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ORIGINAL PAPER

The Trend in Suicide Risk Among People with HIV Before, During, and After the COVID-19 Pandemic Lockdown

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Abstract

Suicide Risk (SR) and the COVID-19 pandemic affected People with HIV (PWH) disproportionately in comparison with the general population, but little information on SR during and after the COVID-19 lockdown on the Latino PWH has been described, therefore, this study aimed to describe SR in PWH attended the HIV clinic before (2018–2019), during (2020), and after (2021–2022) the COVID-19 lockdown, the trend of SR, and the factors associated. Three standardized questions from the "Columbia-Suicide Severity Rating Scale" (C-SSRS) were routinely applied as screening for suicide risk to all PWH attending their clinical visits during 2018–2022. We estimated suicidality risk and rate. We compared sociodemographic characteristics in those with and without SR. We evaluated the potential association of SR with the calendar year before, during, and after the COVID-19 lockdown using a mixed-effects logistic regression. A total of 2330 patients were seen during the study period; 2157 (93%) were evaluated for suicidality at least once, of those, 75 (3.5%) had SR. Those with SR compared with non-SR were more frequently women (20% vs 10%) and with a heterosexual HIV transmission route (29% vs 23%). SR rates per 1000 patients-day among those evaluated were 0.03 in 2018, 0.25 in 2019, 3.16 in 2020, 7.0 in 2021 and 11.98 in 2022. Throughout the model, independently of covariables, a significant increase in the OR of SR was observed in these years compared to 2018: 1.07 in 2019; 2.74 in 2021; and 4.82 in 2022, except in 2020, OR = 0.18.

Keywords Suicide risk · People with HIV · COVID-19 · Pandemic · Lockdown · Latin America and the Caribbean

Resumen

El Riesgo Suicida (RS) y el COVID-19 afectaron de manera desproporcionada a las Personas con VIH (PWH) en comparación con la población general, pero se ha descrito poco sobre el RS durante y después del confinamiento por COVID-19 en PWH latinas, por lo tanto, nuestro objetivo fue describir el RS en las PWH y asistieron a una clínica de VIH antes (2018–2019), durante (2020) y después (2021–2022) del confinamiento, la tendencia del RS y los factores asociados. Se aplicaron tres preguntas estandarizadas de la "Columbia-Suicide Severity Rating Scale" (C-SSRS) como tamizaje rutinario

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de RS a las PWH que acudieron a sus visitas clínicas durante 2018–2022. Estimamos el RS, las tasas y comparamos las características sociodemográficas en aquellos con y sin RS. Evaluamos la asociación potencial de RS con el año-calendario antes, durante y después del confinamiento utilizando una regresión logística de efectos mixtos. Fueron atendidas 2330 PWH durante el período de estudio; 2157 (93%) fueron evaluados para detectar RS al menos una vez, de estos, 75 (3.5%) tenían RS, quienes fueron con mayor frecuencia mujeres (20% vs. 10%) y con una vía de transmisión heterosexual (29% vs. 23%). Las tasas de RS por 1000 pacientes-día entre los evaluados fueron de 0.03 en 2018, 0.25 en 2019, 3.16 en 2020, 7.0 en 2021 y 11.98 en 2022. En el modelo, independientemente de las covariables, se observó un aumento significativo de OR de RS en comparación con 2018: 1.07 en 2019; 2.74 en 2021 y 4.82 en 2022, excepto en 2020 (OR = 0.18).

Palabras clave Riesgo suicida · personas con VIH · COVID-19 · pandemia · confinamiento · América Latina y el Caribe

Introduction

Coronavirus disease caused by SARS-CoV-2, was identified for the first time in November 2019 in Wuhan, China. On February 2020 the World Health Organization declared COVID-19 as a potential threat to global public health [1]. In Mexico, the first case of COVID-19 was registered on February 28, 2020, schools were closed on March 20 and COVID-19 was declared as a sanitary emergency by authorities on March 30, suspending all non-essential activities [2, 3]. Public health measures such as lockdowns were implemented in all the world to delay and flatten the epidemic curve, preventing the overwhelming of the healthcare system [4].

