PREVALENCE OF PSYCHOLOGICAL TRAUMA IN HIV+ PATIENTS

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Certificado de visto bueno

Yo, la Dra. Ana Moreno Alcázar con DNI 52592809C, doy mi visto bueno al trabajo de fin de máster realizado por la alumna Marta Fontana McNally con DNI 43570711V, con titulo "*Prevalence of psychological trauma in HIV+ patients*" para el Máster de Iniciación a la investigación en salud mental impartido en la Universidad de Cantabria.

Atentamente,

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Abstract

HIV positive patients are disproportionately affected by psychological trauma. Psychological trauma co-occurres with negative clinical consequences such as depressive and anxious symptoms, making this population's clinical profile even more severe. Therefore, the main objective of this study was to evaluate the prevalence of traumatic events in a sample of HIV patients and compare the clinical variables of those who indicated their HIV diagnosis as the main traumatic event and those who reported other traumatic events. **Method**: 29 Patients with an HIV diagnosis were evaluated with regards to traumatic events and current symptoms. Furthermore, we compared patients who indicated their HIV diagnosis as the main traumatic event (PTSD-HIV) and those who reported other traumatic events (Non-PTSD-HIV) in the EGEP-5 scale. Using student's t test for continuous variables and the chi-square test for categorical variables in independent samples, these two groups were compared. Pearson's correlation analysis was used to determine the correlation among childhood trauma and clinical variables. **Results**: 13 patients (55,1%) of the whole sample were diagnosed with PTSD. 19 patients (65,5%) reported their HIV diagnosis as the main traumatic event in the EGEP-5 and 11 (57,89%) of these were diagnosed with PTSD. Results did not support the role of childhood trauma in reporting HIV diagnosis as traumatic. Pearson's correlation showed a correlation between CTQ variables, psychotic symptoms and derealisation/depersonalisation. **Conclusions**: Those patients for whom HIV diagnosis is traumatic have a more severe clinical profile; exhibiting more depressive, anxious, dissociative, psychotic and trauma-related symptoms. Therefore, this population is in need of more psychological attention.

Key words: *Psychological trauma, Life events, childhood maltreatment, HIV, Posttraumatic stress disorder.*

Introduction

People living with HIV are disproportionately affected by psychological trauma and despite the negative effect this has on one's health, it often goes unidentified and untreated (Brezing, Ferrara, & Freudenreich, 2015). Up to 95% of patients with HIV report at least one severe traumatic event, 30% meet criteria for Posttraumatic Stress Disorder (PTSD) and between 30-40% indicate HIV diagnosis as the main traumatic stressor in their PTSD diagnosis (Boarts, Buckley-Fischer, Armelie, Bogart, & Delahanty, 2009; Julnes et al., 2016; Nightingale, Sher, Mattson, Thilges, & Hansen, 2011). Psychological trauma implies negative clinical consequences beyond typical trauma symptoms, such as increased depression and anxiety, which are especially relevant to patients with HIV (Boarts et al., 2009; Seedat, 2012) as it has been reported to worsen adherence to pharmacological treatment, resulting in harmful effects on immune function (Brief, Bollinger, Berger-greenstein, Morgan, & Diego, 2004; Mugavero et al., 2009), increased mortality and higher transmission risk-behaviors (Brezing et al., 2015; Brief et al., 2004; Mugavero et al., 2007, 2009). Depression, PTSD and substance use disorder are the most common psychiatric disorders found in the HIV-positive population, regardless of country income (Seedat, 2012). It has been found that depressive symptoms are common and often co-occur with PTSD in samples of HIV-positive patients, with rates as high as 75% (Boarts et al., 2009). Dissociative behaviors stemming from past sexual trauma are also common in this population, specifically during sexual intercourse, which might contribute to risky sexual behaviors and worse disease outcomes (Hansen, Brown, Tsatkin, Zelgowski, & Nightingale, 2012). Moreover, substance abuse is often comorbid with both PTSD and depression in HIV patients, adding another disorder to the list of complications which could interfere with medical treatment (Sikkema et al., 2018).

