Factor Structure of the International Trauma Questionnaire in Trauma Exposed LGBTQ+ Adults: Role of Accumulating Traumatic Events and Minority Stress Heterosexist Experiences

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Abstract

Exposure to prolonged and/or multiple types of psychological trauma and stressors has shown to be more strongly associated with ICD-11 complex posttraumatic stress disorder (CPTSD) than posttraumatic stress disorder (PTSD). Lesbian, gay, bisexual, trans- and queer adults (LGBTQ+) are at a heightened risk of exposure to traumatic events, and minority stressors including harassment, discrimination, rejection by family, and isolation. **Objective.** To examine the factor structure of the international trauma questionnaire (Cloitre et al., 2018), a self-report measure of PTSD and CPTSD, and the associations of cumulative lifetime trauma exposure assessed via the life events checklist (Gray et al., 2004) and minority stress assessed via the daily heterosexist experiences scale (Balsam et al., 2010), with CPTSD (3 PTSD symptom clusters, 3 clusters reflecting disturbances in self-organization [DSO]) among LGBTQ+ adults. **Method.** Participants comprised 225 LGBTQ+ adults (including 74 transgender and gender diverse individuals; age-range: 18-60 years; *M/SD* = 31.35/9.48) residing in Spain. **Results.** Confirmatory factor analyses indicated that both a first-order six-factor model and a hierarchical two-factor model, comprising PTSD and DSO as second-order factors, fit the data best. Cumulative traumatic events score was associated with PTSD, and cumulative minority stress was associated with PTSD and DSO. Among the minority stress subscales, harassment based on gender expression was positively associated with all symptom clusters of PTSD and DSO. **Conclusions.** This is the first study to examine the role of minority stressors alongside exposure to psychological traumas in ICD-11 PTSD and CPTSD and emphasizes the inclusion of minority stressors in trauma-related assessments.

Clinical Impact Statement

The present study findings validated the structure of complex PTSD comprising PTSD and DSO, using the International Trauma Questionnaire (Cloitre et al., 2018) in LGBTQ+ adults from Spain. Findings further suggested that exposure to cumulative minority stressors (i.e., heterosexism/cissexism) were positively associated with the PTSD and DSO clusters of complex PTSD emphasizing the importance of inclusion of minority stressors in clinical assessments and trauma focused treatments.

Factor Structure of the International Trauma Questionnaire in Trauma Exposed LGBTQ+ Adults: Role of Cumulative Traumatic Events and Minority Stress Heterosexist Experiences

Exposure to marginalization and stigmatization places lesbian, gay, bisexual, transgender, or queer (LGBTQ+) individuals at risk of mental health problems including posttraumatic stress disorder (PTSD) (Meyer, 2003; Dworkin et al., 2018; Schmitz & Charak, 2020; Solomon et al., 2021). Previous research indicates that LGBTQ+ individuals experience psychological trauma, including interpersonal violence and victimization, at higher rates than cisgender heterosexual individuals (Charak et al., 2019; Meyer, 2003). As a result, rates of PTSD tend to be high in LGBTQ+ individuals ranging from 1.3% to 47.6% among sexual minority individuals including LGB people, and 17.8% to 42% in transgender and gender diverse individuals[1] (see Livingston et al., 2020). Within the LGBTQ+ spectrum, transgender and gender diverse individuals are at a heightened risk of marginalization, stigmatization, and mental health disparities including PTSD (Bauerband et al., 2019) compared to cisgender individuals.

Notably, the forementioned studies focus on the DSM-5 PTSD symptoms and diagnosis, whereas the sibling disorders of PTSD and complex PTSD (CPTSD) in the International Classification of Diseases-11 (ICD-11) have yet to be examined among LGBTQ+ individuals. These two classificatory systems have similarities in that both moved PTSD from the anxiety disorders category to a new stress-related disorders category and by retaining the three symptom clusters, namely, reexperiencing, avoidance, and hyperarousal. However, there are substantial differences in the nosology of PTSD

[1]Gender diverse individuals are people whose gender identity, role, or expression differs from the culturally prescribed norms for people of a particular sex (e.g., transgender, agender, gender fluid, gender nonbinary)

across the two classificatory systems. For instance, DSM-5 conceptualizes PTSD as a disorder with 20 symptoms featured under four clusters, that occur after an event or series of events involving threat to life, serious injury, or sexual violence, experienced directly, witnessed, learned about, or involves work-related exposure to aversive details (Bovin et al., 2021). ICD-11 on the other hand conceptualizes two sibling disorders, that is, PTSD and CPTSD (details below), and removed all non-specific symptoms that were present in prior versions of ICD and DSMs. ICD-11 has six PTSD symptom clusters and six additional CPTSD symptom clusters (described as symptoms of disturbance of self-organization) with an etiology of general exposure to an extremely threatening or horrific event or series of events. A differential diagnosis of PTSD versus CPTSD is determined by the symptom profiles and is not dependent on the nature of the stressor (Cloitre et al., 2013). With these differences in mind and the lack of studies focusing on ICD-11 PTSD/CPTSD in LGBTQ+ individuals, the present study examined the factor structure of the international trauma questionnaire (ITQ; see measures section; Cloitre et al., 2018) that is used to gauge CPTSD, among LGBTQ+ adults from Spain. This is important as the cornerstone of optimal patient care begins with effective assessments. Furthermore, this study assesses minority stressors faced by LGBTQ+ individuals and their associations with PTSD and CPTSD symptom clusters.

ICD-11 PTSD and CPTSD

The conceptualization of CPTSD was originally proposed by Herman (1992) to describe symptoms of long-term trauma that were associated with difficulties with emotion regulation, self-identity and interpersonal capacities, among others traumatic reactions (see Ford, 2019). The symptoms included in the ICD-11 CPTSD are based on those endorsed by populations exposed to chronic trauma in investigations of DSM-IV complex PTSD (Ford & Kidd, 1998) and observations by expert clinicians treating complex forms of

PTSD (Cloitre et al., 2011). Additional research refined the symptom profile and resulted in the development of a now commonly used and a validated measure, the ITQ (Cloitre et al., 2018). In 2018, CPTSD was formally accepted as a disorder by the World Health Organization in the 11th version of the International Classification of Diseases (ICD-11). Studies using the ITQ in community-based samples of adults (Cloitre et al., 2018) indicate the prevalence of PTSD and CPTSD combined range from 2% to 12.7% in high income countries (see Cloitre, 2020). Specific to Spain, a study based on a high-risk sample, that is, women survivors of intimate partner violence (n = 162), 17.9% were diagnosed with PTSD and 39.5% with CPTSD (Fernandez-Fillol et al., 2021).