In the general population, the pandemic situation and the public health measures taken during that period, appear to be associated with an increase in suicide ideation, suicide attempts, and self-harm when it is compared with pre-pandemic rates [5]. In users of psychiatric emergency services, increases in suicidal ideation, suicide plans, and suicide attempts were reported during the first wave of COVID-19 in comparison with the same period of the previous year [6]. Finally, in non-HIV population, the self-harm and suicidal ideation during the pandemic were associated with feelings of loneliness, young age, being part of a minority, and living with an infection [7].

In PWH, according to a meta-analysis, the estimated prevalence of specific suicidal behaviors before the COVID-19 pandemic was high (suicidal ideation = 20.9%, suicide plans = 7.5%, suicide attempts = 8.1%) [8], then in 2020 the COVID-19 pandemic started generating interruptions in clinical visits, difficulties in ART adherence, discontinuation in follow-up services, and an increase in mental disorders such as anxiety, depression, and substance use [9, 10].

Over time, high percentages of suicidal ideation in PWH from different countries were reported during or after the pandemic; Ukraine = 10.6% [11], the United Kingdom = 19.8% [12], Uganda = 22% [13] and, in America, the percentages goes from 3.3% to 50% [14]. Additionally, in qualitative studies, PWH reported that the lockdown caused confusion, lack of control, and attributed suicidal thinking and hopelessness [13].

All this information is alarming because it is well-known that current suicidal ideation and a history of suicide attempts are some of the most consistent predictors of future suicide attempts [15, 16]. For every 2 PWH with suicidal ideation, one of them has a suicide attempt, and for every 13 suicide attempts one person may complete suicide [17] and suicide represented the 7th cause of death not attributable to HIV, and 2% of the deaths among PWH had been due to suicide [18].

There is little information about the prevalence of suicidality in PWH during the COVID-19 pandemic, there is high variability in the results of available studies, and a lack of longitudinal studies that make it difficult to understand the trends of suicide risk before, during, and after the pandemic lockdown, moreover, information on the Latino population is still lacking. Therefore, we aim to describe SR in PWH who attended an HIV clinic before (2018–2019), during (2020), and after (2021–2022) the COVID-19 lockdown, the trend of SR, and the factors associated.

Methods

Study Design and Settings

The present is a retrospective cohort study conducted at the HIV Clinic in the Instituto Nacional de Ciencias Médicas y Nutrición "Salvador Zubirán" (INCMNZ) one of the National Institutes of the Mexican Ministry of Health that provides tertiary care for adults as part of the National HIV Program.

Sample

All HIV active adult patients receiving care at the HIV Clinic of the INCMNSZ were included and analyzed by calendar year (2018, 2019, 2020, 2021, and 2022) those years correspond to three important periods; before (2018–2019), during (2020) and after (2021–2022) COVID-19 lockdown. Active patients were defined as those who at least had one viral load determination, ARV treatment pharmacy collection, or clinic visit within a calendar year.

Data Sources/Measurement

The data for this analysis was taken from the most updated database of the HIV Clinic from the INCMNSZ, where we have been prospectively collecting in a standardized manner the demographic, clinical, and laboratory information from all HIV patients in every medical visit since 2002.

Suicide Risk was evaluated using the first three standardized questions from the C-SSRS [19], these questions have been routinely applied since 2018 by medical staff in every HIV clinical visit. C-SSRS has been translated and adapted for Spanish-speaking patients [20] and used in the Mexican population with high reliability (Cronbach's alpha = 0.92) [21].

The three questions from C-SSRS evaluate: 1. Wish to be dead, 2. Suicidal thoughts and 3. Suicidal ideation with any method. Patients who answered "yes" to any of the three questions in any clinical visit, were considered positive to SR, and the person was referred to the psychology staff of the HIV Clinic. Only one positive evaluation per year was considered for the analysis.

