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The effect of talking about psychological trauma with a significant other on heart rate reactivity in individuals with posttraumatic stress disorder



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ABSTRACT

Individuals with posttraumatic stress disorder (PTSD) commonly make efforts to avoid trauma-oriented conversations with their significant others, which may interfere with the natural recovery process. Trauma-oriented conversations can be experienced as physiologically arousing, depending on the intensity of PTSD symptoms and perceptions of social support. In the current investigation, changes in heart rate responses to a trauma-oriented social interaction with a significant other were assessed. Perceived supportive and unsupportive or negative social interactions were examined as moderators of the association between heart rate changes to this context and intensity of PTSD symptoms. A total of 46 individuals with PTSD completed diagnostic interviews and self-report measures of symptoms and perceived supportive and negative social interactions during a trauma-oriented social interaction with a significant other. Heart rate was continuously measured during this interaction. Results showed that engagement in a trauma-oriented social interaction was predictive of elevations in heart rate that positively correlated with intensity of PTSD symptoms. The moderation hypothesis was partially supported. In addition, perceived negative social interactions positively correlated with elevations in heart rate. These findings can inform social intervention efforts for individuals with PTSD.

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1. Introduction

Individuals with posttraumatic stress disorder (PTSD; American Psychiatric Association (APA), 2000) generally make deliberate efforts to avoid thoughts, feelings, or conversations about the traumatic event and related situations, activities, or people (Criteria C1 and C2) because it arouses recollections of the trauma and might elicit physiological reactivity (Criterion B5). Persistent avoidance of trauma-related stimuli increases the risk of both developing and maintaining PTSD (Bryant and Harvey, 1995; Benotsch et al., 2000; Keane and Barlow, 2002; Pietrzak et al., 2011; Pineles et al., 2011). Strictly speaking, while patients with PTSD should be encouraged to socially share about their traumatic

experiences to help recovery, they often keep the subject private, which can have the adverse effect of maintaining their symptoms.

Conceptually, it makes sense to hypothesize that trauma-oriented social interactions with significant others are physiologically arousing for individuals with PTSD, yet, no empirical study has ever directly assessed this. Hence, doing so would contribute to our understanding of the links between avoidance, social support and PTSD.

Individuals with PTSD have persistently showed increased sympathetic responses or reduced parasympathetic activity (Sack et al., 2004; Hopper et al., 2006) to both trauma-related cues and unconditioned stimuli (Lang and McTeague, 2009). A meta-analysis (Pole, 2007) revealed that individuals with PTSD displayed higher levels of physiological arousal during resting baselines and a greater physiological reactivity to startling stimuli, standardized trauma cues, and idiographic trauma cues compared to patients without PTSD. Across a number of measures, heart rate reactivity was one of the three most robust measures of physiological reactivity, showing a significant weighted mean effect size

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(ES; $r=0.18-0.27$) across all these types of study designs (Pole, 2007). Finally, heart rate reactivity has shown to be primarily and positively predicted by PTSD symptoms' intensity (Pole, 2006, 2007). As Cacioppo (1996, *Allostatic Load Notebook page, para. 1*) defines it, "heart rate reactivity refers to the mean increase in heart rate observed in response to a task or stressor".

Individuals with PTSD negatively appraise social situations, which often lead to negative emotions, increased physiological responses, and avoidance (see Dunmore et al., 1999; Ehlers and Clark, 2000). Talking about the trauma is usually avoided in part because of the elicited arousal and the expected negative responses from the network. In a recent study, monologue about the traumatic event has been associated with heart rate reactivity (Pineles et al., 2011). Social interactions involving support network members can also be a source of negative anticipations (see Laffaye et al., 2008). Although no study has ever explored the links between perceived social support and reactions to stress in a PTSD clinical sample, a myriad of findings from the general population has shown many associations between these variables. Indeed, perceived social support is associated with attenuated heart rate reactivity to controlled stressors, as measured in laboratory settings ($ES=0.28$, see meta-analysis of (Uchino et al., 1996).

Social support usually refers to positive and supportive social interactions (e.g., helping, encouraging, or caring). However, a growing number of researchers believe that unsupportive or negative social interactions (e.g., criticizing, avoiding, yelling, blaming, or stigmatizing) form a distinct pattern of social support related to mental health (see Guay et al., 2011). For instance, the impact of negative social interactions on psychological health appeared to be independent of the impact of supportive social interactions in a population of university students (Abbey et al., 1985), and strong in a sample of individuals with PTSD (Ullman and Filipas, 2001). Thus, it seems compelling to study the relation between perceived supportive and negative social interactions and heart rate reactivity, during a trauma-oriented social interaction.