Furthermore, it has been shown that psychological trauma plays a role in both acquiring and transmitting HIV, as well as in the progression of the disease and subsequent quality of life (Brezing et al., 2015). Several studies have analyzed the pathways through which trauma is associated with HIV. Attending specifically to what types of trauma are more prevalent in patients with HIV, Brief et al. (2004) reported that, childhood abuse is linked to participation in risky sexual behaviors and drug use, which increase risk for HIV. Sikkema (2018) mentioned that lifetime sexual trauma and its psychological sequelae could add to the stress of managing HIV and interfere with care engagement, leading to poor health and behavioral outcomes. Leserman et al. (2007) measured lifetime traumatic events dividing them in childhood maltreatment (childhood sexual and physical abuse, and physical and emotional neglect), family dysfunctions (parental substance abuse, parental depression or suicide/attempted suicide, parental imprisonment and domestic violence in the home) and other traumatic life events before the age of 18 (poverty, exposure to violence outside the home, exposure to natural disaster, etc). Results showed that patients who had experienced more categories of traumatic events had an increased risk for both all-cause and HIV-specific mortality: the mortality rate for those at or above the median in trauma was triple the rate in those below the median (Leserman et al., 2007). Another study, observed in a sample of women with HIV, very high rates of all types of trauma exposure, the highest being lifetime physical abuse (72.1%), unspecified lifetime abuse (71,6%), unspecified adult abuse (65%), lifetime sexual abuse (61,1%) and unspecified childhood abuse (58,2%). They also found that PTSD in HIV-positive women is estimated at 30%, a rate five times higher than the rate of PTSD reported in a national sample. The authors concluded that addressing trauma and PTSD in an effective manner, through standardized screening and diagnosis tools, may impact the HIV epidemic and its treatment (Machtinger, Wilson, Haberer, & Weiss, 2012).

Regarding HIV-specific trauma, many factors can contribute as it is linked to various stressful events including: receiving the diagnosis, medical symptomatology, treatment, the level of perceived stigma related to HIV, and witnessing HIV-related deaths (Katz & Nevid, 2005; Nightingale, Sher, & Hansen, 2010; Sherr et al., 2011; Theuninck, Lake, & Gibson, 2010). It has been reported that the risk of suffering trauma related to HIV is higher in those with prior trauma and negative life events (Katz & Nevid, 2005; Nightingale et al., 2010). In this line, Nightingale et al. (2011) found that patients who had suffered a previous stressor that met Criterion A for PTSD diagnosis would be more likely to experience HIV diagnosis as a traumatic stressor and that experiencing one's HIV diagnosis as a traumatic stressor would be directly associated with current HIV-related trauma symptoms and chronic health conditions. Attending to the differences in HIV-related PTSD and non-HIV-related PTSD could provide information about the different symptom profiles and comorbidities due to both types of PTSD (Boarts et al., 2009). In addition, it has also been shown that higher rates of repeated traumatization are not uncommon in this population. Kalichman et al. (2002) found that HIV-positive women with a history of sexual assault had a lifetime average of 7,5 sexual assault experiences while in a different sample comprised of HIV-positive men, Brief et al. (2004) found that 35% reported repeated past experiences of sexual trauma (Brief et al., 2004; Kalichman, Sikkema, DiFonzo, Luke, & Austin, 2002). Recurrence of abuse might be related to negative reactions by sexual partners upon disclosing HIV-status, especially in the case of HIV-positive women (Sikkema et al., 2018).

On the other hand, some studies have analyzed socioeconomic, behavioral and health-related factors to find an association with antiretroviral therapy (ART) failure and HIV transmission-risk behaviors. ART is the first line in pharmacological treatments for people living with HIV (Machtinger, Haberer, Wilson, & Weiss, 2012; Nightingale, Sher, Thilges, et al.,

2011). The results have shown that participants with previous trauma experiences are between twice and four times more likely to suffer ART failure and over three times more likely to report HIV transmission-risk behaviors (sex with a HIV-negative or unknown serostatus partner and less than 100% condom use with these partners) compared to patients without trauma (Machtinger, Wilson, et al., 2012; Mugavero et al., 2009). Moreover, PTSD symptoms stemming from both living with and diagnosis of HIV could be especially likely to be associated with poor adherence to ART. Boarts (2009) reports avoidance symptoms as the most likely type of PTSD symptoms to impact medication adherence as individuals may avoid taking medication in order to avoid disturbing thoughts about their illness. Sikkema (2018) described factors for delaying HIV care and reactivation of traumatic memories regarding HIV diagnosis was one of the main reasons for not adhering to ART. Other research has found that stress and depression negatively impact the course of HIV, linking psychosocial variables with changes in cellular immunity (Leserman, 2008). In terms of sociodemographic differences, it is more common for female patients, racial minorities and people who do not have access to health insurance to be part of the "no-show" phenomenon, due to the higher amount of barriers they have to overcome to attend routine check-ups (Mugavero et al., 2007). These findings are relevant as they demonstrate that a substantial portion of people living with HIV are struggling with psychiatric conditions that cause severe distress and functional impairment, and it also may be associated with worse Health-Related Quality of life and a non-optimal immune system function (Julnes et al., 2016).

