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Health-related quality of life in posttraumatic stress disorder: 4 years follow-up study of individuals exposed to urban violence

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ABSTRACT

Evidence suggests that Posttraumatic Stress Disorder (PTSD) is associated with substantially reduced Health-related quality of life (HRQoL). This study aimed to explore the impact of PTSD symptoms in HRQoL and its predictors in individuals exposed to urban violence. We follow-up a cohort of 267 individuals exposed to urban violence, derived from an epidemiological survey and clinical cases from an outpatient program of victims of violence, with and without PTSD, by assessing symptoms and other measures at two intervals, approximately 4 years apart. PTSD symptom severity was associated with poorer quality of life at baseline and at follow-up. Higher levels of depression and anxiety, new trauma experiences, more traumas in childhood and more PTSD arousal symptoms were all predictors of lower HRQoL over time. Results strongly suggest the need to assess HRQoL in addition to symptoms in order to assess the true severity of PTSD. These results have implications for the functional recovery in the treatment of PTSD.

1. Introduction

Posttraumatic Stress Disorder (PTSD) is a very prevalent disorder, with a lifetime rate of 7.8–9.2% (Kessler et al., 1995; Breslau et al., 1998; Ribeiro et al., 2013). The estimated costs associated with PTSD are higher than any other anxiety disorder (Greenberg et al., 1999) and also has one of the highest rates of service use, adding substantial economic and humanistic impact on patients and health care systems. In addition, PTSD is associated with significant impairment in work, daily social and psychological well-being, which reflects a substantial negative impact on quality of life.

The term 'Health-related quality of life' (HRQoL) is a multidimensional concept that consists of physiological, psychological and functional aspects of well-being, as seen from the individual's own perspective (Senneseth et al., 2012). HRQoL refers to complex aspects of life that cannot be expressed by using only quantifiable indicators; it describes a subjective evaluation of life in general. It encompasses, though, not only the subjective sense of well-being but also, objective indicators such as, health status and external life situations (Dimenas et al., 1990).

Over the past decades, people's quality of life has become increasingly important in health care and health research, and has been used in medical practice to estimate the impact of different diseases on functioning and well-being and to compare outcomes between different treatment modalities.

Most of the data analyzing the relation between PTSD and HRQoL are based on veteran populations, in which, were reported diminished well-being and physical health, increased violence and marital and occupational difficulties (Schnurr et al., 2006; Richardson et al., 2008; Jordan et al., 1992; Zatzick et al., 1997; Mendlovicz and Stein, 2000; Quilty et al., 2003). This data underscore that PTSD adversely affects the quality of life, not only individuals with the disorder, but also of their families. One clinical sample reported high rates of public financial assistance, and poor physical and emotional health (Warshaw et al., 1993).

HRQoL studies based on civilian populations have been shown to predict poor HRQoL in patients with PTSD diagnostic related to physical and sexual assault (Sadler et al., 2000), exposure to domestic violence (Alsaker et al., 2006), traffic-related injuries (Wang et al., 2005), critical illness (Deja et al., 2006), sexual abuse (Dickinson et al., 1999) and non-domestic violence (Johansen et al., 2007).

Furthermore, prospective cohort studies have found that initial PTSD predicts poor life quality at subsequent follow-up intervals (Holbrook et al., 2001; Michaels et al., 1999; Zatzick et al., 2002).

Few studies have investigated which symptom clusters of PTSD are associated with poor HRQoL. d'Ardenne et al. (2005) reported that lower levels of avoidance were associated with poorer quality of life. In a longitudinal study, Loncar et al. (2006) found that changes in avoidance and hyperarousal clusters predicted changes in quality of life. Giacco et al. (2013) found that low quality of life reported by patients with war-related PTSD is particularly

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associated with hyperarousal symptoms. There is a lack of longitudinal studies in victims of urban violence and HRQoL.

