



Suicidal Ideation Among Adults Re-engaging in HIV Care in Argentina

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Abstract

Argentina has one of the highest suicide rates in Latin America and the Caribbean. Though people living with HIV are at increased risk for suicidal behavior, little research on suicide risk has been conducted among HIV-positive people in this region. This study examined risk factors for suicidal ideation among HIV-infected adults (N = 360) re-engaging in care in Argentina. Overall, 21% of participants reported suicidal ideation in the past week. In adjusted logistic regression models, younger age, increased depressive symptomatology, and drug abuse were associated with suicidal ideation ($p < 0.05$); decreased motivation for adherence and fewer months since initiating antiretroviral therapy approached significance ($p = 0.07$). Suicidal ideation was common in this sample of HIV-positive patients in Argentina. Findings highlight the need for routine risk assessment and interventions integrated into the HIV care continuum, addressing depression, substance use, and suicidal behavior.

Keywords HIV · Suicidal ideation · Argentina · South America · Engagement in care

Resumen

Argentina tiene una de las tasas de suicidio más altas de América Latina y el Caribe. Aunque las personas que viven con el VIH tienen un mayor riesgo de comportamiento suicida, se ha realizado poca investigación sobre el riesgo de suicidio entre las personas con VIH en esta región. Este estudio examinó los factores de riesgo que contribuyen a los pensamientos suicidas entre adultos con VIH (N = 360) quienes están revinculando con el tratamiento en la Argentina. El 21% de los participantes reportaron pensamientos suicidas en la semana pasada. En modelos de regresión logística ajustada, ser más joven, sintomatología depresiva, y el abuso de drogas estuvieron asociados con pensamientos suicidas ($p < 0.05$). Menos motivación para cumplir con el tratamiento y menos meses desde el inicio del tratamiento antirretroviral se aproximaron a tener una correlación con pensamientos suicidas ($p = 0.07$). Los pensamientos suicidas fueron prevalentes en este grupo de pacientes con VIH en la Argentina. Los hallazgos resaltan la necesidad de evaluaciones de riesgo e intervenciones integradas para la depresión, el uso de drogas y el comportamiento suicida entre pacientes con VIH.

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Palabras clave VIH · pensamientos suicidas · Argentina · América del Sur · compromiso con la atención

Introduction

The threat of AIDS-related morbidity and mortality has declined [1] following the introduction of antiretroviral therapy (ART). However, people living with HIV (PLHIV) remain at risk of mental health-related problems, such as suicidal behavior (i.e., suicidal ideation, suicide plans, and suicide attempts) [2] and death by suicide. Global research has shown that PLHIV are at greater risk for suicide and suicidal behavior compared to HIV-uninfected individuals [3]. Although physical illness is a known risk factor for suicide [4], living with HIV is one of the most widely documented physical illnesses that increase the risk for suicide. This is likely due in part to the stigma associated with living with HIV, which may increase feelings of perceived burdensomeness on others and thwarted belongingness, as proposed by the interpersonal-psychological theory of suicide [5, 6]. Additional risk factors for suicidal ideation (i.e., thoughts of suicide) [2] in PLHIV internationally include unemployment [7–9], younger age [8, 10, 11], female gender [8, 12, 13], depressive symptoms [8, 10, 12–16], HIV/AIDS-related symptoms [10, 13, 15, 17], and substance use [3, 8, 15]. Suicidal ideation may be a precursor of suicide; among those in the general population who experience suicidal ideation, 29% eventually attempt suicide, and among those who transition from ideation to attempt, 60% make this transition within 1 year of the onset of ideation [18].

Argentina has one of the highest suicide rates in Latin America and the Caribbean with a suicide rate at the 80th percentile for the region [19]. Following treatment to prevent suicide and suicidal behavior among patients hospitalized for suicidal ideation or attempt in Buenos Aires, Argentina, within 6 months after hospitalization, 22% attempted (or re-attempted) suicide and 34% were re-admitted [20]. Despite the magnitude of this public health issue, little research in Argentina has addressed risk factors for suicidal behavior in the general population [21] beyond investigations of suicidal behavior in young people [22] and elderly populations [23]. As structural, societal, and cultural factors may contribute to suicide rates and risk factors [24], development of culturally-tailored interventions to reduce suicide could make an important contribution in this setting.