As mentioned previously, another important consequence to consider is the relationship between trauma and the immune system. Traumatization, especially early in life, can directly affect physiological processes. Both PTSD and a history of trauma without PTSD are associated with immune response alterations and a pro-inflammatory state, making people living with

HIV more likely to suffer infections, autoimmune disorders and other inflammatory diseases, therefore, supporting the hypothesis that trauma may accelerate disease progression in patients affected by this disease. (Julnes et al., 2016; Brian Wells Pence et al., 2012). Julnes et al. (2016) analyzed this relationship and found that PTSD was associated with significantly higher mean total White Blood Cell counts (WBC), Absolute Neutrophil Count (ANC), higher rates of hsCRP (high-sensitivity C-reactive protein) and CD8 counts which correspond with previously observed immune dysregulation and inflammation in PTSD-positive HIV-infected adults. However, the mechanisms behind this association are not well understood. Stress is also related to lower CD4 count and a higher viral load (Brief et al., 2004; Julnes et al., 2016; Leserman et al., 2007; Machtinger, Haberer, et al., 2012; Mugavero et al., 2009; Brian Wells Pence et al., 2012).

Biological and neurological pathways may explain part of the effect of trauma on health, for example through dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and greater autonomic activation, which entail higher cortisol and catecholamine levels respectively (Brian W. Pence et al., 2012), sympathetic overactivity, endocrinologic irregularities and altered immunologic mechanisms, which in turn accelerates aging processes, disease manifestations and alters inflammatory processes (Nightingale, Sher, Thilges, et al., 2011).

It is important to recognize and be aware of the consequences psychological trauma has on this population, and the role it has played in their lives. Further and more detailed knowledge on this topic could positively impact the treatment people living with HIV receive, especially on a psychological level; thus, emphasizing the need for health care specialists to be informed of this connection. Therefore, the main objective of the present study is to

evaluate the prevalence and detailed characterization of traumatic events and PTSD and their relationship with clinical symptoms in a sample of patients with HIV.

The hypotheses of this work are:

1. The prevalence of PTSD in an HIV-positive sample will be high.
2. A history of psychological trauma will be positively associated with current trauma symptoms.
3. Severity of HIV diagnosis-related trauma will be positively associated with higher levels of trauma history.
4. HIV diagnosis-related trauma will be positively associated with perceived HIV-related stigma.
5. HIV diagnosis-related trauma will be associated with more severe clinical characteristics (higher depressive, anxious, dissociative and psychotic symptoms).

Method

Participants

The sample of the study consisted of 29 patients, who were recruited from the Infectious Diseases Unit of the Parc de Salut Mar, Barcelona, Spain. The inclusion criteria were 1) having been diagnosed with HIV, 2) being between the ages 18 – 65, 3) having a score higher than 0 on the Impact of Events Scale-Revised regarding the impact of the diagnosis of HIV, 4) being fluent in Spanish and 5) taking or having initiated antiretroviral medication (ART). The exclusion Criteria were 1) having a diagnosis of severe mental disorder or neurological disorder, 2) current suicidal ideation, 3) current substance use disorder or 4) a clinical diagnosis of AIDS.

Procedure

Patients who met the study's inclusion criteria and signed informed consent were referred from the Infectious Diseases Unit to the Psychiatric Department of the Parc de Salut Mar, Barcelona, Spain. Basic sociodemographic data and data on biological outcomes were available as part of the standard protocol of the Infectious Disease Unit. Patients who agreed to be included in the study were contacted within 7 days and asked to attend an evaluation of psychological trauma and trauma symptoms, life events, perceived HIV-related stigma, health-related quality of life and functionality. All data were directly introduced in a database for further analysis.

Evaluation and diagnostic Instruments

In the baseline visit, sociodemographic data were taken through a data collection notebook (CRD) which included patient's age, gender, nationality, race, civil status, sexual

orientation, education level, employment status, axis I, II, II comorbidities and family clinical history.