As mentioned, ICD-11 describes two distinct disorders: PTSD and CPTSD. PTSD consists of three symptom clusters: (i) reexperiencing of the trauma in the here and now (reexperiencing), (ii) avoidance of traumatic reminders (avoidance), and (iii) a persistent sense of current threat that is manifested by arousal and hypervigilance (threat). The PTSD symptoms are generally understood within a conditioning paradigm representing reactions of fear and horror to ongoing traumatic reminders. A sibling disorder of PTSD, CPTSD consists of the three symptom-clusters of PTSD and three additional symptom clusters typically labelled disturbances in self organization (DSO) namely, (i) affective dysregulation (dysregulation), (ii) negative self-concept, and (iii) disturbances in relationships (relational disturbance) that take into account disruptions in self-organization that typically occur following exposure to chronic and/or multiple forms of traumatic events such as adverse interpersonal experiences (Brewin et al., 2017). Factor analytic studies consistently indicate a distinction between symptom clusters of PTSD and DSO as measured by ITQ and have found evidence for a correlated six-factor model comprising reexperiencing, avoidance, threat, dysregulation, negative self-concept, and relational disturbance, and a two-factor higher-order model (henceforth referred to as the hierarchical

two-factor model) (see review Redican et al., 2021). To determine whether this structure characterizes the PTSD and CPTSD symptoms in LGBTQ+ adults, the present study aimed to examine if these two models fit data obtained with the ITQ from LGBTQ+ adults in Spain.

Furthermore, CPTSD is a broader and more severe clinical disorder wherein the traumatic event also impacts an individuals' emotion regulation capacity, beliefs about the self, and interpersonal relationships (see Brewin et al., 2017), and is typically associated with prolonged forms of trauma (Cloitre et al., 2020). Studies examining the additive effects of various types of lifetime traumatic events have found that exposure to multiple types of traumatic experiences is more strongly associated with CPTSD than with PTSD (Hyland et al., 2020). These findings have been corroborated in community samples (e.g., Charak et al., 2022) and treatment seeking samples (e.g., Karatzias et al., 2017). These findings have also suggested a dose-response effect of lifetime exposure to traumatic events to both PTSD and DSO symptoms. Given this, the present study examined the accumulating effect of traumatic events on factors of PTSD and DSO as measured by the ITQ, and their clusters at a latent variable level.

Role of minority stressors unique to LGBTQ+ individuals

The minority stress framework posits that mental health disparities in LGBTQ+ individuals are a consequence of stigma, discrimination, and internalization of these prejudices (i.e., internalized homonegativity), and are not a result of any pathology related to their sexual orientation and gender identities (Brooks, 1981; Meyer, 2003). Although support for this framework has been found for internalizing disorders (Feinstein et al., 2012), substance use (Lehavot & Simoni, 2011; Villarreal et al., 2021), and for DSM-5 PTSD (Dworkin et al., 2018; Solomon et al., 2021), no study has examined the role of minority stressors vis-à-vis the ICD diagnoses of PTSD and CPTSD. ICD-11's

PTSD/CPTSD are conceptualized as responses to extremely threatening or horrific life-events or series of events. Notably, indirect threats (e.g., emotional abuse) have been found to be associated with PTSD and CPTSD (Hyland et al., 2021). For marginalized groups, such as LGBTQ+ individuals, exposure to minority stressors related to their sexual orientation and gender (e.g., social isolation, parental rejection) may be perceived as threatening and horrific (e.g., Schmitz & Charak, 2020; Szymanski & Balsam, 2011). Additional differences in the nosology of DSM-5 PTSD versus the ICD-11's PTSD and CPTSD as mentioned previously, warrants the investigation of LGBTQ+ minority stressors' role in the development and prognosis of PTSD and CPTSD. Therefore, an additional aim of this study was to determine whether LGBTQ+ adults' exposure to minority stressors was associated with ICD-11's PTSD and CPTSD symptoms.

Minority stressors involve social and cultural discrimination and oppression of LGBTQ+ individuals. These stressors are rooted in the social beliefs, politics, policies, and discourses of heterosexism—prejudice towards sexual minority individuals based on the assumption that heterosexuality is the norm and superior—and cissexism—prejudice towards transgender and gender diverse individuals based on the assumption that identifying as cisgender is the norm—that causes social and internalized invalidations of LGBTQ+ individuals and are predictive of mental health problems (Dworkin et al., 2018; Villarreal et al., 2021). Exposure to minority stressors can further deplete or challenge one's repertoire of coping mechanisms when confronted by conventionally recognized forms of psychological trauma (e.g., natural disaster; motor vehicle accident), and this can lead to an increase in traumatic stress reactions (Hatzenbuehler, 2009). Related, prior studies examining pathways leading to DSM-5 PTSD suggest a predictive role of daily heterosexist experiences in trauma exposed (per DSM-5 criterion A) sexual minority groups (Dworkin et al., 2018; Solomon et al., 2021). For instance, examining the

associations between heterosexist experiences that fit traditional diagnostic criterion A for DSM-IV PTSD versus heterosexist experiences that did not fit criterion A (e.g., discrimination), Szymanski and Balsam (2011) found that both experiences were uniquely and positively related to PTSD symptoms in lesbians. Furthermore, Dworkin et al. (2018) found that experiences of psychological trauma and daily heterosexism predicted PTSD symptoms through maladaptive post-trauma cognitions (e.g., self-blame) among lesbian and bisexual women, thus suggesting that minority stressors such as heterosexist experiences can exacerbate symptoms of PTSD in trauma exposed sexual minorities. Notably these studies are based on samples from the United States and there is a growing need to examine the lived experiences of LGBTQ+ individuals across different countries. Spain where the current study-sample was collected, is recognized as a country that is strongly supportive of LGBTQ+ communities (Poushter & Kent, 2020). However, recent studies suggest that LGBTQ+ individuals in Spain continue to face discrimination, stigma, and harassment (Moya & Moya-Garófano, 2020) that increased during the COVID-19 pandemic (López-Sáez & Platero, 2022). These studies emphasize the need to gauge minority stress experiences of LGBTQ+ individuals in Spain [and in various other countries] to aid in case conceptualization, intervention planning, and treatment (Livingston et al., 2020). In line with the dose response framework described above, the present study will examine the relation between the cumulative exposure to both conventional psychological traumas and different heterosexist and cissexist experiences with PTSD and CPTSD symptoms.