Those who responded the suicide questions at least once in each year of the study were named "Evaluated". We categorized those evaluated as follows: Positive to suicide risk: Those who answered "Yes" to any of the suicide risk screening questions in any of their evaluations during the analyzed year. Negative to suicide risk: Those who answered "No" to all the suicide risk screening questions in all their evaluations during the year analyzed. Clinical and sociodemographic characteristics including age, sex, education level, viral load, CD4 count, transmission route, and loss to follow-up were collected.

Statistical Methods

We described active patients, of those, we calculated the percentages of positive to SR at any year of study between evaluated patients. We estimated the rate of suicide risk as the number of patients with a positive response per 1000 patients-day. We calculated for that the accumulated follow-up time among evaluated patients throughout the year.

We described and compared the sociodemographic characteristics of those classified with SR vs. those without SR. We evaluated the potential association of calendar year on the positive to SR probability using a mixed effects logistic regression including sex, age, and CD4 count at evaluation date, cumulative time in care, calendar year, and route of HIV transmission as fixed effects. We used the CD4 value closest to the date of evaluation. Statistical analyses were performed using RStudio version 4.3.1; 2023.06.16.

Ethics

The Database of the HIV Clinic at the INCMNSZ is part of the Caribbean, Central and South America network for HIV epidemiology (CCASANet), the region 2 of the International Epidemiologic Databases to Evaluate AIDS (IeDEA; www.iedea.org, award U01AI069923) which has the purpose of collecting clinical HIV data to describe the unique characteristics of the epidemic in the region. All data is strictly de-identified before conducting a new analysis/study. The Coordinator Center at Vanderbilt University Medical Center and the participant sites approved this project by their local Boards and the informed consent was waived. This study was approved by the ethics committee (ref. 1738) with the last approval until October 2023.

Results

During the period of the study, a total of 2330 active patients were included in the analysis; 173 (7%) were not evaluated for suicidality during the period of the study and 2157 (93%) were evaluated at least once; of those who were evaluated for suicidality, we identified 2082 (96.5%) negative to suicide risk and 75 (3.5%) had at least one positive SR response.

Those positives to SR were more likely to be women (n = 15, 20%), their median age at the time of evaluation was 42 years (IQR = 35–53), heterosexual HIV transmission route (n = 22, 29%) and 5 (7%) had lost to follow-up. Of the 71 deaths reported, 3 were in the group with positive suicide risk, and 98 (57%) were in the group not evaluated and none of them attributed to suicide.

We observed differences related to transmission source (heterosexual, HSH, or other); those evaluated, reported "other" as a transmission source, (12%, Chi2 = 14.27, p = 0.001). Also, those who were evaluated and evaluated with SR were younger (median = 42, IQR = 35–52) than those who weren't evaluated (median = 45, IQR = 37–53), (KW = 9.94, p = 0.006) (Table 1).

Of the patients with positive SR, 66 reported a wish to be dead, 32 suicidal thoughts, 10 suicidal ideations with a plan, and 10 responded positively to the 3 suicide questions (Table 2). Patients with suicide risk had 1.9 (SD = ± 1.2) assessments/year and those with negative SR had 1.5 (SD = ± 0.8). We found 6 patients classified as SR in different calendar years, all of them during 2021–2022 (the after COVID-19 lockdown), 5 of them in 2018–2019 (before), and 2 of them in 2020 (during COVID-19 lockdown). Only one patient had SR in the three periods evaluated and the other 5 patients twice: before and after the COVID-19 pandemic.