The evaluation of psychological trauma was performed via the following scales:

- Global Posttraumatic Stress Evaluation-5 (EGEP-5) (Soberón, Crespo, Gómez-Gutiérrez, Fernández-Lansac, & Armour, 2016). A 64-item self-report checklist of posttraumatic symptoms to enable diagnosis as per DSM-V criteria. The measure takes into account the subjective reaction to the Criterion A traumatic event, the duration of symptoms, interference in daily life and the relation between the symptoms and the traumatic event.
- Impact of Events Scale-Revised (IES-R) (Blanco & Costa-Marcé, 2004). 22-item scale to determine frequency and impact of posttraumatic symptoms experienced, with subscales of intrusion, avoidance and hyperarousal, each scored on a 5-point Likert scale, yielding a score for each subscale and a total score.
- Dissociative Experiences Scale (DES) (Icaran, Colom, & Orengo-Garcia, 1996). 28-item self-report scale to identify the presence of 3 main symptom clusters of dissociation: amnesia, depersonalization and absorption. Scores are obtained for each subscale from 0 (occurring 0% of times) to 100 (occurring 100% of the time).
- Holmes-Rahe Life-Stress Inventory (González de Rivera JL., 1983). A list of 43 life events which are given a score in terms of how stressful they are for the person experiencing them. The patient identifies the events which have happened to them in the last year and the scores are summed. If the final number is under 150 there is only a small risk of stress-related illness, between 151 and 299 a moderate risk, and 300 points or more, a significant risk.

- Childhood Trauma Questionnaire (CTQ) (Hernandez et al., 2013). 28-item self-report instrument to screen retrospectively for abuse and neglect experienced in childhood and adolescence. 5 subscales of abuse are scored on a 5-point Likert scale: emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect.

Psychopathological symptoms were evaluated with the following scales:

- Patient Health Questionnaire-9 item scale (PHQ-9) (Diez-Quevedo, Rangil, Sanchez-Planell, Kroenke, & Spitzer, 2001). A self-administered depression rating scale based on 9 items each measured on a 3-point Likert scale with a cut-off score of 10 indicating clinical symptoms. It is a brief measure with the Spanish validation showing good psychometric properties.
- Generalized Anxiety Disorder 7-item scale (GAD-7) (García-Campayo et al., 2010). A 7-item self-administered scale to measure the severity of anxiety symptoms over the last 2 weeks. Each item is scored on a 3-point Likert scale, with a cut-off score of 10 indicating clinical symptoms. It is a brief measure with the Spanish validation showing good psychometric properties.
- Brief Psychiatric Rating Scale (BPRS) (Sánchez, Ibáñez, & Pinzón, 2005): The Spanish validation of the BPRS is an 18-item hetero-administered scale that measures psychopatological changes in anxious, affective and psychotic symptoms. Each item is rated on a severity scale from 1-7.

Perceived HIV-related stigma was evaluated with the Spanish validated version of the Berger's HIV Stigma Scale (BHSS) (Fuster-Ruizdeapodaca, Molero, Holgado, & Mayordomo, 2014). This version is a 30-item self-report scale in 4 dimensions: personal stigma, disclosure, negative self-image, public attitudes. Each item is scored on a 4-point Likert scale.

Statistical analysis:

All data were analyzed using SPSS statistical software (version 25.0). Sociodemographic and clinical variables were compared between patients who present PTSD regarding the HIV diagnosis (PTSD-HIV) and those who reported other different traumatic events (Non-PTSD-HIV) in the EGEP-5 scale using student's t test for continuous variables and the chi-square test for categorical variables in independent samples. Quantitative data were presented as mean ± standard deviation and ordinal data as percentages. The significance level was set at two-tailed $p<0.05$. Pearson's correlation analyses were used to determine the correlation among childhood trauma and clinical variables (PTSD, dissociative, depressive, anxious and psychotic symptoms).

Results

Sample characteristics

Sociodemographic data are shown in table 1, whereas clinical data are presented in table 2. Of the whole study sample, 20 (68,96%) patients were single, 8 (27,58%) married and 1 separated/divorced (3,45%). Regarding the education level, the majority of the sample had completed or were in the process of completing higher education, with 18 (62,07%) patients reporting having finished university and 2 (6,89%) patients reporting an incomplete university degree; one (3,44%) patient reported completing primary education, 6 (20,69%) patients reported completing secondary education and 2 (6,89%) reported other types of education (e.g. beauty school and trade school). Regarding clinical characteristics of the sample, none of the patients had a history of Axis I, II or III comorbidities. Furthermore, 18 (62,07%) patients did not report family psychiatric history while 10 (34,38%) had family members suffering from unipolar depression, bipolar disorder, anxiety disorder and substance abuse. One patient reported a suicide attempt. The majority of the sample (58,62%) had never received psychotherapy nor had attended psychoeducational programs about HIV (93,1%).