The current study

The present study had two aims. First, to examine the factor structure of the ITQ in LGBTQ+ adults from Spain. Based on a recent meta-analytic study, we first hypothesized that a correlated first-order six-factor model (where factors correspond to the six

symptoms clusters of PTSD and DSO), and a hierarchical two-factor model (where higher order PTSD and DSO factors capture covariation in the first order factors), would optimally represent the latent structure of the ITQ in this sample (see Redican et al., 2021). To the best of our knowledge, this is the first study to examine the factor structure of the ITQ in LGBTQ+ adults. Aim 2 was to examine the unique associations between (a) cumulative exposure to lifetime traumatic events, and (b) the cumulative effect of heterosexist minority stressors (henceforth referred to as cumulative minority stress), and symptoms of PTSD/CPTSD. We hypothesized that cumulative trauma and cumulative minority stress would be positively associated with PTSD and DSO symptoms, and the PTSD and DSO clusters of the ITQ (hypothesis 2; Cloitre et al., 2019; Hyland et al., 2020), and we explored the associations between specific minority stressors of heterosexism and cissexism with the six clusters of PTSD and DSO, and PTSD and DSO symptoms (Balsam et al., 2013; Dworkin et al., 2018)

Method

Participants and Procedure

Participants were 225 LGBTQ+ adults that included 75 gay, 35 lesbian, 90 bisexual, and 7 pansexual individuals in the age range of 18 and 60 years (M = 31.35, SD = 9.48) residing in Spain. Seventy-four participants identified as transgender or gender diverse. Participants sexual orientation and gender identities are detailed in the supplemental Table S1. This table indicates participants' sexual orientation, gender, and assigned sex at birth, separately, with the intention of emphasizing the diversity in sexual orientation and gender identities that intersect (e.g., trans man and heterosexual, cis man and bisexual) and can lead to diverse positive and/or negative lived experiences. Participants self-identified mostly as Caucasian/Anglo-Saxon (n = 184, 82.5%) and to a lesser extend as Latinx (n = 23, 10.3%), Asian (n = 1, .4%), Biracial/Multiracial (n = 4,

2.2%), and additional category not listed (*n* = 10, 4.5%). Most of the participants indicated being Spanish (*n* = 205, 91.9%), while 8.1% (*n* =18) indicated having a nationality other than that of Spain. Most of the participants indicated living in urban areas (*n* = 185, 82.2%) and few lived in rural areas (*n* = 40, 17.8%). Other demographic details are provided in supplemental material Table S1.

Data collection for the present study took place from March 2021 to May 2021. After approval from the ethics committee at the Autonomous University of Madrid, the recruitment script for our study was posted in Spanish language on social media—Twitter, Facebook, and Instagram—under the title "Experiencias heterosexistas, relaciones interpersonales y salud mental en población LGBTQ+ adulta" (English translation: Heterosexist experiences, interpersonal relationships, and mental health in LGBTQ+ adults). Additionally, LGBTQ+ associations in Spain and LGBTQ+ influencers active in Spain were contacted to request their collaboration by posting the link for the survey on their social media profiles. Inclusion criteria were: (a) identifying as a LGBTQ+ person, (b) being 18 years or older, and (c) currently residing in Spain. Participants completed the online questionnaire via the Qualtrics platform. Survey completion took an estimated 35-50 minutes and was in Spanish. Informed consent was obtained from each participant at the beginning of the survey when they were also notified about confidentiality and the option to leave the study at any time without any type of penalty. All measures (except ITQ as a Spanish version exists; Fernández-Fillol et al., 2020) were translated and back-translated from English to Spanish, and back to English by two bilingual psychologists with graduate degrees from Spain. In case of discrepancy, a third bilingual psychologist with a doctoral degree was consulted.

Measures

Lifetime traumatic events. The Life Events Checklist (LEC; Gray et al., 2004) is a 17-item self-report measure that screen for potentially traumatic life events as per the DSM-IV definition of a Criterion A event. For this study, lifetime exposure to 16 traumatic events (e.g., natural disaster, sexual assault, severe human suffering, serious injury, harm, or sudden death) was measured on a five-point Likert scale which indicates the levels of exposure (1 = *'Happened to me'*, 2 = *'Witnessed it happening to somebody else*', 3 = '*Learned about it happening to someone close to me'*, 4 = *'Part of my job'*, 5 = *'Not sure it applies'*, 6 = *'Doesn't apply to my experience'*). Items were recoded as (1) presence, those that indicated 1 ("Happened to me") and all other options were coded as absent (0), except the items 14 (sudden violent death) and 15 (sudden accidental death) where option 2 was also recoded as present (1). The total score for the 16 items were calculated with scores ranging from 0 to 16.

ICD-11 PTSD and CPTSD. The International Trauma-Questionnaire (ITQ) is an 18-item self-report measure of ICD-11 PTSD and CPTSD (Cloitre et al., 2018). We used the Spanish translation of ITQ that consists of 18-items (Fernández-Fillol et al., 2020) of which six items gauged the PTSD symptoms, and six items measured DSO symptoms. In addition, six items measured functional impairment, three related to the PTSD symptoms and three related to the DSO symptoms. PTSD symptoms are answered in relation to trauma per the LEC, and how bothersome they have been in the last month and the DSO symptoms are answered in relation to one's typical reactions. Items are answered on a five-point Likert-type scale with options ranging from *not at all* (coded as 0) to *extremely* (coded as 4). A symptom is deemed to be present based on a score of 2 (moderately) or higher on the Likert scale (Cloitre et al., 2018). For a diagnoses of PTSD, participants had to endorse at least one symptom in each cluster of reexperiencing, avoidance, and threat, and endorse at least one of the functional impairment items. For a diagnoses of CPTSD,

participants required at least one symptom in each PTSD cluster of reexperiencing (e.g., *¿Tener sueños perturbadores que reproducen parte de la experiencia o están claramente relacionados con la experiencia?*), avoidance (e.g., *¿Evitar pensamientos, sentimientos, sensaciones físicas u otros estímulos internos que le recuerden la experiencia?*), and threat (e.g., *¿Sentirse sobresaltado/a/e o asustarse fácilmente?*) as well as at least one symptom in each DSO cluster, that is, dysregulation (e.g., *Cuando estoy molesto/a/e, tardo bastante tiempo en calmarme*), negative self-concept (e.g., *Me siento inútil*), and relational disturbance (e.g., *Me resulta difícil estar emocionalmente cercano/a/e a la gente*), and endorse one of the functional impairment items each for the PTSD and DSO. The Spanish version of ITQ was translated and back-translated, verified and explored for appropriate linguistic and cultural context by a group of experts in the original article by Fernández-Fillol et al. (2020). The internal reliability of the PTSD (α = .87) and DSO (α = .88) subscale scores in this sample were good.