Rates of SR assessment were 2.02 per 1000 patients-day in 2018, 2.68 in 2019, 1.37 in 2020, 0.94 in 2021 and 1.38 in 2022. A great proportion of women were evaluated for

Table 1 Clinical and demographic characteristics of all patients included in the study divided into groups of evaluation

Patients included Clinical and demographic characteristics	Active patients (N = 2330)			Statistical values (p-value)
	Not Evaluated n = 173 (7%)	Evaluated n = 2157 (93%)		
		Negative to SR, N = 2082 (96.5%)	Positive to SR, N = 75 (3.5%)	
Sex, n (%) Men Women	148 (86%) 25 (14%)	1865 (90%) 217 (10%)	60 (80%) 15 (20%)	9.0[1] (0.011)
Age in years, median at the evaluation (IQR)	42 (34–52)	45 (37–53)	42 (35–52)	9.9[2] (0.007)
Transmission route, n(%) MSM Heterosexual Other	108 (62%) 44 (25%) 21 (12%)	1486 (71%) 469 (23%) 127 (6%)	46 (61%) 22 (29%) 7 (9%)	14.3[1] (0.006)
Education in years, median (IQR)	12 (11–16)	14 (11–16)	14 (9–16)	1.8[2] (0.399)
Enrolment year, median (IQR)	2015 (2009–2019)	2011 (2006–2016)	2013 (2006–2017)	39.1[2] (0.000)
Deaths, n (%)	36 (21%)	32 (2%)	3 (4%)	201.1[2] (0.000)
Viral load, median (IQR)	–	40 (40–40)	40 (40–40)	1.6[2] (0.208)
CD4 count cells/ml, median (IQR)	–	508 (352–695)	466 (314–639)	1.6[2] (0.201)
Loss to follow up*, n (%)	98 (57%)	375 (18%)	5 (7%)	155.3[1] (0.000)

Statistics Test: 1) Chi-square, 2) Kruskal Wallis Rank Sum

*With the last available date more than 365 days from the cut-off date of the base 12/31/2021

Table 2 Total and percentage of evaluated patients and responses positives to the 3 questions per year

Period	Year	Total of evaluated patients n (% active)	Patients with suicide risk		
			Question 1. Wish to be dead n (% evaluated)	Question 2. Suicidal thoughts n (% evaluated)	Question 3. Suicidal ideation with any method n (% evaluated)
Before COVID-19 lockdown	2018	1482 (71%)	18 (1.21%)	10 (0.67%)	4 (0.27%)
	2019	1954 (93%)	21 (1.07%)	11 (0.56%)	6 (0.3%)
During COVID-19 lockdown	2020	954 (48%)	0 (0%)	2 (0.21%)	0 (0%)
After COVID-19 lockdown	2021	609 (31%)	15 (2.46%)	6 (0.98%)	1 (0.16%)
	2022	493 (30%)	17 (3.45%)	8 (1.62%)	1 (0.020%)

suicide risk in comparison with men, particularly in the period after COVID-19 lockdown: In 2021 (34% vs. 30% respectively) and 43% vs. 27% respectively, in 2022.

Rates for positive SR per 1000 patients-day among those who were evaluated, increased significantly from 0.03 in 2018, 0.25 in 2019, 3.16 in 2020, 7.00 in 2021, and 11.89 in 2022 (Fig. 1). Throughout the model, independently of covariables, a significant increase in suicide risk was observed with the following ORs (95% CI, p-values) per year compared to 2018: 1.07 (0.52–2.20, p = 0.85) in 2019; 0.18 (0.04–0.82, p = 0.03) in 2020; 2.74 (1.18–6.39, p = 0.02) in 2021; and 4.82 (1.86–12.51, p = 0.00) in 2022.