During qualitative analysis of sociodemographic and clinical data, no significant differences were found between the two groups (HIV_EGEP_No/HIV_EGEP_Yes) and any of the sociodemographic variables (i.e. gender, race, sexual orientation, relationship status, education level, employment status, family psychiatric history, suicidal ideation and receiving psychotherapy); therefore, the sample was homogenous and comparable in terms of sociodemographic and clinical characteristics.

Table 1: Sociodemographic characteristics of the sample. Data are presented as Mean (SD) and or number (%)

	Total sample (n=29)	HIV_EGEP_No (n=10)	HIV_EGEP_Yes (n=19)
Age	34,82 (8,26)	31,50 (6,45)	36,58 (8,71)
Gender		0	2 (10,52%)
Female	2 (6,89%)		
Male	27(93,1%)	10 (100%	17 (89,47%)
Race			
Caucasian	8 (27,58%)	2 (20%)	6 (31,58%)
Latino	21(72,41%)	8 (89%)	13 (68,42%)
Sexual orientation		10 (100%)	13 (68,42%)
Homosexual	23(79,31%)	0	4 (21,05%)
Heterosexual	4 (13,79%)	0	2 (10,52%)
Bisexual	2 (6,89%)		
Education (years studied)	14,96 (3,71)	15,3 (3,71)	14,78 (3,79)
Employment status			
Student	2 (6,89%)	1 (10%)	1 (5,26%)
Emp_full-time	15 (51,72%)	5 (50%)	10 (52,63%)
Emp_part-time	5 (17,24%)	2 (20%)	3 (15,78%)
Sick leave	2 (6,89%)	0	2 (10,52%)
Unemployed	4 (13,79%)	1 (10%)	3 (15,78%)
Work incapacity	1 (3,45%)	1 (10%)	0

Table 2: Clinical characteristics of the sample. Data are presented as Mean (SD) and or number (%)

	Total sample (n=29)	HIV_EGEP_No (n=10)	HIV_EGEP_Yes (n=19)
Patient diagnosis			
PTSD	13 (55,1%)	2 (20%)	11 (57,89%)
noPTSD	16 (44,82%)	8 (80%)	8 (42,12 %)
Past traumatic event			
No	0	0	0
Yes	29 (100%)	10 (100%)	19 (100%)
Life events (last 12 months)			
From 1-5 events	9 (31,03%)	4 (40%)	6 (31,58%)
From 6-10 events			
From 11-15 events	11 (37,93%)	4 (40%)	6 (31,58%)
>16 events	9 (31,03%)	2 (20%)	7 (36,84%)
	0		

Clinical differences

As is shown in table 3, patients with PTSD-HIV showed significantly higher scores in traumatic, dissociative, depressive, anxious, psychotic and stigma symptoms in comparison with patients with a Non-PTSD-HIV. No significant differences were found between groups in any of the CTQ variables and in the Holmes-Rahe total score.

Table 3: Clinical differences between patients who reported HIV as the main traumatic stressor in EGEP-5 and patients who didn't. Data are presented as Mean (SD)

	Total sample (n=29)	HIV_EGEP_No (n=10)	HIV_EGEP_Yes (n=19)	p-value (a)
IES				
Total	51,32(28,08)	28,13 (20,37)	62,24 (24,62)	**0,022**
I scale	15,84(10,13)	8,63 (7,85)	19,24 (9,41)	**0,011**
E scale	17,8 (11,18)	10,50 (9,53)	21,24 (10,42)	**0,022**
H scale	16,48 (9,52)	9,00 (6,84)	20,00 (8,631)	**0,004**
CTQ				
Total	49 (15,26)	45,40 (12,37)	50,89 (16,58)	0,366
Emotional abuse	11,34 (5,13)	10,50 (4,55)	11,79 (5,47)	0,530
Physical abuse	9,51 (5,71)	9,60 (6,16)	9,47 (5,62)	0,956