Less research has been conducted on suicidal behavior among PLHIV in Argentina. Among HIV-negative men who have sex with men (MSM) in Buenos Aires, 17% reported they would contemplate suicide and 9% reported they would attempt suicide if they received a positive result on an at-home HIV test [25], suggesting that an HIV diagnosis increases the risk of suicidal behavior, as found in PLHIV in other regions [3]. Previous work by this team in Buenos Aires found HIV stigma to be more greatly associated with suicidal ideation in patients who were more recently

diagnosed with HIV, including stigma within the healthcare setting [26], potentially arising from perceived burdensomeness on others and thwarted belongingness [5, 6]. In research in other regions, perceived microaggressions in the healthcare setting or within the patient-provider relationship appeared to influence uptake of care and suicidal ideation [27], decreasing motivation for ART adherence [28] or life-sustaining treatment, possibly as a form of passive suicide attempt [29]. Similarly, suicidal ideation has been associated with decreased health-related self-efficacy, adjusting for gender, age, substance use, and distress [30]. The interpersonal-psychological theory of suicide proposes that a person must have the *acquired capability* for suicide [5] to progress from suicidal ideation to suicide attempt. Most PLHIV have experienced HIV-related symptoms or AIDS-related illnesses, experiences that may increase the risk for suicide attempts through increased habituation to pain and decreased fear of death, contributing to the acquired capability for suicide. Patients' feelings about engagement in HIV treatment, including motivation and self-efficacy to be adherent and the quality of the patient-provider relationship, are especially important targets of investigation for prevention of disengagement from care, as well as for suicidal risk.

This study examined factors associated with suicidal ideation among PLHIV in Argentina who were not retained in care. Building on the interpersonal-psychological theory of suicide [5, 6], it was hypothesized that patients reporting suicidal ideation would be more likely to have characteristics reflecting perceived burdensomeness and thwarted belongingness (i.e., low quality of patient-provider relationship) and decreased motivation and self-efficacy for adherence [31, 32]. It was further hypothesized that, as in previous studies, traditional risk factors would be associated with suicidal ideation among PLHIV in Argentina. It was hoped that results could be used to identify those at risk of suicidal ideation and provide opportunities for intervention during re-engagement in care.

Method

Data for this study was obtained at baseline from a prospective cluster randomized clinical trial, Conexiones y Opciones Positivas en la Argentina 2 (COPA2) [33]. Prior to study-related procedures, recruitment, or data analysis, the study was approved by the affiliated US Institutional Review Board (IRB) and by the IRBs at all participating Argentine sites. All participants signed an informed consent after being provided detailed study information and before any study procedures. All candidates were assured of the confidentiality of study records. Participants provided consent for medical

record abstraction to assess treatment history and laboratory results.

To enhance disclosure, reduce social desirability bias, and accommodate all literacy levels, demographic and psychosocial data was obtained using an audio computer-assisted self-interview (ACASI) system. All materials were translated into Spanish and had been adapted to the local context in previous research [34].

Clinics and Participants

Participants (N = 360) were recruited from seven clinics serving PLHIV in four urban centers in Argentina. Those eligible to participate in the study (1) were at least 18 years of age, (2) were diagnosed with HIV for more than 6 months, (3) had a recent (≤ 3 months) viral load of > 500 copies/mL following ≥ 6 months of ART prescription, and (4) were not retained in care (i.e., three missed pharmacy pickups in the last 6 months, *or* had not attended a physician visit in the last 12 months).

Measures

Demographics and Health

Demographic and health characteristics assessed include age, gender, marital status, employment status, clinic type (public vs. private, as one marker of socioeconomic status), sexual orientation, educational attainment, HIV/treatment history, viral load, and lifetime history of perceptual anomalies (i.e., visual or auditory hallucinations).