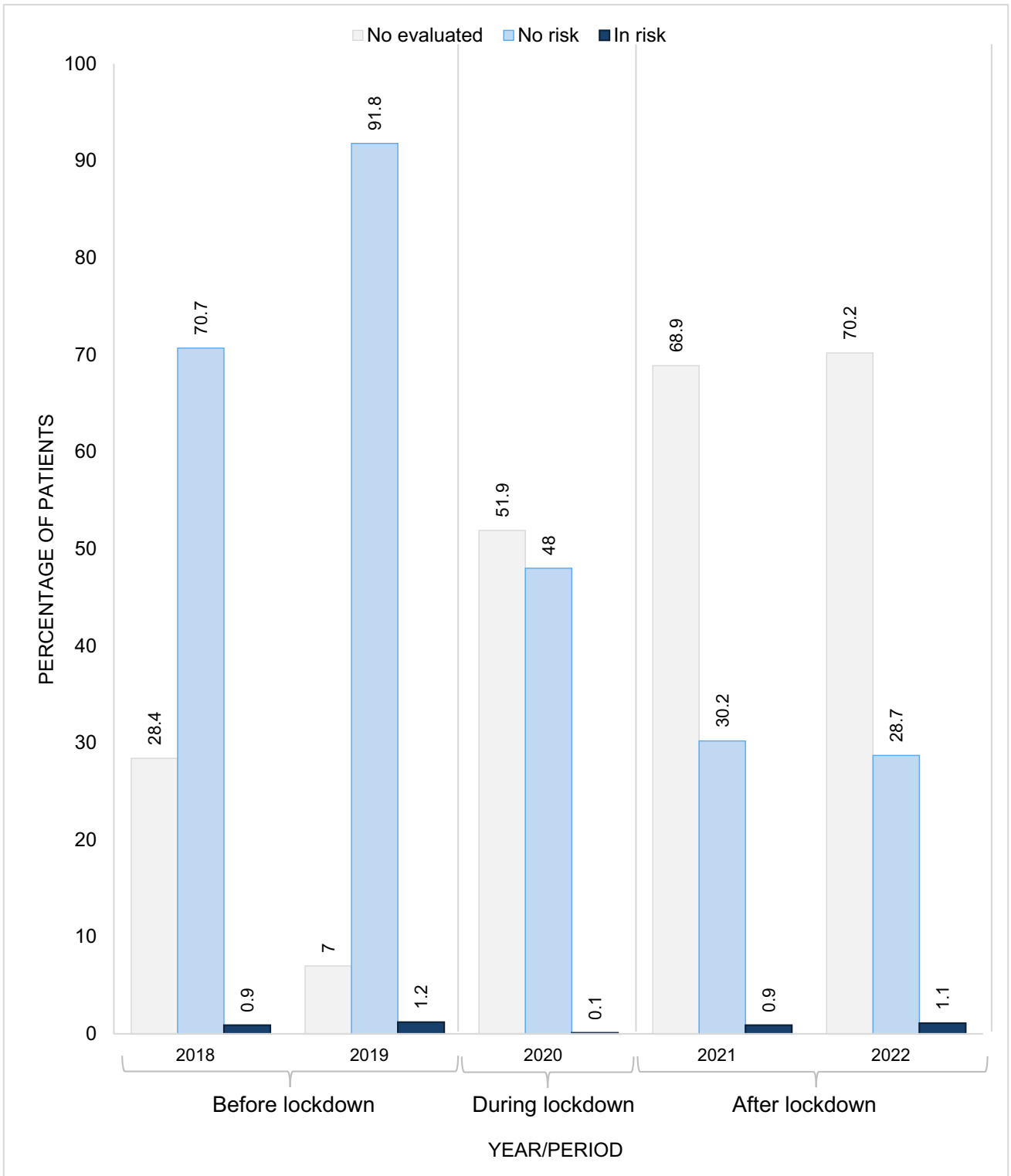

Fig. 1 Percentage of patients, status of evaluation, and result of evaluation according to the suicide risk every calendar year of study

Discussion

The present study aimed to describe the trend of change in the SR in PWH who attended to HIV clinic before (2018–2019), during (2020), and after (2021–2022) lockdown due to COVID-19 pandemic, as well as the factors associated. Suicide risk in PWH was significantly higher after the COVID-19 lockdown, after an adjustment for sex, transmission route, age, time on treatment, and antiretroviral. Overall, three percent of our active patients evaluated were found to have suicide risk with a median age was 42, women were significantly more affected and the highest potential route of HIV acquisition found in this group was heterosexual.