Minority Stressors. The Daily Heterosexist Experiences Questionnaire (DHEQ; Balsam et al., 2013) is a 50-item measure that assesses minority stress as experienced in heterosexist and cissexist attitudes and behaviors across nine domains. It was used to assess minority stress during the past 12 months. For the present study, only the subscales of gender expression (i.e., harassed in public because of your gender expression), vigilance (i.e., watching what you say and do around heterosexual people), discrimination/harassment (i.e., verbally harassed because you are LGBTQ+), vicarious trauma (i.e., hearing about LGBTQ+ people you know being treated unfairly), rejection by family of origin (i.e., rejected by your mother for being LGBTQ+), and isolation were used (i.e., few people you can talk to about being LGBTQ+) that comprised 34 items were used. The six dimensions were selected as they are most frequently used in the existing literature on minority stressors, and have proven to be reliable for assessing daily heterosexist

experiences of cis-and trans LGBQ+ individuals (e.g., Landes et al., 2021), and are not exclusive to specific stressors of the LGBTQ+ population, such as the HIV status or the parenting dimensions, which are intended only for people with HIV positive status or those with children, respectively.

Each item is measured on a six-point Likert-scale indicating the presence/absence of the stressor and the impact on the individual (0 = *Did not happen/not applicable to me*, or *it happened, and* 1= *it bothered me not at all*, 2 = *it bothered me a little bit*, 3 = *it bothered me moderately*, 4 = *it bothered me quite a bit*, 5 = *it bothered me extremely*). As recommended by Balsam et al. (2013) items were recoded as present (1), if the participants responded with options 1-5, and absent (0), to calculate total scores. A total score for each subscale was calculated by adding all the items, and a cumulative score for the scale was calculated by adding all the items. In this sample, each subscale demonstrated an acceptable internal consistency based on the Likert-scale scores (harassment due to gender expression: α = .71; vigilance: α = .79; discrimination/harassment: α = .78; vicarious trauma: α = 73; rejection by family of origin: α = .75; and isolation α =.70).

Data analytic approach

First, descriptive statistics of the study variables were conducted in IBM SPSS version 26. Second, confirmatory factor analyses were conducted in M*plus* version 8.4 to assess the latent structure of the ITQ. Models 1 and 2 represented the first-order six-factor model and hierarchical two-factor model, respectively (see supplemental material Figures S1-S2). Third, structural equation modeling was used to (a) determine the association between cumulative trauma and cumulative minority stress, with the first-order six-factor model, and the hierarchical two-factor model; and (b) the association between cumulative trauma and the six types of minority stress heterosexist experiences, namely, harassment due to gender expression, vigilance, discrimination/harassment, vicarious trauma, rejection

by family of origin, and isolation, and the first-order six-factor model, and hierarchical two-factor model. The predictor variables were allowed to correlate with each other in these models.

Each model was specified and estimated using robust maximum likelihood (MLR). Goodness-of-fit for each model was assessed using the chi-square (χ^2), comparative fit index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Acceptable model fit was considered when the chi-square was non-significant, the CFI and TLI were greater than .90, and the RMSEA and SRMR were less than .08 (Hu & Bentler, 1999). Additionally, to compare the models the Akaike information criterion (AIC), Bayesian information criterion (BIC) and sample size adjusted BIC (SSBIC) were used wherein the model with the lowest score on these criteria is considered superior.

Results

1.1. Descriptive statistics

Descriptive statistics for cumulative exposure to psychological trauma and to minority stressors, and for six types of minority stress experiences, are reported in Table 1. The psychological traumas most often reported on the LEC by the participants were 'unwanted or uncomfortable sexual experience' other than sexual assault (n = 115, 51.1%) and 'physical assaults' (n = 88, 28.1%), followed by 'sexual assault' (n = 68, 30.2%). More than a quarter of the sample (n = 60; 26.7%) indicated being exposed to at least one type of traumatic event on the LEC, 31.6% (n = 71) to two traumatic events, 11.1 % (n = 35) to 3-4 events, 11.2% (n = 25) reported exposure to 5-6 traumatic events, and a small percentage (3.9%, n = 9) reported 7-9 traumatic events. Almost all the participants (92.6%) had experienced minority stressors related to heterosexism and cissexism. Correlation values between study variables are available in Supplemental material, Table S2. Nearly

6% of participants met the criteria for PTSD (n_{total} = 13; $n_{transgender/gender\ diverse}$ = 7; $n_{cisgender}$ = 6) and 19.1% met the criteria for CPTSD (n_{total} = 43; $n_{transgender/gender\ diverse}$ = 23; $n_{cisgender}$ = 20). These diagnoses are mutually exclusive. For a distribution of PTSD and CPTSD across sexual orientation and gender see supplemental Table S3.

The factor structure of the ITQ

Goodness-of-fit indices (Table 2) indicated that the first-order six-factor model (model 1) and the hierarchical two-factor model (model 2) fit the data well. Although the BIC of the hierarchical two-factor model was lower than the first-order six-factor model, the SSBIC indicated similar values across the two models. The factor loadings for first-order six-factor model ranged from .53 to .94, and the factor correlations ranged from .41 to .80. The factor loadings were .79 to .98 ($p < .05$; see supplemental material Figures S1-S2) and factor correlation between PTSD and DSO was positive and statistically significant ($r = .69$, $p < .001$) for the hierarchical two-factors model.

Next, in separate models the six first-order factors and two second-order factors were regressed on cumulative trauma and cumulative minority stress creating models 3 and 4, respectively (see supplemental material Figures S3-S4). As shown in Table 3, for model 3, findings indicated that the LEC score for cumulative trauma was positively associated with threat whereas cumulative minority stress was positively associated with all first-order six factors. Model 4 suggested that the LEC score for cumulative trauma was positively associated with PTSD only, whereas cumulative minority stress was positively associated with both PTSD and DSO (Table 3).

Finally, the six first-order factors and two second-order factors were separately regressed on the LEC score for cumulative trauma and scores for the six minority stress subtypes from the DHEQ—harassment due to gender expression, vigilance, discrimination/harassment, vicarious trauma, rejection by family of origin, and isolation,

creating model 5 (see supplemental material Figure S5). As shown in Table 3, cumulative exposure to multiple types of psychological trauma on the LEC still was significantly associated only with threat, and heterosexism or cissexism related to gender expression was positively associated with all the PTSD (reexperiencing, avoidance, threat) and DSO (dysregulation, negative self-concept, and relational disturbance) factors. Discrimination and harassment were positively associated with reexperiencing, vicarious trauma with negative self-concept, and isolation was positively associated with relational disturbances. Similarly, when the hierarchical two factors were regressed on cumulative trauma and minority stress subtypes creating model 6 (see Figure S6 supplemental material), the LEC score for cumulative trauma was associated with PTSD only, but harassment due to gender expression was positively associated with PTSD and DSO, and isolation was positively associated with DSO.

