Psychiatry Research 260 (2018) 262–271

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Predictors of remission from PTSD symptoms after sexual and non-sexual trauma in the community: A mediated survival-analytic approach

Mario Müller[a,b,c,*], Vladeta Ajdacic-Gross[a,c], Stephanie Rodgers[a,c], Birgit Kleim[a], Erich Seifritz[a], Stefan Vetter[a,b], Stephan T. Egger[a], Wulf Rössler[c,d,e], Enrique Castelao[f], Martin Preisig[f], Caroline Vandeleur[f]

[a] Department of Psychiatry, Psychotherapy and Psychosomatics, Zurich University Hospital of Psychiatry, Zurich, Switzerland
[b] Centre for Disaster and Military Psychiatry, University of Zurich, Zurich, Switzerland
[c] Zurich Programme for Sustainable Development of Mental Health Services, Zurich, Switzerland
[d] Institute of Psychiatry, Laboratory of Neuroscience (LIM 27), University of Sao Paulo, Sao Paulo, Brazil
[e] Department of Psychiatry and Psychotherapy, Campus Charité Mitte, Charité – University Medicine Berlin, Germany
[f] Department of Psychiatry, CHUV, Lausanne, Switzerland

ARTICLE INFO

Keywords:
PTSD symptoms
Remission
Mediated survival analysis
Hazard ratio
Sexual and non-sexual trauma
Avoidance
Comorbid depression

ABSTRACT

Epidemiological data on the chronicity of posttraumatic stress disorder (PTSD) symptoms in relation to trauma type and underlying pathways are rare. The current study explored how PTSD symptoms change over time across different trauma types and examined mediators of their persistence. A trauma-exposed community sample, whereof approximately one quarter met diagnostic criteria for PTSD, provided retrospective data on the duration of PTSD symptoms. Those who remitted and those who had not at the time of assessment were compared regarding worst trauma, symptom severity, comorbidity, demographic and treatment-seeking variables. Time to remission was estimated using Cox proportional hazard models including candidate predictors of remission. A mediated survival analysis was used to explore indirect pathways that explain trauma-specific differences in remission times. Both the full sample and PTSD subgroup were analyzed separately. Overall, lower socio-economic status, lifetime and childhood sexual trauma, symptom severity, comorbid depression and past treatment were associated with non- and longer remissions. PTSD avoidance symptoms and comorbid depression were found to mediate longer remission times after lifetime or childhood sexual trauma. Our findings provide insight into the mechanisms and complicating factors of remission from PTSD symptoms after trauma, which might have important implications for therapeutic interventions.

1. Introduction

Posttraumatic stress disorder (PTSD) is a chronic condition (Steinert et al., 2015); less than 40% of subjects remit from their symptoms without specific treatment within one to five years while the majority of subjects report symptoms for a much longer period (Chapman et al., 2012; Perez Benitez et al., 2012). Results from the National Comorbidity Survey (Kessler et al., 1995) suggest that PTSD is very unlikely to remit if it persists beyond 6 years. Females are at a greater risk than males to suffer from a chronic course of the disorder although the underlying mechanisms are not yet entirely clearly understood (Breslau, 2009; Breslau and Davis, 1992).

A recent meta-analysis indicated variable PTSD trajectories, whereof the nature of the traumatic event was identified as a major predictor of remission (Morina et al., 2014). Evidence from either clinical or epidemiological studies, using prospective or retrospective study designs, suggests that more severe trauma experiences, such as sexual abuse and childhood trauma, can cause more long-term adverse effects and are strong predictors of a chronic course of PTSD (Bremner, 2003; Chapman et al., 2012). In particular, exposure to sexual adversity in the early developmental stages substantially decreased the likelihood of long-term remission from PTSD (Zanarini et al., 2011; Zlotnick et al., 1999). However, the reasons for those associations remain largely unclear.