Depression and Suicidal Ideation

The Beck Depression Inventory-IA (BDI-IA, Spanish) [35], which has been validated in Argentina [36], was used to measure depressive symptoms in the past week. When analyzing the association between suicidal ideation and depressive symptoms, the suicidal ideation item (item 9) was excluded from the total BDI score, given that this item was used to assess the outcome of the study. On this item, scores of 0 (“I do not have any thoughts of killing myself”) were considered non-suicidal and scores of 1, 2, and 3 all counted as suicidal, as in previous research [37]. The ACASI system alerted study staff when participants endorsed moderate to severe depression (BDI total ≥ 17) or active suicidal ideation; these participants were administered suicide risk assessments by a health care provider and were referred for outpatient treatment or hospitalization as needed. Cronbach’s α reliability coefficient for the BDI in this sample was acceptable ($\alpha = 0.89$).

Drug Abuse

Drug abuse was assessed using the Drug Abuse Screening Test-10 (DAST-10, adapted, Spanish) [38]. It is a 10-item measure assessing the use of drugs (excluding alcohol and tobacco) and drug-related problems. In this study, Cronbach’s α reliability coefficient was 0.70, which is considered acceptable.

Alcohol Abuse

Alcohol abuse was assessed using the Alcohol Use Disorders Identification Test (AUDIT, Spanish) [39], a 10-item assessment of alcohol consumption and alcohol-related problems. In this sample, Cronbach’s α reliability coefficient for the AUDIT was acceptable ($\alpha = 0.81$).

Self-efficacy

Self-efficacy was assessed using the HIV Treatment Adherence Self-Efficacy Scale (HIV-ASES) [40], which measures the participant’s perceived self-efficacy in being adherent. Participants responded to each item using a scale of 0 (“cannot do at all”) to 10 (“completely certain can do”). Cronbach’s α reliability coefficient for the HIV-ASES was excellent ($\alpha = 0.92$).

Motivation for Adherence

The motivation subscale of the LifeWindows Information–Motivation–Behavioral Skills Adherence Assessment Questionnaire (LW-IMB-AAQ) [41] is a 10-item assessment that measures motivation to be adherent to antiretroviral therapy. The items use a 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Cronbach’s α reliability coefficient for the LW-IMB-AAQ in this study was in the acceptable range ($\alpha = 0.74$).

Patient-provider relationship

The patient-provider relationship was assessed using the Prerana Interview [42]. The measure includes 10 items that ask about the patient’s feelings toward and experiences at consultations with their health care provider. The assessment measures satisfaction with the patient-provider relationship, attitudes regarding treatment, and psychosocial barriers to patient-provider communication. Participants responded to each item using a 4-point scale ranging from 0 (“Never”) to 3 (“Every time”). Cronbach’s α reliability coefficient for the Prerana Interview in this sample was acceptable ($\alpha = 0.88$).

Statistical Analyses

Univariate analyses—means and standard deviations—were used to describe the sociodemographic, HIV-related, and psychosocial characteristics of non-suicidal versus suicidal participants; variables selected as potential correlates were based on previous research. Bivariate analyses—*t* tests, Mann–Whitney *U* tests, and Chi square tests—were used to compare suicidal versus non-suicidal participants. Subsequently, variables associated with suicidal ideation at $p < 0.05$ on bivariate analyses were included in a multivariable logistic regression model to calculate adjusted and unadjusted odd ratios as effect sizes, with suicidal ideation being the dichotomous outcome (non-suicidal versus suicidal). A Hosmer and Lemeshow χ^2 test was used to assess model fit, and Nagelkerke Pseudo R^2 was used to quantify explained variability. A cutoff of $p < 0.05$ level was used as the threshold for significance. Statistical Package for the Social Sciences (SPSS) v24 for a Macintosh operating system was used for all analyses.