Discussion

The present findings support the factorial validity of the ITQ with the first-order six-factor model and the hierarchical two-factor model (comprising PTSD and DSO as the second order factors) providing excellent fit to the sample data derived from trauma exposed LGBTQ+ adults from Spain (hypothesis 1 supported). Additionally, we found partial support for hypothesis 2 in that cumulative exposure to conventional types of psychological trauma and cumulative minority stress were positively associated, albeit differentially, with PTSD and DSO (Balsam et al., 2013; Dworkin et al., 2018). In addition, specific effects were observed between types of heterosexist and cissexist minority stressors and the first-order six symptom clusters. Notably, a third of our sample self-identified as transgender and gender diverse, which increases the gender diversity of our sample as prior studies on PTSD focus on sexually diverse individuals (i.e., gay, lesbian, bisexual individuals).

Although not included in study hypotheses, it is notable that LGBTQ+ adults in the present study more frequently met criteria for CPTSD (i.e., 19.1%) than did a number of non-clinical adult samples across developed nations (e.g., Israel: 2.6% CPTSD; Ben-Ezra et al., 2018; Ireland: 7.7% CPTSD; Hyland et al., 2020). In the present study, transgender and gender diverse individuals and cisgender individuals had similar rates of PTSD and CPTSD. Notably, pansexual, asexual, and individuals with sexual orientations not listed in the survey (*M/SD* = 3.47/2.59) and transgender and gender diverse individuals (*M/SD* = 3.12/2.05) had higher mean/SD scores on cumulative trauma (see supplemental Table S3). The mean/SD of the count score of the minority stressors were similar to those found in prior studies on LGBTQ+ adults (Balsam et al., 2013) indicative of the representativeness of minority stressors in the present sample from Spain, and also the widespread nature of minority stressors in LGBTQ+ adult samples.

Support for the two factor analytical models suggest the distinctiveness of PTSD and CPTSD as separate disorders as measured by the ITQ in LGBTQ+ adults. Notably, the factor correlation between PTSD and DSO was moderate (r = .65) in the hierarchical two-factor model, which is in line with prior studies comparing the two constructs (Charak et al., 2022; Redican et al., 2021). Together, the present findings and prior studies indicate that there is an association between the two constructs of PTSD and DSO; however, they are conceptually different. Findings also suggest that when working with LGBTQ+ adults, ITQ scores on the dimensions of PTSD and DSO, and their six clusters can be used for the purpose of research, although future studies should focus on replicating the present findings in a treatment seeking LGBTQ+ sample.

In partial support of hypothesis 2, findings indicated that cumulative lifetime exposure to multiple types of traumatic events was associated with PTSD but not DSO, while cumulative minority stress was associated with both PTSD and DSO. The limited

association of cumulative trauma as assessed by the LEC with PTSD is in contrast with prior findings that cumulative trauma exposure was associated with both PTSD and DSO (e.g., Hyland et al., 2020). The divergent results may be due to methodological differences: notably these studies did not analyze the first-order six-factors as done in the present study. Although the cumulative trauma score in the present study was similar to rates found in prior studies from other European countries (Hyland et al., 2020), it should be noted that lifetime traumatic events measured via the LEC did not distinguish between LGBTQ+ identity related versus non-LGBTQ+ identity related instances. Future studies should examine the unique role of LGBTQ+ identity related traumatic stressors (e.g., sexual assault due to discrimination/stigmatization) versus exposure to conventional traumatic events (e.g., natural disaster) on PTSD/CPTSD to disentangle the associations of identity-related traumatic stressors, compared other types of traumatic stressors, with the symptoms of PTSD and CPTSD.

Furthermore, there was a positive association between cumulative minority stress, PTSD, and DSO, and related clusters (i.e., the six first-order factors). Our findings suggest that minority stressors can have an adverse cumulative effect leading to traumatic stress reactions, such as symptoms of CPTSD, in trauma exposed LGBTQ+ adults. While these findings are the first to examine the role of LGBTQ+ identity related minority stressors on symptoms of PTSD/CPTSD per ICD-11, prior literature emphasizes the need to examine minority stressors as forms of insidious trauma when investigating PTSD, along with widely studied conventional traumatic events (e.g., LEC) that are found across individuals irrespective of one's identities (Szymanski & Balsam, 2011).

Examination of the specifics of heterosexist minority stress indicated that heterosexist experiences related to gender expression were associated with an increase in all six symptom clusters of the ITQ, and the two higher-order factors of PTSD and DSO.

Since gender expression is overt, it may be that individuals with nonconforming gender expressions face chronic and heightened marginalization and stigmatization that are associated with symptoms of CPTSD (Bos et al., 2019; Pantalone et al., 2017). Our findings that discrimination and vicarious trauma were associated with increase in symptoms of reexperiencing and negative self-concept , respectively, and were not associated with the higher-order factor of PTSD or DSO, perhaps suggest that these two aspects of minority stress trigger memories of trauma when faced with a traumatic and stressful event (Thompson 2006) and can initiate feelings of helplessness and worthlessness by observing societal marginalization and stigmatization of LGBTQ+ individuals (Schmitz & Charak, 2020). Findings that heterosexist minority stress related isolation—difficulty finding partner, friends, feeling of not fitting in—was associated with increase in relational disturbance is not surprising as the two constructs are semantically similar. Notably, isolation was significantly associated with only DSO and not PTSD. Together, these findings suggest the importance of gauging the role of minority stressors in LGBTQ+ adults along with exposure to traumatic events during PTSD/CPTSD-related interventions.

The present study findings should be interpreted with the following limitations in mind. First, the study was based on a convenience sample of LGBTQ+ identifying adults from Spain and cannot be generalized to LGBTQ+ populations at large. Second, this study was based on a cross-sectional design. Third, as mentioned, when inquiring about lifetime traumatic events measured via the LEC a distinction was not made between LGBTQ+ identity related and non-LGBTQ+ identity (i.e., conventional) related events. Fourth, data were collected online in Spanish and from those with internet access. This may limit the sample to those with access to the internet who are invariably in urban settings, are likely to be more educated and higher socio-economic status (Oliver et al., 2020).