Sexual abuse	8,03 (5,33)	7,50 (4,11)	8,32 (5,95)	0,703
Emotional negligence	11,62 (4,88)	10,00 (2,58)	12,47 (5,62)	0,201
Physical negligence	8,48 (3,37)	7,80 (2,93)	8,84 (3,61)	0,440
Holmes-Rahe				
Total	266,1(113,24)	7,40 (3,77)	9,00 (3,75)	0,286
Nº of events	8,44 (3,77)	255,40(128,89)	271,74(107,45)	0,719
EGEP				
Nº of cognitive and mood disturbances	3,35(1,87)	1,60 (1,43)	4,26 (1,36)	**<0,001**
Nº of arousal and reactivity symptoms	2,48 (1,76)	1,40 (1,07)	3,05 (1,81)	**0,014**
Duration	1,89 (0,32)	1,78 (,44)	1,95 (,22)	0,188
Nº of areas affecting functionality	2,24 (1,57)	,90 (1,10)	2,95 (1,31)	**<0,001**
DES				
Total	11,88 (7,82)	8,46 (5,74)	13,68 (8,29)	0,088
Amnesia	7,58 (8,02)	5,23 (6,024)	8,82 (8,785)	0,259
Disociation	6,59 (0,78)	11,2 (8,06)	19,43 (11,12)	**0,049**
Depersonalization and derealization	8,49 (7,46)	7,20 (7,422)	9,169 (7,597)	0,509
PHQ9	11,38 (7,33)	5,80 (3,99)	14,32 (7,01)	**0,002**
GAD7	8,83 (5,96)	4,70 (5,05)	11,00 (5,30)	**0,005**
BPRS	35,6 (9,82)	30,30 (11,54)	38,56 (7,54)	**0,030**
BHSS	76,72 (16,85)	65,90 (15,22)	82,42 (15,05)	**0,009**

IES: Impact of Event Scale-Revised; CTQ: Childhood Trauma Questionnaire; Holmes-Rahe: Holms-Rahe Life-Stress Inventory; EGEP: Global Posttraumatic Stress Evaluation-5; DES: Dissociative Experiences Scale; PHQ9: Patient Health Questionaire-9 item scale; GAD7: Generalized Anxiety Disorder-7 item scale; BPRS: Brief Psychiatric Rating Scale; BHSS: Berger's HIV Stigma Scale.
(a) P-value derived from the comparisons between individuals with HIV-related trauma and individuals with no HIV-related trauma derived from independent sample t-test.

Relation between childhood trauma and clinical symptoms

In table 4, a significant positive correlation between psychotic symptoms and depersonalization and derealization symptoms and childhood maltreatment was found. The BPRS scale showed an association with all CTQ variables except sexual abuse and physical abuse. The DES-depersonalization and derealization subscale showed an association with CTQ

total score and CTQ physical negligence variable. Contrarily, all other DES subscales, PHQ-9 scale, GAD-7 scale and BHSS scale did not show significant correlations with any of the CTQ variables.

Table 4: Pearson's Correlation analysis to evaluate the relation between the Childhood Trauma Questionnaire scores and clinical variables from the EGEP-5, DES, BPRS and BHSS.

CTQ	EGEP_1	EGEP_2	EGE_3	DES_ Total	DES_1	DES_2	DES_3	PHQ9	GAD7	BPRS	BHSS
Total score	r=0,039 p=0,842	r=0,345 p=0.0,067	r=0,177 p=0,359	r=0,250 p=0,191	r=0,102 p=0,600	r=0,298 p=0,117	**r=0,370 p=0,048**	r=0,337 p=0,075	r=0,267 p=0,161	**r=0,446 p=0,017**	r=0,086 p=0,658
Emotional abuse	r=0,043 p=0,825	r=0,320 p=0,090	r=0,250 p=0,190	r=0,296 p=0,119	r=0,173 p=0,369	r=0,273 p=0,152	r=0,336 p=0,074	r=0,344 p=0,067	r=0,246 p=0,198	**r=0,381 p=0,045**	r=0,013 p=0,946
Physical abuse	r=-0,234 p=0,221	r=0,166 p=0,390	r=-0,014 p=0,941	r=0,279 p=0,143	r=-0,021 p=0,914	r=0,281 p=0,140	r=0,292 p=0,124	r=0,183 p=0,342	r=0,085 p=0,663	r=0,171 p=0,383	r=-0,053 p=0,786
Sexual abuse	r=-0,019 p=0,922	r=-0,002 p=0,992	r=0,191 p=0,322	r=-0,056 p=0,773	r=-0,213 p=0,267	r=0,100 p=0,606	r=-0,2,19 p=0,254	r=0,087 p=0,655	r=0,025 p=0,898	r=0,087 p=0,685	r=0,063 p=0,746
Emotional neglect	r=0,280 p=0,142	**r=0,436 p=0,018**	r=0,110 p=0,570	r=0,060 p=0,755	r=0,326 p=0,085	r=0,018 p=0,928	r=0,352 p=0,061	r=0,274 p=0,150	r=0,262 p=0,196	**r=0,431 p=0,022**	r=0,106 p=0,583
Physical neglect	r=0,131 p=0,499	r=0,163 p=0,398	r=-0,016 p=0,934	r=0,210 p=0,274	r=0,0,097 p=0,617	r=0,274 p=0,151	**r=0,504 p=0,005**	r=0,151 p=0,434	r=0,274 p=0,151	**r=0,391 p=0,040**	r=0,204 p=0,289

