

Research paper

Impact of post-traumatic stress disorder on oral health



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ABSTRACT

Background: The stress experienced as an intense and traumatic event can increase the odds of orofacial pain, affect the biomechanics of masticatory system and compromise the periodontal health. This study was conducted to investigate the impact of post-traumatic stress disorder (PTSD) on oral health.

Methods: A case-control study with a convenience sample was designed. Probing pocket depth (PPD), clinical attachment level (CAL), bleeding on probing, and plaque were recorded at 6 sites per tooth. A visual analog scale (VAS) was used to evaluate the pain after probing. The Research Diagnostic Criteria for Temporomandibular Disorders Axis II (RDC/TMD Axis II) and Structured Clinical Interview (DSM-IV) were also applied. The final sample comprised 38 PTSD patients and 38 controls.

Results: Patients with PTSD had a higher degree of chronic pain, more depression and nonspecific physical symptoms (including and excluding pain) compared with the control group (Fisher exact test $p < 0.001$, and Chi-squared test, $p < 0.001$, < 0.001 , < 0.001 , respectively). Patients with PTSD also had more pain after periodontal probing compared with controls (Mann-Whitney, $p = 0.037$). The prevalence of sites with CAL or PPD ≥ 4 , ≥ 5 , ≥ 6 were not different between the groups. Age was associated with moderate periodontitis (multivariable logistic regression model, OR = 3.33, 95% CI = 1.03–10.75, $p = 0.04$).

Limitation: The severity of PTSD precluded an ample sample size.

Conclusions: Patients with PTSD presented a worse RDC/TMD Axis II profile, more pain after periodontal probing, and no difference related to periodontal clinical parameters. More studies are needed to confirm these findings.

1. Introduction

Posttraumatic stress disorder (PTSD) is a frequent and disabling condition that may occur in some people that experience a serious traumatic event (TE). Traumatic event differ from the usual life event stress (Krystal and Neumeister, 2009) and is defined as the exposure to actual or threatened death, serious injury or sexual violation. Not only those who experience the event their selves, but those who testify the event occurred with others and even those who learn about one of those events happened to a family member or a close friend are considered to have been exposed to a TE. War, physical assault, sexual assault, life threatening (accidents, natural disasters), threats to loved ones (life threatening illness/injury), and traumatic death of loved one are examples of TE (Stein et al., 2014). First responders collecting human remains, police officers repeatedly exposed to details of child abuse are also at risk of suffering PTSD.

Symptoms associated with PTSD include: recurrent, involuntary,

intrusive distressing memories; distressing dreams; acting or feeling as if the traumatic event were recurring; intense psychological distress at exposure, and physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event; persistent avoidance of stimuli associated with the trauma, and hyper arousal (Association, 2002). Interesting, only a minority of subjects exposed to a TE will develop a PTSD. Epidemiological and experimental surveys demonstrated that the conditional risk, i.e., the likelihood to present PTSD after exposure to a TE, is associated with gender, incoming factors, personality, exposure to an early life trauma, noradrenergic and serotonergic mechanisms and type of TE (Alcántara et al., 2013; Dorrington et al., 2014; Kessler et al., 2014; Krystal and Neumeister, 2009; Luz et al., 2016; McLaughlin et al., 2013; Yehuda et al., 2010).

The life-time prevalence of PTSD in 13 countries classified as high or upper-middle income ranged from 3.0% to 4.4%, depending on the criteria used to diagnose (Stein et al., 2014). In our country, the 12-

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month prevalence of PTSD was 1.6% in São Paulo (Andrade et al., 2012). However, it is remarkable to note that exposure to TE in Brazil reached a prevalence of 86% in two large cities, and urban violence was considered the main TE (Luz et al., 2016). Fortunately, the conditional risk for PTSD was estimated in 11.1% (Luz et al., 2016).

War population surveys showed that exposure to severe stressors may culminate in significant deterioration of oral health (McCauley et al., 2002; Uhac et al., 2011). Patients with PTSD exhibited more frequency of masticatory muscle tenderness (Uhac et al., 2011), more frequency of orofacial pain (Muhvić-Urek et al., 2007; Sherman et al., 2005) and periodontal disease (McCauley et al., 2002; Muhvić-Urek et al., 2007) compared to controls. These findings suggest that the stress experienced by TE can affect the biomechanics of the masticatory system and compromise the periodontal health.

There is no study in an urban Brazilian population that described effectively the oral health status of PTSD patients. Thus, this study was designed to compare: (1) the Research Diagnostic Criteria for Temporomandibular Disorders Axis II (RDC/TMD axis II) profile and (2) the report of pain after shorten clinical examination of temporomandibular joint (TMJ) and extra-oral muscles, and (3) the periodontal clinical parameters between PTSD patients and controls. We also investigated (4) the levels of pain after periodontal probing since the majority of studies found associations of this variable with orofacial examinations (Muhvić-Urek et al., 2007; Sherman et al., 2005; Uhac et al., 2011).