The present study findings have important implications and provides direction for future research. The ITQ can be used to assess PTSD/CPTSD when working with LGBTQ+ individuals. Findings emphasize the importance of taking an integrative approach by assessing unique LGBTQ+ identity related stressors along with conventionally defined traumatic events when providing behavioral healthcare services to sexual and/gender diverse individuals. For instance, clinicians can gauge if identity related discrimination interferes with help-seeking behavior from peers, family, and police as the client may expect negative reactions (Pantalone et al., 2017). Such an approach would facilitate a clinician's understanding of minority stress factors associated with PTSD/CPTSD symptomatology. Based on the assessment phase, in the intervention phase, it is important to engage in affirmative practices that are consistent with evidence-based treatments (see Effective Skills to Empower Effective Men [ESTEEM]; Pachankis et al., 2015). Affirmative practices are already a part of the recommended and evidence-based treatments and include for instance clinicians supporting clients in defining their own values and beliefs in their words and in navigating their way to positive and affirming social connections in stigma-laden locales (Pantalone et al., 2017). Future studies should focus on corroborating the present findings in treatment seeking LGBTQ+ individuals and consider multiply marginalized intersecting identities (e.g., race, ethnicity, immigration status). Longitudinal designs should be used to parse out the role of minority stressors alongside exposure to conventional traumatic events and gauge if minority stressors maintain and/or exacerbate the symptom complexity caused by traumatic events. With growing scientific evidence for the validity of PTSD and CPTSD via ICD-11 based measures (e.g., ITQ) across diverse samples, the DSM working committees should deliberate on this newer scientific evidence.

In conclusion, our findings support the distinctiveness between ICD-11's PTSD and CPTSD, as measured by ITQ, and to the best of our knowledge this is the first study to examine these models in LGBTQ+ adults. LGBTQ+ adults are at risk for PTSD and CPTSD, and therefore it is essential to understand how both conventional and minority stressors may be traumagenic in this vulnerable population—and how this may differ for subgroups who have different sexual orientation and gender identities. Unique to our study are the findings that support the cumulative and detrimental role of exposure to LGBTQ+ identity related minority stressors on clusters of PTSD and DSO. Future studies focusing on LGBTQ+ individuals are warranted by these findings.

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Table 1

Percentage distribution of traumatic events, minority stress, and PTSD and DSO

Traumatic event	*n* (%)	*Variables*	*n* (%)	*M/SD*	Range
Other unwanted sexual experience	115 (51.1)	Cumulative trauma	---	2.70/1.70	0-10
Physical assault	87 (38.7)	Cumulative minority stress	---	18.92/6.77	0-34
Sexual assault	68 (30.2)	DHE Gender expression	190 (86.2)	2.56/1.82	0-6
Life-threatening illness/injury	64 (28.4)	DHE Vigilance	208 (92.4)	3.49/1.92	0-6
Transportation accident	63 (28.0)	DHE Discrimination/harassment	197 (87.6)	3.00/1.97	0-6
Sudden, unexpected death of someone close to you	61 (27.1)	DHE Vicarious trauma	223 (99.6)	5.70/.84	0-6
Severe human suffering	41 (18.4)	DHE Family of origin	163 (73.1)	1.98/1.82	0-6
Natural disaster	38 (16.9)	DHE Isolation	188 (83.9)	2.19/1.43	0-4
Sudden, violent death	31 (13.8)	PTSD	13 (5.9)	---	---
Assault with a weapon	28 (12.6)	CPTSD	43 (19.1)	---	---
Fire or explosion	25 (11.1)				
Serious accident	15 (6.7)				
Exposure to toxic substance	9 (4.0)				
Combat/warzone	4 (1.8)				
Captivity	4 (1.8)				
Serious injury, harm, or death you caused to someone else	0 (0)				

Note. DHE = Daily heterosexist experiences. PTSD = Posttraumatic stress disorder. CPTSD = Complex posttraumatic stress disorder.

Table 2

Model fit indices

Models	Chi-square (df)	RMSEA (90% CI)	CFI/TLI	SRMR	AIC	BIC	SSABIC
1. first-order six factors	45.732*** (39)	.028 (.000 - .056)	.994 /.991	.024	7564.713	7738.934	7577.305
2. hierarchical two factors	55.019*** (47)	.028 (.000- .054)	.993/.991	.029	7558.798	7705.690	7569.414
Models with predictors							
3. first-order six factors with predictors as cumulative trauma and cumulative minority stress	57.457*** (51)	.024 (.000- .051)	.995/.991	.024	9906.495	10138.789	9923.284
4. hierarchical two factors with predictors as cumulative trauma and cumulative minority stress	73.728*** (67)	.021 (.000- .046)	.995/.993	.031	9891.465	10069.103	9904.304
5. first-order six factors with predictors as cumulative trauma and minority stress subtypes	89.650*** (81)	.022 (.000- .044)	.994/.989	.024	13158.451	13595.712	13190.054
6. hierarchical two factors with predictors as cumulative trauma and minority stress subtypes	141.924*** (117)	.031 (.000- .047)	.982/.977	.036	13139.523	13453.804	13162.237

Note. $^{***}p < .001$.

Table 3

Regression of factor analytic models of PTSD/CPTSD onto cumulative trauma, cumulative heterosexist minority stress, and heterosexist minority stress types

	First order six factor model						Hierarchical two factor model	
	Model 3						*Model 4*	
	RE	AV	TH	AD	NSC	DR	PTSD	DSO
Cumulative trauma	.110	.101	**.164***	.019	-.033	.013	**.154***	.001
Cumulative minority stress	**.312*****	**.254*****	**.273*****	**.243****	**.264*****	**.310*****	**.322*****	**.306*****
R-squared	**.129***	**.089***	**.126***	.062	**.066***	**.098***	**.154****	**.094***
	Model 5						*Model 6*	
Cumulative trauma	.123	.096	**.154***	.031	-.005	.051	**.150***	.029
DHE Gender expression	**.199***	**.168***	**.294****	**.251****	**.249****	**.271****	**.269****	**.289****
DHE Vigilance	-.119	-.099	-.097	-.077	-.029	-.043	-.121	-.059
DHE Discrimination/Harassment	**.291****	.195	.081	-.073	-.033	-.037	.190	-.058
DHE Vicarious trauma	.038	.109	-.023	.104	**.132***	.016	.037	.100
DHE Rejection by family	-.101	.041	.071	.070	.010	-.027	.018	.025
DHE Isolation	.134	-.031	.062	.142	.113	**.297*****	.071	**.204***
R-squared	**.216*****	**.144****	**.201*****	**.133****	**.121****	**.213*****	**.234*****	**.185*****

Note. Values are standardized co-efficient. DHE = Daily heterosexist experiences. PTSD = Posttraumatic stress disorder, DSO = Disturbances of self-organization, RE = Reexperiencing, AV= Avoidance, TH = Sense of threat, AD = Affective dysregulation, NSC = Negative self-concept, DSO = Disturbances in relation.