Results

Sociodemographic Characteristics of Participants

Participants ($N = 360$) were HIV-infected men (49%) and women (51%) with a mean age of 39 years ($SD = 11$). Two-thirds (67%) of participants were single, divorced, or widowed, and 71% identified as heterosexual. One-third (35%) had completed less than high school, two-thirds (69%) attended public clinics, and nearly half (44%) were unemployed. On average, it had been 141 months since participants had been diagnosed with HIV (median 131 months, $SD = 83$ months), and 107 months (median 90 months, $SD = 73$ months) since they had initiated ART. One-third (34%) of participants had a history of an AIDS-related event, and participants had a mean \log_{10} viral load of 4.53 ($SD = 0.86$). Overall, 19% of participants reported drug use consistent with drug abuse, and 23% reported alcohol use consistent with alcohol abuse. Sixteen percent of participants reported a lifetime history of perceptual anomalies, and 28% endorsed moderate to severe depression (BDI total ≥ 17 ; mean = 12.08, $SD = 10.37$). Eight participants (2%) reported a suicide attempt in the last 30 days.

Prevalence of Suicidal Ideation and Bivariate Comparisons Between Non-suicidal and Suicidal Participants

Overall, $n = 77$ participants [21% (95% CI 17.2, 25.8)] reported suicidal ideation in the past week. In

bivariate analyses, suicidal participants were more likely to be younger, had initiated ART more recently, experienced greater symptoms of depression, were more likely to abuse drugs or alcohol, and were more likely to have a history of hallucinations. Suicidal participants were also more likely to report decreased levels of motivation, self-efficacy, and patient–provider relationship quality. Details on sociodemographic, HIV-related, and psychosocial characteristics and comparisons of non-suicidal versus suicidal participants are presented in Table 1.

Multivariable Associations with Suicidal Ideation

In unadjusted logistic regression models, younger age [OR = 0.97 (0.94, 0.99), $p = 0.007$], fewer months since ART initiation [OR = 0.99 (0.99, 0.99), $p = 0.016$], increased depressive symptomatology [OR = 1.12 (1.09, 1.15), $p < 0.001$], drug abuse [OR = 3.19 (1.80, 5.66), $p < 0.001$], alcohol abuse [OR = 2.02 (1.16, 3.52), $p = 0.013$], and lifetime history of hallucinations [OR = 1.97 (1.05, 3.69), $p = 0.035$], as well as decreased motivation [OR = 0.56 (0.40, 0.79), $p = 0.001$], self-efficacy [OR = 0.84 (0.74, 0.95), $p = 0.005$], and patient–provider relationship quality [OR = 0.93 (0.90, 0.97), $p < 0.001$], were associated with suicidal ideation.

In adjusted multivariable logistic regression models examining the independent association of each correlate with suicidal ideation, younger age [AOR = 0.97 (0.94, 0.99), $p = 0.044$], increased depressive symptomatology [AOR = 1.11 (1.08, 1.15), $p < 0.001$], and drug abuse [AOR = 3.16 (1.45, 6.89), $p = 0.004$] were associated with suicidal ideation. In addition, fewer months since ART initiation [AOR = 0.99 (0.99, 1.00), $p = 0.072$] and decreased motivation [AOR = 0.67 (0.44, 1.03), $p = 0.065$] approached significance. Unadjusted and adjusted analyses are presented in Table 2. An additional analysis was conducted to examine whether suicidal ideation had any relationship to history of adherence to ART (months adherent relative to number of months since ART initiation). It was found that entering ART adherence did not significantly improve the model ($\Delta -2LL = 0.462$, $\Delta df = 1$, $p = 0.497$) nor appreciably change it.

Discussion

This study examined factors associated with suicidal ideation among PLHIV in Argentina who were not retained in care, and found almost a quarter of participants reported suicidal ideation in the past week, a third depression, and

Table 1 Sociodemographic, HIV-related, and psychosocial characteristics of non-suicidal versus suicidal patients (N = 360)