2. Materials and methods

The appropriate STROBE guidelines/checklist for reporting observational studies were used (Editors, 2014; von Elm et al., 2008).

2.1. Ethical issues and study sample

This project was approved by the Ethical Committee and Research of the Department and Institute of Psychiatry, Medical School, University of São Paulo (IPq-FMUSP), São Paulo, Brazil (CAAE:33296714.7.0000.0068). All participants received instructions about the study, read and signed the informed consent. This study was conducted at the PTSD out patient clinic and at the Division of Dentistry (IPq-FMUSP). Patients and controls were selected for this study between October 2014 and December 2015. The criteria used to include and exclude participants were described in the study flowchart (Fig. 1). A total of 76 subjects were included in this study.

2.2. Sample size

The sample size calculation was based on previous study that evaluated the masticatory muscle and temporomandibular joint pain in Croatian war veterans with posttraumatic stress disorder (Uhac et al., 2011). These authors observed 93% of PTSD patients with muscle tenderness against 45.65% controls. A total of 14 patients in each group are necessary to reach 80% of statistical power.

2.3. PTSD hospital outpatients

To qualify for the study, patients were required to meet PTSD diagnostic criteria according to DSM-IV TR (Association, 2002). Patients who received treatment for PTSD and were not fully remitted were also included. The exclusion criteria included: patients with bipolar disorder, eating disorder, suicide risk, self-mutilating behaviors risk of further violence, lack of remembrance about the traumatic event, and abuse or dependence of alcohol and drugs. These exclusion criteria were based on clinical interview. Other Axis-I comorbidities were not excluded. Furthermore, patients who exhibit any systemic disease that might have hindered periodontal clinical examination were also excluded.

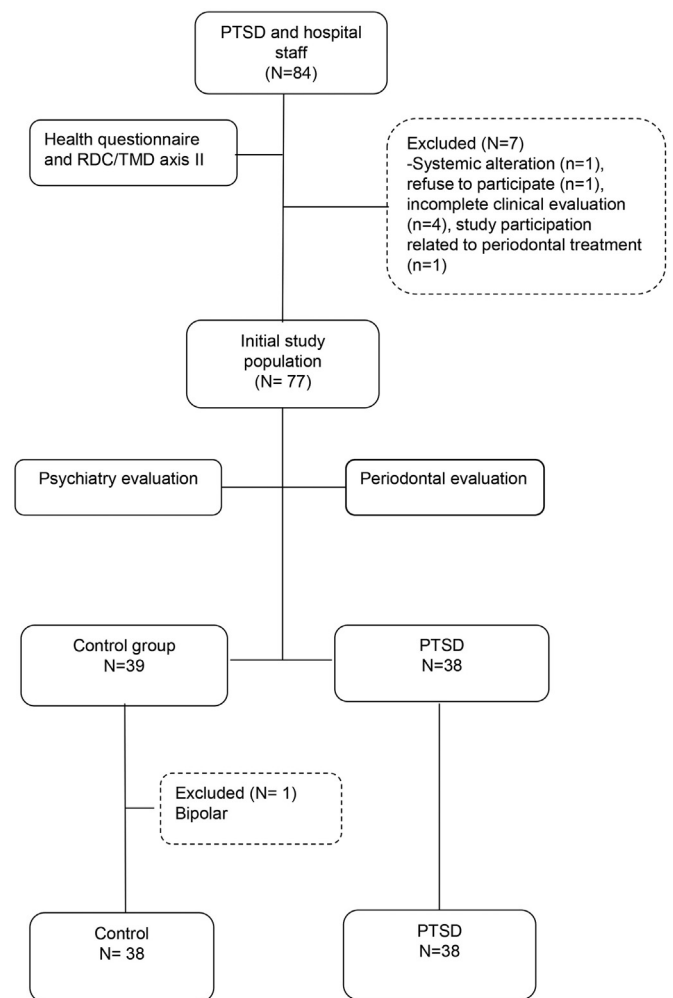


Fig. 1. Study flowchart.

2.4. Controls

The control group consisted of members of hospital staff and students from the FMUSP with no PTSD diagnose. The same exclusion criteria applied for the PTSD patients were used for this group. These participants received personal invitations to participate in the study. Subjects were randomly selected from a larger pool of available hospital staff and students.

2.5. Instruments

The following instruments were used.

2.6. Structural Clinic Interview for the DSM-IV- SCID

The SCID is a semi-structured psychiatry interview aimed to establish psychiatry diagnosis according to DSM-IV. Just the PTSD module was used. This instrument was designed to be applied by trained mental health professional (Ventura et al., 1998).

2.7. Davidson trauma scale (DTS)

The DTS is a self-report questionnaire composed by 17 items related to DSM diagnostic criteria for PTSD. The items are recorded based on stress symptoms (frequency and severity of stress symptoms ranging from 0 to 68 each group). The maximum total score (frequency and severity symptoms) is 136 (Davidson et al., 1997).

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