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Supplemental materials

Table S1

Sample demographics

	n (%)
Sexual orientation	
Gay	75 (33.3)
Lesbian	35(15.6)
Heterosexual	10 (4.4)
Bisexual	90 (40.0)
Pansexual	7 (3.1)
Asexual	3 (1.3)
Additional sexual orientation not listed	5 (2.2)
Gender	
Cis woman	64 (28.8)
Cis man	84 (37.8)
Trans man	19 (8.5)
Trans woman	10 (4.5)
Non-binary	30 (13.5)
Additional gender identity not listed	15 (6.8)
Assigned sex at birth	
Male	110 (48.9)
Female	113 (50.2)
Intersexual	1 (0.4)

Prefer not to answer	1 (0.4)
Civil Status	
Single	101 (44.9)
Dating someone	24 (10.7)
In a relationship	72 (32.0)
Married	22 (9.8)
Separated/divorced	5 (2.2)
Widowed	1 (0.4)
Income	
Very low	28 (12.4)
Low	60 (26.7)
Average	98 (43.6)
Superior	39 (17.3)

Table S2

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	*Gender expression	1														
2	*Vigilance	**.180**	1													
3	*Discrimination/Harassment	**.478**	**.441**	1												
4	*Vicarious trauma	**.242**	**.292**	**.332**	1											
5	*Rejection by family of origin	**.379**	**.369**	**.572**	**.218**	1										
6	*Isolation	**.463**	**.304**	**.369**	.097	**.345**	1									
7	Cumulative DHE	**.687**	**.660**	**.819**	**.446**	**.742**	**.635**	1								
8	PTSD	**.377**	.060	**.334**	**.148**	**.236**	**.231**	**.338**	1							
9	Reexperiencing	**.377**	.075	**.344**	**.137**	**.182**	**.259**	**.324**	**.825**	1						
10	Avoidance	**.271**	.050	**.274**	**.170**	**.195**	.124	**.260**	**.862**	**.570**	1					
11	Sense of current threat	**.346**	.034	**.247**	.076	**.226**	**.209**	**.283**	**.860**	**.569**	**.617**	1				
12	DSO	**.356**	.088	**.172**	**.143**	**.161**	**.323**	**.398**	**.562**	**.435**	**.454**	**.547**	1			
13	Affective Dysregulation	**.239**	.068	.088	.112	**.132**	**.202**	**.197**	**.466**	**.393**	**.339**	**.462**	**.830**	1		
14	Negative self-concept	**.302**	.078	**.158**	**.174**	.127	**.235**	**.253**	**.485**	**.264**	**.387**	**.484**	**.871**	**.605**	1	
15	Disturbances in relationships	**.358**	.082	**.178**	.072	**.154**	**.371**	**.300**	**.481**	**.357**	**.425**	**.448**	**.846**	**.576**	**.571**	1
16	Cumulative LEC	**.154**	.103	**.260**	.034	**.350**	.117	**.277**	**.201**	**.181**	**.149**	**.185**	.088	.090	.036	.106

Correlations between study variables

Note. LEC = Traumatic events on the life event checklist. PTSD = Posttraumatic stress disorder. CPTSD = Complex posttraumatic stress disorder. Significant results are in bold ($p < .05$). *Daily heterosexist experiences

Table S3

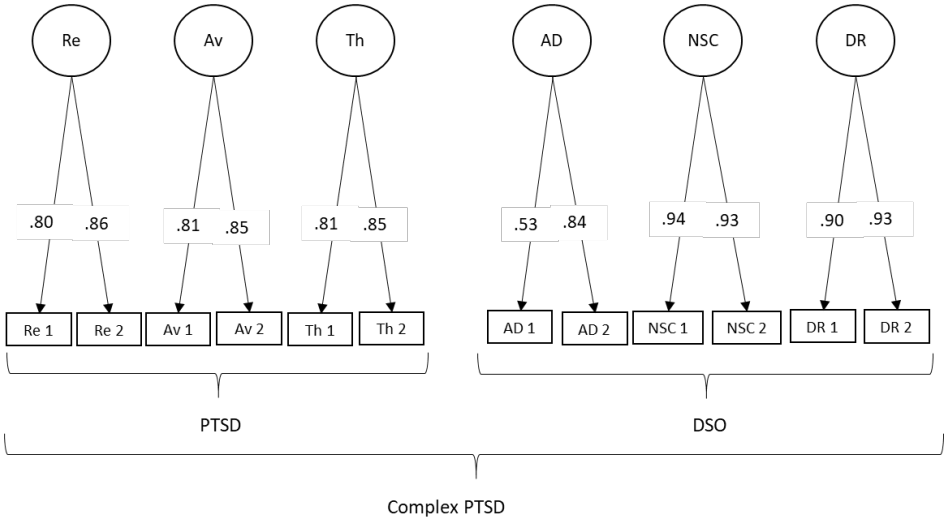
Percentage distribution of PTSD and CPTSD, and Mean/SD of cumulative traumas across sexual orientation and gender

	PTSD Present (*n* = 13)	**CPTSD Present** (*n* = 43)	**Cumulative trauma**	
	n (%)	*n (%)*	*M* (SD)	Range
Gay	4 (5.3)	8 (10.7)	2.95 (1.55)	1-7
Lesbian	4 (11.4)	9 (25.7)	3.17 (2.14)	1-9
Heterosexual	1 (10.0)	10 (1)	3.0 (1.77)	1-6
Bisexual	3 (3.4)	21 (23.9)	2.65 (1.72)	1-8
Pansexual/asexual[+]	1 (7.1)	4 (30.8)	3.47 (2.59)	1-10
Cisgender	6 (4.2)	20 (13.8)	2.77 (1.67)	1-9
Transgender and gender diverse	7 (9.6)	23 (31.9)	3.12 (2.05)	1-10

Note. The distribution across sexual orientation and gender is not mutually exclusive. [+]includes those whose sexual orientation was not listed in the categories provided.