In our study, we found 3.5% of SR in those who were evaluated. This percentage is lower compared to a similar population in which it was found 10.4% of SR in hospitalized patients and 9.6% at discharge [22]. The differences could have several explanations: the discrepancies in the assessment tools applied [23], apart from hospitalized people are usually sicker patients, with no exception in mental health. In the present study, all patients assessed were outpatients, which may contribute to a lower proportion of SR in comparison with hospitalized patients [24].

Additionally, those hospitalized were interviewed by trained psychologists, increasing the probability of identifying SR [25]. In our site, SR was assessed by infectious diseases students without training in mental health which hinders them from properly evaluating the SR. Often untrained staff could have misperceptions, such as that, asking about suicide could "promote suicidal behaviors", or that questioning about suicide risk "are insensitive" or that those who are truly suicidal will not seek health care, or those expressing thoughts of suicide are "seeking attention" could play a role in SR evaluation. The latter is related to the stigma around suicide and overall towards people suffering from mental health conditions [26, 27].

Another possible explanation for our findings is related to the patients who are hindered from disclosing their suicidal thoughts to non-mental health professionals due to fear of negative judgment, fear of being minimized or considered "crazy", fear of discrimination, or lack of empathy during the routine evaluation [27]. Finally, our Clinic has specialized personnel dedicated only to HIV care, and therefore our population is more exposed to mental health screening and timely management. Unfortunately, around the globe, lack of staff with appropriate training for assessment and crisis management is lacking in most clinical settings [28].

Our results indicate suicide risk was significantly higher during and after the COVID-19 lockdown. These results are consistent with other studies in which suicidal ideation was more prevalent in comparison with the same period before the COVID-19 pandemic [29].

Contrary to what was expected, suicidality maintained an increasing trend after the lockdown. Although we don't have studies about the trend of suicidality in PWH, the Americas, Europe, and Asia have shown high rates of suicide in PWH and maintained an increasing trend in suicidal behavior [14]. This information is consistent with studies in general population showing long-lasting detrimental effects of COVID-19 on mental health [30], or a slight decrease after lockdown [31]. In terms of suicides in general population, these remained stable or decreased following the initial outbreak, but increased in countries like Mexico, Spain, or India and the increase in suicide trend is among socially racially minoritized or disadvantaged groups [32].

The increase in suicide risk can be related to the interruption in HIV services; interruption in the provision of HIV healthcare services, the supply of antiretrovirals, lack of follow-up, loss of adherence, and complications in health [9], generating lack of personal control, despair, hopelessness, social isolation, loneliness, and an increase in interpersonal difficulties which are common risk factors for suicide and are associated with the COVID-19 pandemic [13, 33]. Additionally, some studies have suggested that SARS-CoV-2 infection might eventually lead to biological dysregulation (nicotinic receptors, renin-angiotensin system, and inflammation) explaining the increasing suicidality after the pandemic and lockdown [33].

An interesting finding observed was the great proportion of lack of screening during and after COVID-19, similar to other studies in which declines in screening rates [34, 35]. One of the reasons of this decrease, could be related to the interruption of mental health training (including suicide risk evaluation in PWH) for new physicians during the pandemic. During 2018–2019, physicians received this training at least twice per year. Education and training for healthcare professionals are associated with a major likelihood of screening for suicide risk and with higher self-confidence in suicide assessment skills [36]. Additionally, the clinic was closed for regular consults except for more vulnerable people such as older population, those with comorbidities, virologic failure and/or low CD4 cell counts. It might happen that those experiencing more mental health disorders, and suicide risk, were not attending and therefore not evaluated.

Another finding was that women were more often screened than men, particularly in 2021 and 2022. Probably physicians evaluated them more frequently because women are perceived in major risk. Also, women showed a higher prevalence of suicide risk, which is consistent with the literature [37]. These findings are expected because in general, women were affected disproportionately during the COVID-19 pandemic [36]. Women with HIV are a vulnerable population; with lower schooling levels, less probability

of been employed, with lower incomes, and more likely to have experienced sexual violence in comparison with men [38] but their situation was worse during the pandemic [39].