	All (N = 360)	Not suicidal (n = 283)	Suicidal (n = 77)	$t/\chi^2, p$
	Mean (SD)	Mean (SD)	Mean (SD)	
	n(%)	n(%)	n(%)	
Sociodemographic characteristics				
Age	39.15 (10.96)	39.97 (11.00)	36.12 (10.35)	2.76, 0.006
Gender				
Male	177 (49.2%)	142 (50.2%)	35 (45.5%)	0.54, 0.462
Female	183 (50.8%)	141 (49.8%)	42 (54.5%)	
Marital status				
Single/divorced/widowed	242 (67.2%)	188 (66.4%)	54 (70.1%)	0.38, 0.540
Married/living with partner	118 (32.8%)	95 (33.6%)	23 (29.9%)	
Sexual orientation				
Heterosexual	257 (71.4%)	204 (72.1%)	53 (68.8%)	0.31, 0.575
Non-heterosexual	103 (28.6%)	79 (27.9%)	24 (31.2%)	
Educational attainment				
Less than high school	127 (35.3%)	98 (34.6%)	29 (37.7%)	0.24, 0.621
High school or more	233 (64.7%)	185 (65.4%)	48 (62.3%)	
Employed				
No	159 (44.2%)	122 (43.1%)	37 (48.1%)	0.60, 0.439
Yes	201 (55.8%)	161 (56.9%)	40 (51.9%)	
Clinic type				
Public	248 (68.9%)	191 (67.5%)	57 (74.0%)	1.21, 0.272
Private	112 (31.1%)	92 (32.5%)	20 (26.0%)	
HIV-related characteristics				
Time since HIV diagnosis (months)	140.76 (83.34)	144.05 (83.91)	128.68 (80.61)	1.40, 0.161 ^a
Time since ART initiation (months)	107.10 (72.80)	111.96 (72.50)	89.30 (71.58)	2.77, 0.006^a
Lifetime AIDS-related event				
No	236 (65.6%)	186 (65.7%)	50 (64.9%)	0.02, 0.897
Yes	124 (34.4%)	97 (34.3%)	27 (35.1%)	
Viral load (log ₁₀)	4.53 (0.86)	4.54 (0.87)	4.52 (0.84)	0.19, 0.851
Psychosocial characteristics				
Depression	12.08 (10.37)	9.41 (7.99)	21.90 (12.10)	7.86, < 0.001
Drug abuse				
No	292 (81.1%)	242 (85.5%)	50 (64.9%)	16.73, < 0.001
Yes	68 (18.9%)	41 (14.5%)	27 (35.1%)	
Alcohol abuse				
No	277 (76.9%)	226 (79.9%)	51 (66.2%)	6.33, 0.012
Yes	83 (23.1%)	57 (20.1%)	26 (33.8%)	
Lifetime hallucinations				
No	304 (84.4%)	245 (86.6%)	59 (76.6%)	4.56, 0.033
Yes	56 (15.6%)	38 (13.4%)	18 (23.4%)	
Motivation	3.44 (0.79)	3.51 (0.79)	3.16 (0.73)	3.48, 0.001
Self-efficacy	7.73 (1.94)	7.88 (1.88)	7.16 (2.05)	2.91, 0.004
Patient–provider relationship	22.20 (6.16)	22.82 (5.86)	19.91 (6.72)	3.74, < 0.001

SD standard deviation, ART antiretroviral therapy

^aMann-Whitney tests were used for comparisonsBold values indicate $p < 0.05$

Table 2 Multivariable logistic regression model of sociodemographic, HIV-related, and psychosocial characteristics predicting suicidal ideation (N = 360)

Predictor	Unadjusted OR (95% CI), <i>p</i>	Adjusted OR (95% CI) ^a , <i>p</i>
Sociodemographic characteristics		
Age	0.97 (0.94, 0.99), 0.007	0.97 (0.94, 0.99), 0.044
HIV-related characteristics		
Time since ART initiation (months)	0.99 (0.99, 0.99), 0.016	0.99 (0.99, 1.00), 0.072
Psychosocial characteristics		
Depression	1.12 (1.09, 1.15), <0.001	1.11 (1.08, 1.15), <0.001
Drug abuse (ref = not abuse)	3.19 (1.80, 5.66), <0.001	3.16 (1.45, 6.89), 0.004
Alcohol abuse (ref = not abuse)	2.02 (1.16, 3.52), 0.013	0.65 (0.30, 1.42), 0.280
Lifetime hallucinations	1.97 (1.05, 3.69), 0.035	0.93 (0.42, 2.05), 0.851
Motivation	0.56 (0.40, 0.79), 0.001	0.67 (0.44, 1.03), 0.065
Self-efficacy	0.84 (0.74, 0.95), 0.005	1.06 (0.89, 1.27), 0.495
Patient–provider relationship	0.93 (0.90, 0.97), <0.001	0.99 (0.94, 1.05), 0.775

