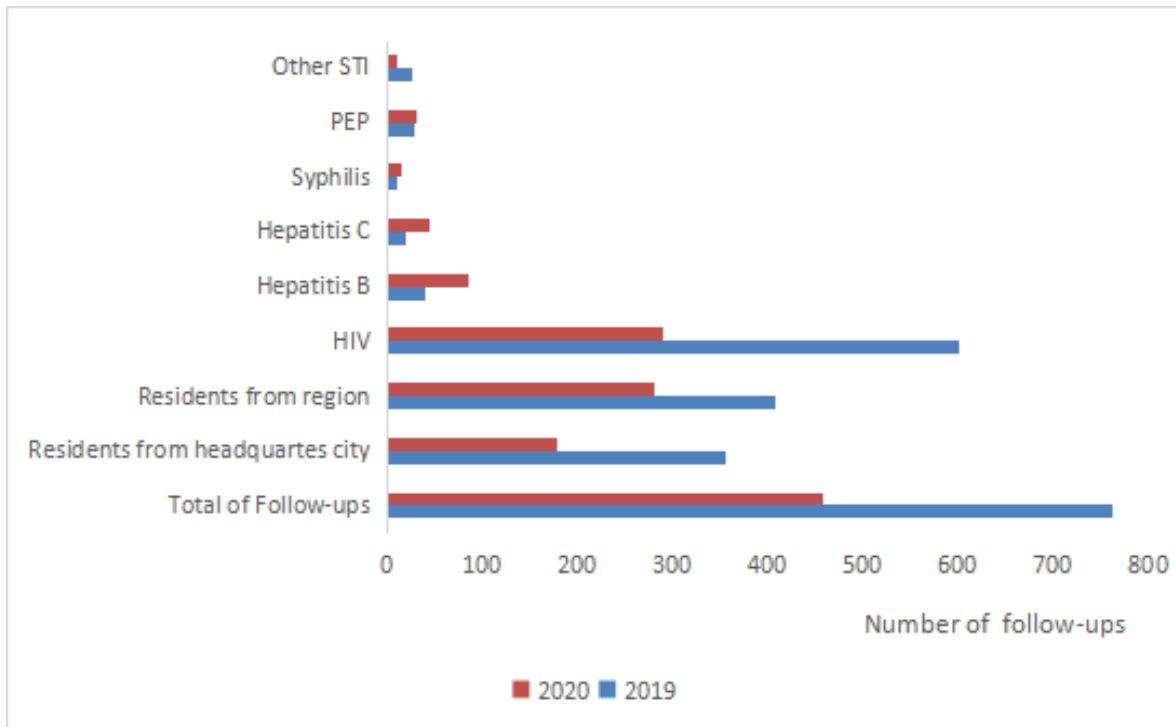
Source: Authors (2021).

After April 2020, there was an increase in remote consultations (telephone and email). During data collection period, the clinic had only four professionals, a coordinator, a pharmacist, a nursing technician and a half-time general practitioner doctor. All appointments were performed by this doctor. There were no clinical nurses, psychologists or social workers. In May 2020, all consultations were remote, due a doctor's home office period. During 2020, clinic changed to temporary locations twice, in April and again in May 2020. Adjustments were needed in these temporary structures, compromising the provision of care for some days. After May 2020, there was a gradual return to face-to-face consultations.

In 2020, follow-up appointments for headquarters city residents, reduced 50% comparing to 2019. For residents from other counties, were performed 68% of follow-ups that took place in 2019. Users residing outside the headquarters city, get to the clinic by ambulance under more regular flows, having a less impact in follow-ups.

Population living with HIV was the most impacted in terms of number of visits, as presented in Figure 2.

Figure 2: Number of follow-up appointments performed by origin and underlying problem. Diamantina, 2019 and 2020.

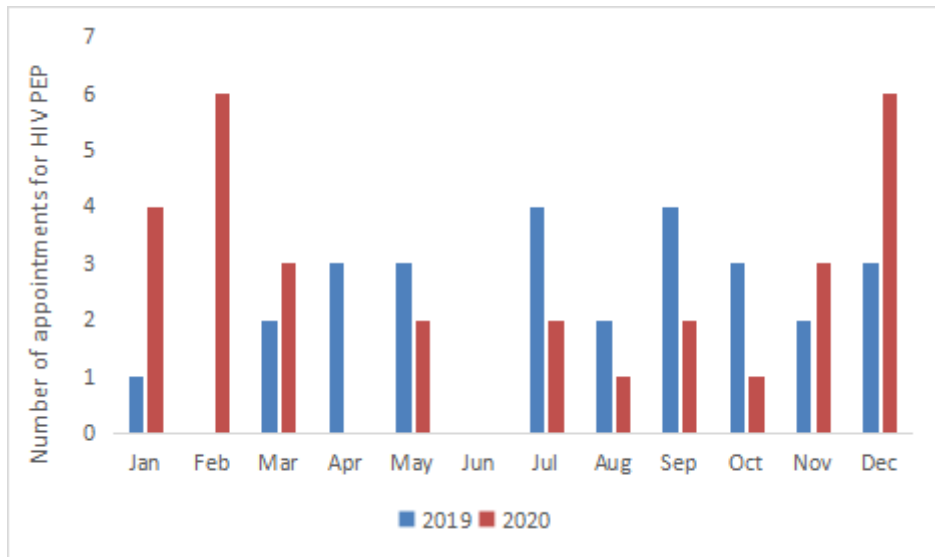


Notes: PEP: Post-Exposure Prophylaxis for HIV; STI: Sexually Transmitted Infection. Source: Authors (2021).