Figure S1

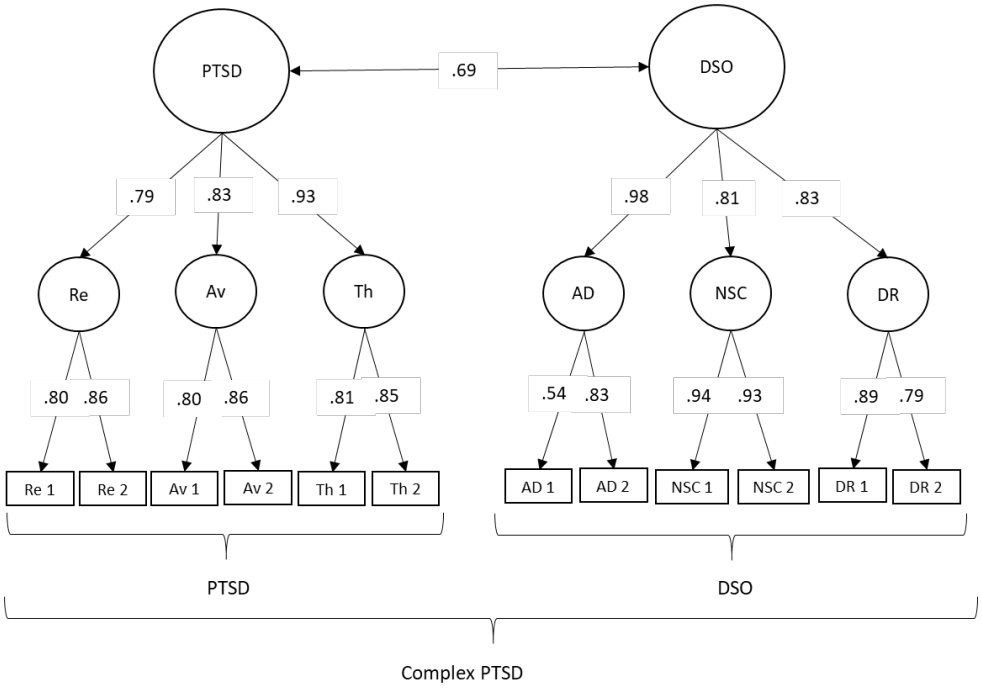
Model 1 (first-order six factors)



Note. All factor loadings were significant at $p < .001$.

Figure S2

Model 2 (hierarchical two factors)



Note. All factor loadings were significant at $p < .001$.

Figure S3

Model 3 (first order six factors with predictors cumulative trauma and cumulative minority stress, see regressions values on Table 3)

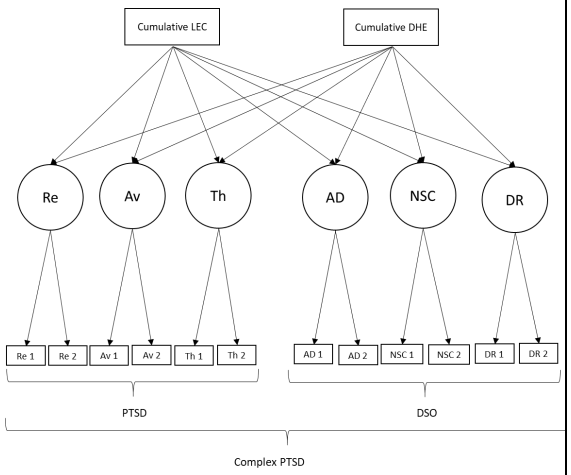


Figure S4

Model 4 (hierarchical two factors with predictors cumulative trauma and cumulative minority str, see regressions values on Table 3)

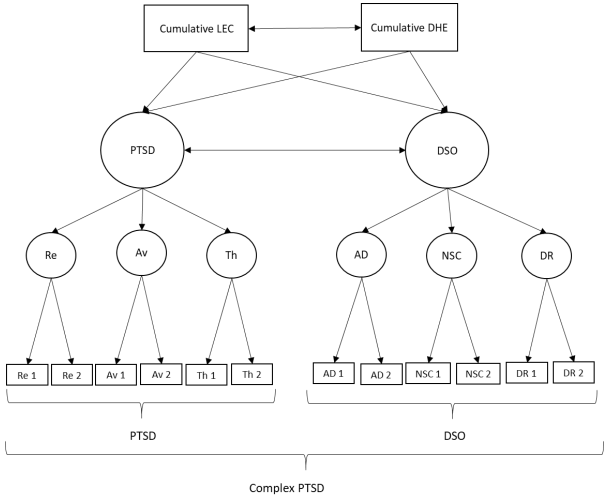


Figure S5

Model 5 (first order six factors with predictors, see regressions values on Table 3)

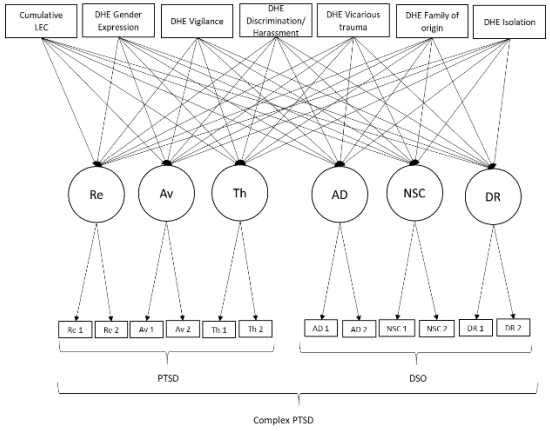
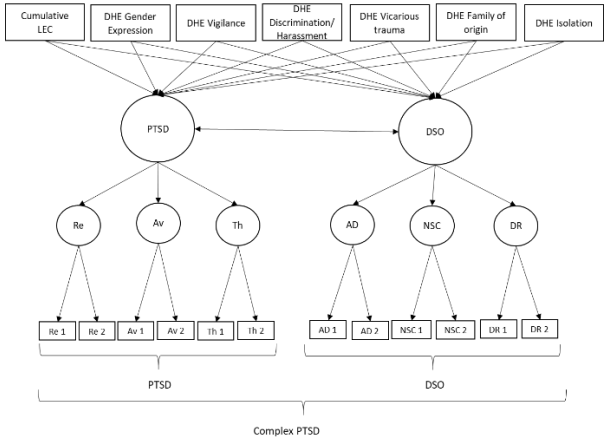


Figure S6

Model 6 (hierarchical two factors with predictors, see regressions values on Table 3)



Note. All predictors were correlated in the model. DHE = Daily heterosexist experiences. All factor loadings were significant at $p < .001$. Figure S3: Factor loadings ranged from .530 to .939. Figure S4: Factor loadings ranged from .536 to .938. Figure S5: Factor loadings ranged from .530 to .939. Figure S6: Factor loadings ranged from .534 to .938.