In this study, we followed up a cohort of victims of urban violence, based upon the epidemiological study in the city of São Paulo, as well as patients from an outpatient clinic of the Program for Victims of Violence of the Federal University of São Paulo (PROVE-UNIFESP). The aims of the present study were to investigate how PTSD after exposure to urban violence influences HRQoL, as well the impact of PTSD, including its clusters, on HRQoL over time.

2. Methods

2.1. Study description

The present cohort study is a part of a larger case control study with victims of urban violence evaluated between 2007 and 2009, as detailed elsewhere (Andreoli et al., 2009). The sample was composed of 150 consecutive patients seen in the Violence Program of the Federal University of São Paulo (PROVE) reporting a traumatic stressor which met criterion A for PTSD diagnoses in DSM-IV (APA, 1994) and 167 subjects who were identified to have been exposed to violence from a randomly sampled epidemiological survey conducted in São Paulo, who might or not have developed PTSD (Andreoli et al., 2009). Fifty subjects refused to participate for scheduling reasons.

Potentially eligible participants were victims of urban violence with age 18 to 65. Ineligible participants included those with bipolar disorder; schizophrenia; schizoaffective disorder; MDD with psychotic features or a current primary diagnosis of anorexia nervosa or bulimia nervosa.

At the baseline visit, all subjects who were eligible to participate and to sign the consent inform, previously approved by the Review Board of Ethics of São Paulo Federal University, were included and administered the Structured Clinical Interview for DSM-IV Axis I (SCID-I) and the Clinician Administered PTSD Scale (CAPS), respectively, by trained and credentialed clinical psychologists or psychiatrists with established inter-rater reliability. Subjects also completed The Medical Outcomes Study Short Form-36 (SF-36), Beck, Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Peri-traumatic Dissociative Experiences Questionnaire (PEDQ) and the Early Trauma Inventory (ETI).

2.2. Measures and procedures

HRQoL was measured with the Portuguese version of *The Medical Outcomes Study Short Form-36* (*MOS SF-36*; Ware and Sherbourne, 1993). The SF-36 contains 36 items, measuring eight domains: physical functioning (PF,10 items), role limitations due to physical health problems (RP, four items), bodily pain (BP, two items), general health perceptions (GH, five items), vitality (VT, four items), social functioning (SF, two items), role limitations due to emotional problems (RE, three items), and mental health (MH, five items). One additional item evaluates the change in health over the past year. The score in each domain of the SF-36 was linearly transformed into a standard score, ranging from 0 to 100, with a higher score reflecting better-perceived health. A total score and two aggregate scores are calculated from the measure: the physical component summary score (PCS) (which is the mean score of four scales: physical functioning, role physical, bodily pain, general health) and the mental component summary score (MCS) (which is the mean score of four scales: vitality, social functioning, role emotional and mental health). The instrument has been validated for the Brazilian population; Interrater agreement on the SF-36 items varied from 0.55 to 0.81 (Ciconelli et al., 1999).

Patient's socio-demographic characteristics, including age, sex, marital status, educational level, current employment status were obtained using a brief follow-up questionnaire.

The traumatic experience and severity of posttraumatic stress symptoms were measured on the *Clinician Administered PTSD Scale* (*CAPS*) (Blake et al., 1995). It is a 30 item structured diagnostic interview designed to measure the frequency and intensity of PTSD symptoms. The symptoms are scored on a 0–4 Likert-type scale, total score ranging from 0 to 136. According to the total score, Weathers et al. (2001) suggested the following PTSD classifications: 0–19:asymptomatic/few symptoms; 20–39:mild PTSD/sub threshold; 40–59:moderate PTSD/threshold; 60–79:severe PTSD symptoms; and > =80 extreme PTSD symptoms. The instrument has been validated for the Brazilian population; Interrater agreement on the CAPS items varied from 0.63 to 1 (Pupo et al., 2011).

Depressive symptoms were assessed on *The Beck Depression Inventory* (BDI) (Beck and Steer, 1984). The instrument has been extensively applied as a self-report measure of depression. It consists of 21-items, containing four statements that reflect the increasing severity of a given symptom of depression (Gorenstein et al., 1999).