CTQ: Childhood Trauma Questionnaire; EGEP: Global Posttraumatic Stress Evaluation-5 (where EGEP_1: Nº of cognitive and mood disturbances; EGEP_2: Nº of arousal and reactivity symptoms; EGEP_3: Nº of areas affecting functionality); DES: Dissociative Experiences Scale (where DES_1: Amnesia; DES_2: Dissociation; DES_3: Depersonalization and derealization); PHQ9: Patient Health Questionnaire-9 item scale; GAD7: Generalized Anxiety Disorder-7 item scale; BPRS: Brief Psychiatric Rating Scale; BHSS: Berger's HIV Stigma Scale.
r is Pearson's Correlation coefficient and p-value is the probability of the current result being 0 during the analysis.

Discussion

The purpose of this study was to evaluate the prevalence of psychological trauma and PTSD in a sample of HIV-positive patients, assessing their clinical symptoms as well. The sample was characterized by mostly Latino homosexual men who have a university degree and are currently employed full-time. It is interesting to point out that HIV is a disease that disproportionately affects women (Dass-Brailsford, 2019; Machtinger, Haberer, et al., 2012; Machtinger, Wilson, et al., 2012; Sikkema et al., 2018), however, in this sample only 2 patients were female. This might point to a different gender disparity in Barcelona's population of HIV patients, though to conclude this from such a small sample is not optimal.

Results showed high rates of traumatic experiences, with all 29 patients reporting at least two traumatic events in the past year. PTSD rates were also high, with 13 patients fulfilling criteria for PTSD according to the EGEP-5, confirming the hypothesis that psychological trauma prevalence in the HIV population is high (55,1%) (Boarts et al., 2009; Brezing et al., 2015; Julnes et al., 2016; Nightingale, Sher, Mattson, et al., 2011). Further, more than half of the sample (57,82%) who reported their HIV diagnosis as the main traumatic event during the EGEP-5, reached criteria for PTSD; exceeding the average 30-40% who indicate their HIV diagnosis as the main traumatic stressor in their PTSD diagnosis according to previous research (Boarts et al., 2009; Julnes et al., 2016; Nightingale, Sher, Mattson, et al., 2011).

The analysis of clinical differences showed that people who reported HIV as their main traumatic event in the EGEP-5 had significantly stronger posttraumatic symptoms in the last month than those who did not report their HIV diagnosis as the main traumatic event. The association with the rest of the clinical symptoms (i.e. dissociative, depressive, anxious and psychotic) is also significant, suggesting that unresolved psychological trauma could increase

the severity of the patients' clinical profile (Boarts et al., 2009; Leserman, 2008; Nightingale, Sher, Mattson, et al., 2011). This is in line with previous research such as a study by Boarts et al. (2009), which found that HIV-related PTSD had an impact on overall functioning, medication adherence and levels of depression; thus, presenting higher clinical impairment. Nightingale et al. (2011) found that patients who experienced HIV diagnosis as traumatic were directly associated with current HIV-related trauma symptoms, dissociation, anxiety and chronic health conditions.

Moreover, the presence of clinical symptoms could worsen disease progression. The negative clinical consequences related to psychological trauma are especially relevant to patients with HIV (Boarts et al., 2009; Seedat, 2012), as it leads to worse adherence to ART and reduced immune function (Brief et al., 2004; Leserman, 2008; Mugavero et al., 2009). Leserman et al (2008) reported that AIDS clinical symptoms and CD4+ cell count did not predict major depression but, depressive symptoms on the other hand, did predict development of AIDS. Lifetime stress also seems to impact HIV progression, as research showed that higher cumulative-average stressful event scores were predictive of faster progression to AIDS and an almost three-fold risk of immunosuppression (Leserman, 2008). Attending to trauma symptoms through trauma-focused therapies is of the utmost importance in order to lessen comorbid clinical symptomatology in this population, helping to prevent the progression of HIV to AIDS and improving the course and prognosis of this disease.