Emerging infectious diseases reinforce health inequalities especially among vulnerable groups, resulting in unequal exposure, transmission, susceptibility, and treatment [40], in this case, HIV and COVID-19 generated a syndemic process, interacting to produce an increased burden of disease; exacerbating symptoms severity, morbidity and mortality [41]. Added to this are the mental health problems that are influenced by health inequalities and interact with HIV and COVID-19 [42, 43] becoming breeding grounds for suicide. Addressing structural factors during Health emergencies such as the COVID-19 pandemic, which favors inequalities in health, in collaboration between community organizations, policy members, researchers, activists, global leaders, and health experts is key to overcoming the mental health problems that we are faced globally and especially in vulnerable population such as the PWH community [44].

It is necessary to incorporate screening tools and effective, comprehensive, and multi-modal programs to address suicide risk and mental health problems in PWH, even more in resource-constrained settings, where there are promising strategies to integrate mental healthcare into HIV care, such as task-shifting, stepped care, trans-diagnostic approaches, technology-based approaches in addition to community-based interventions [45, 46].

On the other hand, in resource-constrained settings with scarce availability of mental health professionals, the main strategy is a selective screening in risky populations accompanied by improvement in the health information management system media education, education of primary care physicians, and targeted interventions on people who have a vulnerability to mental disorders or show subthreshold symptoms [46, 47].

Our results have several limitations. Clinical data is retrospective, which makes it difficult to have information about socio-demographic variables or psychiatric comorbidity in more detail to have a better understanding of this phenomenon. Our study was conducted in a single tertiary care center in Mexico City, therefore, our population may not be representative of the Mexican PWH. Further analysis regarding the mental health treatment, psychiatric comorbidities, and clinical outcomes in those identified with SR is needed. Nevertheless, the strength of the present study is that a standardized tool for SR screening was implemented before the COVID-19 emergency and therefore applied before, during, and after the COVID-19 pandemic showing alarming rates of SR in PHW.

In conclusion, suicide risk in PWH was significantly higher during and after the COVID-19 lockdown. Those with SR were more likely to be women, with a heterosexual transmission route, and with a median age of 42 years. Our data remarks the need for mental healthcare and might encourage HIV health providers to actively incorporate strategies to improve patient access to mental health services, according to the healthcare local systems, and the availability of human resources, and it is recommended to train health personnel on mental health and suicide risk issues.

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Author Contributions BCR, YCV, and JMC were responsible for the study concept and study design; BCR and JSM supervised the implementation of the study; BCR, YCV, ALI, and JSM provided methodological expertise; JMC conducted the search and review of the literature; YCV Was responsible for the acquisition of the data; YCV Was responsible for the interpretation of the data; BCR, YCV, JSM, ALI, critical revision for important intellectual content; JMC drafted the manuscript; JMC, BCR, YCV, JSM, and ALI read and commented all previous versions of the manuscript; JMC, BCR, YCV, JSM, and ALI gave their final approval of the version to be published.

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Declarations

Competing Interests The authors have no competing interests to declare that are relevant to the content of this article.

Ethical Approval The Database of the HIV Clinic at the INCMNSZ is part of the Caribbean, Central and South America network for HIV epidemiology (CCASANet), the region 2 of the International Epidemiologic Databases to Evaluate AIDS (IeDEA; www.iedea.org, award U01AI069923) which has the purpose of collecting clinical HIV data to describe the unique characteristics of the epidemic in the region. All data is strictly de-identified before conducting a new analysis/study. The Coordinator Center at Vanderbilt University Medical Center and the participant sites approved this project by their local Boards and the informed consent was waived. This study was approved by the ethics committee (ref. 1738) with the last approval until October 2023.

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