Anxiety symptoms were assessed on *The Beck Anxiety Inventory* (BAI; Beck et al., 1988). It is a self-administered 21-item questionnaire. Items consist of a brief statement describing symptoms of anxiety rated on a 4-point scale. The instrument has been validated for the Brazilian population (Williams et al., 1992).

To assess all major psychiatric disorders according to DSM IV criteria, it was used *The Structured Clinical Interview for DSM IV* (SCID; Spitzer et al., 1992; Del-Ben et al., 1996), a semi-structured interview (Bremner et al., 2000).

The *Early Trauma Inventory* (ETI; Mello et al., 2010), a semi-structured interview comprising 56 items, measured early traumatic life experiences in the following domains: sexual, physical and psychological abuse, and other traumatic life experiences (Brunet et al., 2001).

Experiences of Peritraumatic dissociation during and immediately after the traumatic event were assessed on the *Peritraumatic Dissociative Experiences Questionnaire* (*PDEQ*; Fiszman et al., 2005). It is an interview comprising 10 items that evaluate a set of subjective experiences, which includes alterations in the perception of time, place, and self-after trauma.

All the subjects evaluated for the case-control were invited through letter, phone calls and home visits, to participate of the follow-up study, 4 years, on average, after the first evaluation. Patients who agreed to participate were asked to complete the SF-36, the BDI and the BAI. After filling these questionnaires, the CAPS and the follow-up questionnaire were administered by a trained researcher.

2.3. Statistical analysis

Data were codified and analyzed using Statistical Package for the social sciences (SPSS for windows version 15.0). The data were normally distributed on all the outcome variables using the Shapiro–Wilk test. The level of significance was set at $p > 0.05$. Student's t-test was used to compare SF-36 scores and CAPS subscales scores between baseline and follow-up. Pearson correlation was used to analyze de association between PTSD and HRQoL. We fit a generalized linear model with Gamma correction to investigate associations between symptoms clusters, clinical and sociodemographic variables and HRQoL. With HRQoL at follow-up being the dependent variable again, scores of the three symptom clusters at follow-up as well as sociodemographic and clinical variables were independent variables. As potentially relevant sociodemographic and clinical variable were age, gender, years in education, marital status, comorbidity with depression and anxiety disorders, number of years since the exposure to traumatic events, symptoms of dissociation, trauma in childhood, trauma with injury, history of multiples traumas, new traumas between T1 and T2 and type of trauma.

3. Results

3.1. Baseline characteristics

A total of 267 subjects were evaluated. Following SCID-I administration, two groups were formed as follows: 124 (46.4%) individuals who were exposed to a traumatic life experience resulting in a PTSD diagnosis (PTSD+ or cases) and 143 (53.5%) who were similarly exposed but did not meet criteria for a PTSD diagnosis (PTSD− or control group). The results of the original cohort study was previously described elsewhere (Pupo et al., submitted for publication). Overall, at baseline most of the samples (70%) were females, and the mean age was 38 (±12.25) years old. The average number of years of education was 10.95 (±2.035), and 133 participants (50.4%) were married. Up to 65% subjects from the PTSD+ group presented comorbidity with major depressive disorder (MDD). The urban violence events that triggered PTSD symptoms varied from robbery with a firearm (25%), loss of someone close/homicide (18%), sexual abuse (9.7%) and physical aggression (12.7%). Eighty-three subjects (30%) experienced more than one adverse event during their lifetime, and 78 (29.2%) reported a history of sexual abuse during childhood. The mean duration since the traumatic experience was 4.4 years (ranging from 1 month to 10 years). PTSD+ group reported moderate to severe PTSD symptoms severity and depression and anxiety comorbidities was common. Table 1 presents the symptoms severity of cases and controls at baseline assessment.

3.2. Follow-up characteristics

From the initial cohort 197 (73.8%) patients agreed to participate in the follow-up study (97 from epidemiological study and 100 from outpatient program). Seventy (26.2%) subjects were considered as missing cases (one died, 58 were not located/changed address and phone number, and 11 refused for scheduling reasons).

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