There were only 48% of visits for HIV follow-up compared to 2019. Other reasons for visits, already represented a smaller proportion of appointments in 2019 and were less impacted. Some of them had a slightly higher demand. The downward trend in HIV follow-ups was from March to June 2020, followed by a recovery after July. Despite this, in December 2020, were performed only 58% of HIV follow-ups performed in December 2019. Apparently the initial fear of getting Covid-19 visiting the clinic was overcome after July, but population living with HIV remained more cautious.

Post-Exposure Prophylaxis (PEP) for HIV after sexual exposure is used to prevent this infection (Ministério da Saúde, 2018b). Between January and March 2020, appointments for PEP were higher than 2019, as presented in Figure 3.

Figure 3: Number of appointments for HIV Post-Exposure Prophylaxis (PEP). Diamantina, January 2019 to December 2020.

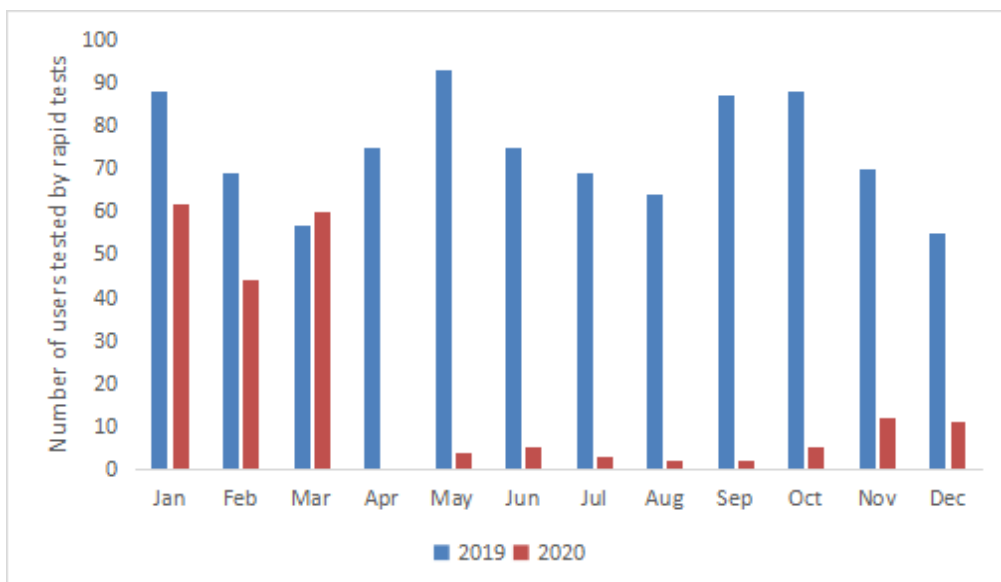


Source: Authors (2021).

Between March and August 2020, the number of medical consultations for PEP decreased sharply. In November 2020, PEP appointments became, once again, higher than in 2019. Proportion of PEP appointments in December 2020 (14,6%), were significant higher than in December 2019 (4,3%). Even with pandemic persistence and distancing measures in force there was a trend towards higher exposure to HIV along the time.

In Figure 4, procedures were categorized by the monthly number of people who had visit the clinic wishing to be tested.

Figure 4: Number of users tested to Syphilis, HIV, Hepatitis B and Hepatitis C. Diamantina, January 2019 to December 2020.

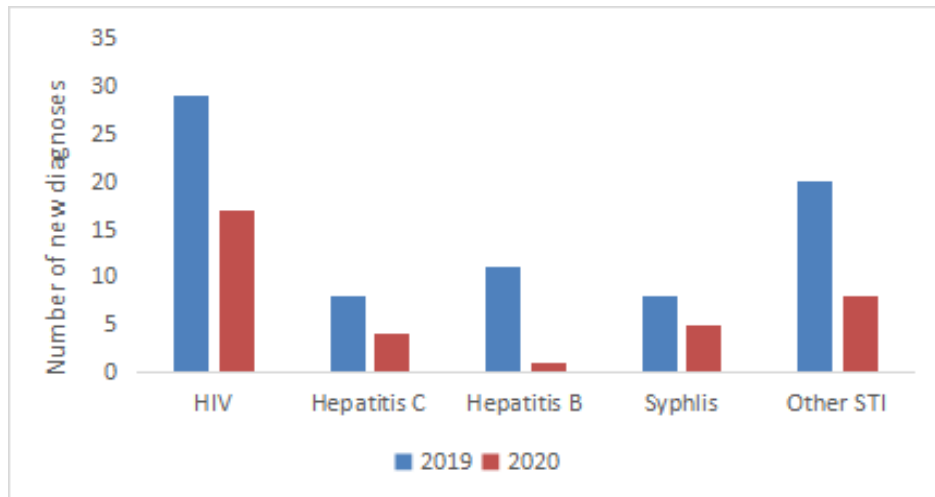


Source: Authors (2021).