A possible explanation could be the existence of posttraumatic factors that shape underlying pathways to remission from PTSD. One such factor might be symptom severity. A large body of evidence suggests that individuals with personal exposure to interpersonal and abusive trauma, in particular sexual trauma, experienced a higher number of, more severe and persisting PTSD symptoms than those

* Correspondence to: Zurich University Hospital of Psychiatry, Department of Psychiatry, Psychotherapy and Psychosomatics, PO Box 1930, CH-8021 Zurich, Switzerland.
E-mail address: mario.mueller@dgsp.uzh.ch (M. Müller).

https://doi.org/10.1016/j.psychres.2017.11.068
Received 17 November 2016; Received in revised form 31 October 2017; Accepted 25 November 2017
Available online 02 December 2017
0165-1781/

exposed to other types of trauma (Forbes et al., 2012; Loos et al., 2015; Norris, 1992; Smith et al., 2016). In particular, avoidance symptoms seem to play a critical role in this regard. Indeed, higher avoidance was found to be highly specific for those trauma types (Bal et al., 2003; Glover et al., 2010; Müller et al., 2015b) and was assumed to play an important role in the stability of PTSD (Cone et al., 2015; Davidson et al., 1991; North and Oliver, 2013; Solomon et al., 2009). Another such posttraumatic factor is the development of a range of other mental health problems that occur with higher incidence after a traumatic event (Breslau, 2009). Thus, a recent meta-analysis has shown that sexual abuse experience more than other trauma types has clear ties to a higher incidence of mood, anxiety or substance use disorders, even independently from PTSD (Dworkin et al., 2017). Interestingly, these conditions were also found to be more likely among individuals with chronic PTSD than among those with faster symptom improvement (Chapman et al., 2012; McFarlane, 2000; Zlotnick et al., 2004, 1999). This raises the question of whether those independent findings might represent specific pathways. In other words, the type of traumatic experience possibly represents a specific condition that affects the chronicity of PTSD symptoms, which, however, might be explained by specific posttraumatic determinants.

Therefore, based on the literature, sexual or childhood adversity and exposure to violence, the presence of avoidance symptoms and posttrauma psychiatric conditions could play a significant role in the persistence of PTSD. However, the mechanisms underlying these associations are not yet clear. Furthermore, most epidemiological studies on long-term effects of trauma exposure have only focused on individuals meeting diagnostic criteria for PTSD (Gradus, 2017), which restricts the view to exclusively severe cases and does not mirror the mechanisms of remission in those with a lower symptom load. Yet, it might be possible that different factors play a role in the remission of PTSD symptoms below the diagnostic level. To our knowledge, no epidemiological study to date has modeled the temporal course of PTSD symptoms along the continuum over the lifetime across a broader spectrum of trauma types. For this reason, we tried to broaden the view of symptom remission towards an unselected community sample of trauma-exposed individuals that have indexed one most upsetting lifetime trauma as well as symptoms of posttraumatic stress. In the current study we implemented a survival analytic approach from a lifetime perspective to determine whether the expected duration of time until PTSD symptom remission was related to a specific type of trauma and to identify factors that contribute to variation in this regard. Thereby, we assumed that different types of trauma were differently associated with non-remission and we tested whether both the type of PTSD symptoms and comorbid conditions were also likely to be responsible for chronicity of PTSD symptoms. Specifically, this study aimed to: 1) examine the course of PTSD symptoms over the lifetime, 2) explore the relative impact of trauma type on time to remission from PTSD symptoms, and 3) investigate whether PTSD symptom types or posttrauma psychiatric comorbidity were possible mediators in the associations between trauma type and the time a subject needed to recover from the specific trauma experience. We studied these three issues both in a large sample of individuals with a lifetime history of trauma and in a subgroup of subjects diagnosed with PTSD, controlling our analyses for relevant covariates.