OR odds ratio, CI confidence interval, ART antiretroviral therapy

^aHosmer and Lemeshow $\chi^2 = 12.66$, $p = 0.124$; Nagelkerke $R^2 = 0.350$

one-fifth drug abuse. Consistent with previous research from other countries, younger age [8, 10, 11], increased depressive symptoms [8, 10, 12–16], and drug abuse [3, 8, 15] were associated with suicidal ideation when accounting for the effects of other associated factors (i.e., history of hallucinations, low motivation, self-efficacy, and patient-provider relationship quality).

PLHIV may struggle with socioeconomic factors (e.g., unemployment) and psychosocial factors (e.g., depression, drug and alcohol abuse) that contribute to low self-efficacy and diminished motivation for treatment and impact the perception of patient-provider connection. Demographic and psychosocial characteristics, such as depression and substance use, may constitute syndemic factors and interact with HIV to negatively impact both physical health behaviors and mental health [43], potentially exacerbating feelings of hopelessness about their situation, increasing perceived burdensomeness and thwarted belongingness, and stimulating suicidal ideation. Evaluating perceived burdensomeness and thwarted belongingness in this population may provide theoretical clarity and greater empirical precision in the Argentine context and may help guide interventions to reduce suicidal ideation in this vulnerable population.

PLHIV have a high prevalence of both suicidal ideation and of many risk factors that are associated with suicide attempts. Substance abuse, reported by 19% of this sample, was robustly associated with suicidal ideation, and may also increase the likelihood of suicide attempts by increasing disinhibition and impulsivity [44]. The population examined in this study was nonadherent to treatment and previously lost to care, which is associated with HIV-related illness. PLHIV may have additional increased risk of suicide attempts due to HIV-related symptoms and AIDS-related illnesses, which may contribute to the acquired capability for suicide. This challenging population has limited contact

with the healthcare system, but patients were assessed when returning to care, representing a critical opportunity for identification of depression and suicidal ideation and to provide intervention, as patients may become lost to care again. Re-engagement in care also represents an opportunity to assess other risk factors, such as substance use and mental illness. Routine risk assessment and integration of interventions into the HIV care continuum may optimize medical and psychological outcomes in this population.

Limitations

This study has limitations that must be considered in interpretation of the results. Due to the cross-sectional nature of the data, causal pathways could not be examined. Longitudinal research is needed to identify causal pathways and better illuminate the etiology of suicidal ideation in this population. As this study targeted only patients lost to care with detectable viral load, it was not possible to compare suicidal ideation in a treatment-adherent population. Depression has been associated with nonadherence and poor retention in care, and future examination of the impact of suicidal behavior on treatment retention is essential. Factors related to suicidal behavior in theoretical models (e.g., perceived burdensomeness, thwarted belongingness, and hopelessness) were not assessed; future research should examine these factors.

Conclusions

This study sought to identify factors contributing to suicidal ideation in patients re-engaging in HIV care in Argentina, with the goal of identifying opportunities for suicide prevention initiatives that could be integrated into the HIV care continuum. This investigation, among the few examining suicidal ideation in Argentina, found a high prevalence of

suicidal ideation among PLHIV; substance abuse, depressive symptomatology, and younger age were associated with suicidal ideation. Results highlight the need for routine risk assessment in HIV care, especially for those patients unlikely to spontaneously disclose suicidal behavior, along with treatment interventions for substance use, depression, and suicidal ideation to reduce the risk of suicidal behavior in PLHIV. For those lost to care, risk assessment when re-engaging in care is critical, since these patients are not only at risk for suicide, but also will likely drop out of care again and suffer the negative consequences. Future research should examine theoretical models, such as the interpersonal-psychological theory of suicide, and their applicability to this vulnerable Argentine population. Finally, the need for additional research on syndemic factors contributing to suicidal behavior is especially important among younger patients, who appear to be especially vulnerable.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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