There was an important reduction in number of rapid tests compared to 2019, especially from April 2020, followed by a little increase in testing after November 2020. Although, in December 2020, only 20% of rapid tests were performed comparing to December 2019. Four rapid tests were available: HIV, hepatitis B, hepatitis C and syphilis. These four tests were

always performed together. In Figure 5 is presented the number of new diagnoses of HIV, Hepatitis B, Hepatitis C, Syphilis in the clinic.

Figure 5: Number of new diagnoses of HIV, Hepatitis B, Hepatitis C, Syphilis and other STIs. Diamantina, 2019 and 2020.



Notes: STI: Sexually Transmitted Infections. Source: Authors (2021).

There was a reduction in number of diagnoses of HIV, Hepatitis B and Hepatitis C in 2020. Hepatitis B diagnoses were the most impacted. In 2020, only 9% of diagnoses were confirmed compared to 2019. HIV diagnoses in 2020 represented 59% of HIV diagnoses in 2019. Similar trends were observed in England, in STI, HIV and Viral Hepatitis clinics (Public Health England, 2020; Prabhu, Poongulali & Kumarasamy, 2020). It is likely that there is an under-diagnosis due to the fear of getting Covid going to the clinic and, additionally, fear of suffering prejudice by being tested in other points health care network, like Primary Health Care (PHC)(UNAIDS, 2019). Another reason could be that people at lower risk were more concerned to be tested. A study carried out in England (Public Health England, 2020) observed that those at more risk, as drug users, may have been less tested. Low number of STI diagnoses should be interpreted with caution.

Viral loads were interrupted in April, May and August 2020, due reforms in clinic structure and unavailability of a trained professional. In March, 2020, early pandemic period, there was an insecurity regarding the transport and permanence of a large number of people, considered risk groups for COVID-19, crowded in a small and temporary building. Since September 2020, usual number of scheduled viral loads was reestablished immediately. Despite this, the percentage of absences increased again and approached to comparison period. In 2019, 761 viral loads were scheduled and occurred 40% of absences, while in 2020, 617 viral loads were scheduled and occurred 50% of absences.

Results suggest that measures adopted during COVID-19 pandemic, may have led to reorganization of people's priorities. There was a commitment in patient access to already fragile STI care. Changes in number of procedures and in reasons for visiting STI clinic follow social distance measures, including an emphasis on staying at home. The biggest drop was seen in services that cannot be provided remotely, such as rapid tests. The lower prevalence ratio of rapid tests can be responsible for lower prevalence ratio of recent diagnosis. Follow-up appointments can be provided remotely and could be an easier way to be assisted for those patients living distant from clinic headquarters municipality.

Higher prevalence ratio of viral loads can reflect more efforts from clinic professionals to keep this category up to date, scheduling these procedure every month, calling to patient's home to confirm and warning to those who missed scheduled viral load. This could mean that viral load has been considered the most important issue in STI assistance. Measures as timely diagnosis could have been considered less important. However, suspicion of an STI needs to be recognized as urgent.

Postponing the evaluation to another time can lead to a loss of diagnosis opportunity, clinical worsening and perpetuation of transmission chain.

Apparently, people show up more at appointments when called than by their own desire. Thus, health services that perform rapid tests for STIs should try to monitor people already known by their risk behavior or who regularly perform these tests. Calling people who are late as is done to other chronic diseases patients can help soften the problem.

Findings are supported by other researches (Parente et al., 2021; Bashh, 2020; Wilkinson & Grimsrud, 2020). Other studies suggest that measures of social distancing could have resulted in limited sexual partners, reduction in STI exposure and a drop in STI diagnoses (Public Health England, 2020). Despite this, the fear of infection by COVID-19 also discouraged visits to health services (Linnemayr et al., 2021; Jiang et al., 2020; Ridgway et al., 2020) and, as observed in this study, the risk exposure for STI may have increased.

Initiatives involving remote assistance, via internet, telephone or mail, have potential to increase access to services. Although, it is necessary to ensure that services remain widely accessible, especially because some STI predominantly affect socially excluded groups. Disparities exist in HIV outcomes and also in COVID-19 outcomes (Public Health England, 2020; Chenneville et al., 2020). Strategies involving peer support from the community and self-testing for STI may be an alternative (Public Health England, 2020).

4. Final Considerations

The full impact of measures to control COVID-19 pandemic on the HIV epidemic and other STI will take time to emerge and it depends on a long term recovery. It is not possible to say that decline in new diagnoses results from infections reduction. Future researches should be performed to verify changes in sexual behavior of key populations after pandemic, the number of new STI cases in next years and also the link with primary health care, service that is also part of SUS collaborative care network.

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