2. Methods

2.1. Sample and procedure

All data were collected within the PsyCoLaus study (Preisig et al., 2009), a subsample from the larger CoLaus study (Firmann et al., 2008), a randomly selected population-based cohort study conducted in Lausanne, in the French-speaking part of Switzerland. From 2003–2006, a community sample of N = 6734 subjects aged between 35 and 75 years was recruited for the first wave of CoLaus, an epidemiological study designed to assess the prevalence and determinants of cardiovascular risk factors and diseases. Sixty-seven percent of the subjects of the CoLaus study in the age range between 35 and 66 years (n = 3720) accepted to participate in the psychiatric exam (PsyCoLaus; see Preisig et al. (2009) for a detailed description).

Twenty-six subjects were excluded due to missing data on the screening item for traumatic exposure, leading to a sample of n = 3694 individuals. The study sample was restricted to those participants with a self-reported history of lifetime trauma (n = 783; 21.2%). From those, n = 199 (25.4%) participants were further excluded due to missing data on symptom duration.

Accordingly, the final study sample consists of n = 584 participants whereof 59.9% were females and the mean age was 50.5 years (SD = 8.7). The majority of participants (58.2%) were married, around one quarter (23.6%) were divorced or separated, 14% were single and 22 participants (3.8%) were widowed. More than half of the sample (53.1%) had basic education (i.e. completion of basic schooling until the age of 16), 24.8% had higher education (i.e. completion of a school in which a certified profession was taught), and 20.4% had a university degree or equivalent. Ten participants (1.7%) reported that they had not completed compulsory school (i.e. they had left school before the age of 16). Socio-economic status (SES) was assessed according to the Hollingshead's index (Hollingshead, 1975). The mean SES was 3.3 (SD = 1.3), indicating a middle class status on average. For more details on these sample characteristics please refer to Table 1a. A subgroup of individuals with PTSD (n = 147; 25.17%) was selected for separate analyses. Sample characteristics for this subgroup are summarized in Table 1b.

The study was approved by the Ethics Committee of the Lausanne University. All participants provided written consent after being informed of the goal and funding of the study.

2.2. Measures

The data of the PsyCoLaus study were derived from the French version (Leboyer et al., 1995) of the semi-structured Diagnostic Interview for Genetic Studies (DIGS) (Nurnberger et al., 1994). In addition to demographic features, the DIGS comprises information on a broad spectrum of DSM-IV Axis I disorders as well as on some Axis II criteria and suicide behavior (Preisig et al., 2009). The PTSD and generalized anxiety disorders sections of the DIGS were based on the relevant sections of the French version of the Schedule for Affective Disorders and Schizophrenia – Lifetime and Anxiety disorder version (SADS-LA) (Endicott and Spitzer, 1978). The French version of the DIGS as well as the anxiety sections of the SADS-LA revealed excellent inter-rater and fair to good test-retest reliability for major mood (Preisig et al., 1999), substance use (Berney et al., 2002) and anxiety disorders (Leboyer et al., 1991). The test-retest reliability for the PTSD diagnosis was estimated at Yule = 0.69 from a sample of 176 psychiatric patients (Perrin et al., 2014).

Lifetime exposure to potentially traumatizing events was assessed using the question “Have you ever been exposed to any of the events from the following categories?”: 1.) accident, 2.) physical assault, 3.) combat and/or war, 4.) witness of murder, violence or death by an accident, and 5.) sexual trauma, defined as the experience of an event that a person judged as sexual and to which he/she did not consent, such as exhibitionism, being touched, threatened or raped. All trauma categories were binary coded as 1 “exposed” versus 0 “not exposed”. In the test-retest reliability study, only the events that were reported before the baseline assessment were analyzed, therefore excluding new events that occurred during the follow-up period. The three-year test-retest reliability coefficients in terms of Yule's Y for exposure to violent crime and sexual trauma in the sample of 176 adult psychiatric patients were as high as 0.84 and 0.57, respectively, although those for exposure to accidents and witnessing trauma to others were only 0.30 and 0.22, respectively (Perrin et al., 2014). The test-retest reliability for exposure