The significant association between high stigma scores, as measured in the BHSS, and indicating HIV diagnosis as traumatic, suggests that high levels of stigma regarding the disease could favor perceiving the diagnosis as a traumatic event and, possibly, PTSD. In previous

research, it was reported that racial minorities were disproportionately affected by stigma and said stigma played a role in treatment non-adherence (Mugavero et al., 2007). Our sample was mostly (72,41%) comprised of Latino men and stigma scores were high, thus partly concurring with previous research; though we didn't collect data regarding treatment adherence.

Our results, however, do not support the role of childhood trauma nor the number of life events in reporting HIV diagnosis as traumatic, even though all participants reported at least 2 stressful life events in the last year. This contradicts previous research, which indicated that childhood trauma especially, and the number of life events, increased the chances of perceiving HIV diagnosis as traumatic (Brezing et al., 2015; Brief et al., 2004; Leserman et al., 2007; Machtinger, Haberer, et al., 2012; Sikkema et al., 2018). Katz and Nevid (2005) and Nightingale et al. (2010) also reported that higher levels of prior trauma could increase risk of suffering psychological trauma and PTSD related to HIV-diagnosis. The results found might be due to the small sample size, this preventing them from being significant.

A correlation between most CTQ variables and psychotic symptoms and derealization and depersonalization was found. This is in agreement with research that indicates that children and adults who are exposed to abuse or neglect in childhood are at risk for severe mental disorders (Jaffee, 2017; Luoni, Agosti, Crugnola, Rossi, & Termine, 2018); concretely, victims of maltreatment experience elevated rates of psychotic symptoms compared with non-maltreated individuals, and they are at a higher risk for psychotic disorder, schizoaffective disorder and schizophrenia (Jaffee, 2017).

Future research should focus on addressing psychological trauma and clinical characteristics such as depression, anxiety and psychotic symptoms, in regard to treatment.

In HIV-negative trauma survivors there is evidence for the effectiveness of cognitive-behavioral therapy (CBT), prolonged exposure therapy (PE), and eye movement desensitization and reprocessing (EMDR) (Seedat, 2012). However, there is little evidence for these treatments in trauma-exposed HIV-positive patients. Some studies report positive results applying 1) CBT (Haerizadeh et al., 2020) and CBT-inspired interventions like cognitive behavioral stress management (CBSM) and coping effectiveness training (CET) (Seedat, 2012); 2) interventions focused on reducing traumatic stress, sexual risk behaviors and substance use like the Living in the Face of Trauma (LIFT) interventions (Sikkema et al., 2018) or EMDR (Haerizadeh et al., 2020); 3) integrated interventions like the Trauma Affect Regulation: Guide for Education and Therapy (TARGET) intervention which provides a systemic approach to information processing and emotional regulation (Dass-Brailsford, 2019); and 4) mindfulness-based stress reduction therapies (Creswell, Myers, Cole, & Irwin, 2008; Jam, Imani, Foroughi, & Seyedalinaghi, 2010; SeyedAlinaghi et al., 2012) which intend to increase immune function by reducing the effects of stress on the system. Due to the complex clinical profile that this population presents and the high rates of trauma exposure and PTSD, the need for effective treatment that targets both health and psychosocial functioning is evident. psychological treatment targeting trauma could contribute to preventing disease progression and improving quality of life.

Strengths and limitations

This study had some limitations that warrant discussion, including a small sample size which may hinder the generalizability of our findings. As this is an ongoing study, the sample size was incomplete and as the study progresses and the sample size grows, stronger and more reliable results should emerge. Additionally, Information regarding current medical

treatment and medical adherence would be useful to further analyze the relationship between psychological trauma and health related quality of life in HIV patients.

Despite the limitations, the main strength of this study is that the sample is very thoroughly selected, using highly validated, translated instruments. The evaluation process was rigorous, and the information obtained is reliable. Furthermore, to our knowledge this is the first study done about the prevalence of psychological trauma in HIV-positive patients in a spanish sample.

Conclusions

This ongoing prevalence study provides evidence of the impact of psychological trauma on HIV-positive patients. Those patients for whom HIV diagnosis is traumatic have a more severe clinical profile; exhibiting more depressive, anxious, dissociative, psychotic and trauma-related symptoms. Furthermore, higher levels of stigma towards this disease is also associated with perceiving HIV diagnosis as traumatic. Therefore, this population is in need of more psychological attention and more individualized, trauma-focused treatments.

Further research is needed to better understand the role trauma has in health-related quality of life for this population, attending to the specific effect it has on the immune system.

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