Overall, since anxious symptoms are primarily associated with physiological reactivity, it can be hypothesized that perceived supportive and negative social interactions could moderate the primary link between symptoms of PTSD and physiological reactivity to stressors such as a trauma-oriented social interaction with a significant other.

1.1. Goals and hypotheses

Actual scientific knowledge of the effect of talking about psychological trauma with a significant other on heart rate reactivity in individuals with posttraumatic stress disorder is still in need of clarification. Although it makes sense to conceptualize talking about the trauma as physiologically arousing for individuals with PTSD, its effect has never been empirically verified.

Based on existing conceptual models, previous studies and meta-analyses, we expected that (a) a trauma-oriented social interaction with a significant other would elicit a significant increase in heart rate responses in a sample of individuals with PTSD, (b) an increase in physiological responses would be significantly predicted by individuals' PTSD symptoms, and (c) the relationship between PTSD symptoms and increased heart rate responses would be stronger for individuals who had lower perceived supportive social interactions or higher perceived negative social interactions. Variables such as age, gender, medication, cigarette, annual income, marital status, time since trauma, type of trauma, and comorbidity were assessed as potential co-variables in relation with physiological reactivity.

2. Methods

2.1. Participants

Participants were recruited by advertisements in newspapers and through referrals to the Trauma Study Center by psychiatrists and other health practitioners in the Montreal (Canada) metropolitan area who knew about the study. The Trauma Study Center is located in a large psychiatric hospital, and is well known in the mental health community for conducting research on PTSD. All participants had to present with PTSD as their primary diagnosis, and their spouse, or a significant other had given their consent to participate in the study. Exclusion criteria were (a) being less than 18 years old, (b) presence of a substance use disorder (abuse or dependence), and (c) past or present psychotic episode, bipolar disorder, eating disorder, somatoform disorder or organic mental disorder. Married participants and those currently involved in a couple relationship that had a history of conjugal violence with their current partner were excluded, mainly to avoid exacerbating any domestic violence issues.

The final sample ($N=46$) was predominantly Caucasian (85%) and women (74%). Participants ranged in age from 20 to 60 ($M=38.98$, $S.D.=11.19$). 80% of participants reported being in a current relationship with a partner while 20% identified as single. 30% of the sample reported smoking cigarette and 72% of the sample reported taking prescribed psychopharmacological medication. 17% of the sample reported an annual income of less than 19,999\$, 35% of being between 20,000\$ to 39,999\$, 35% of being between 40,000\$ to 59,999\$, and 13% of more than 60,000\$ (in Canadian Dollar). All participants met full diagnostic criteria for PTSD based on diagnostic interviews (see Section 2.2.). 61% of participants reported having experienced interpersonal trauma while 39% reported having experienced vehicle accident or other type of trauma. The average duration from the experience of trauma to the time of assessment in this sample was 12.94 months ($S.D.=14.80$, from 1 to 73.32 months). Finally, 52% of the sample had a concurrent major depressive episode based on diagnostic interviews (see Section 2.2.) and 46% of the sample had a least one comorbid anxiety disorder (other than PTSD).

2.2. Procedure

Upon arrival to the Trauma Study Center and after signing informed consent forms, participants were interviewed and completed a battery of questionnaires. Participants were evaluated using the Structured Clinical Interview for DSM-IV (SCID; First et al., 1995) which assesses psychiatric disorders, including PTSD. A research assistant who received extensive training in administering the SCID conducted all of the clinical interviews. The interview was also used to ensure that participants met all of the inclusion criteria. In addition to the clinical interview, participants were asked to complete questionnaires at home, without the help of anybody else, and return them at the next session, where they were invited to speak about their trauma while measuring their heart rates.

The study was approved by the local institutional ethic and scientific review board.

2.3. Instruments

2.3.1. The modified PTSD symptom scale – self-report (MPSS-SR)

The MPSS-SR (Falsetti et al., 1993) is a 17-item self-report questionnaire assessing frequency and intensity of PTSD symptoms. Symptoms correspond to those listed in DSM-IV (APA, 2000). Items are rated on 4-point frequency and intensity scales. The total score ranges from 0 to 119. A higher score indicates a greater severity of PTSD. The scale has demonstrated excellent internal consistency (α over 0.92; Falsetti et al., 1993) and good psychometric properties in clinical samples (Guay et al., 2002). The internal consistency was very good in the current sample ($\alpha=0.91$).

2.3.2. The social provisions scale (SPS)

The SPS (Cutrona and Russel, 1987) is a self-report questionnaire, which evaluates perceived social support from the social network. It comprises 24 items, four for each of the following subscales: attachment, reliable alliance, guidance, social integration, reassurance of worth, and opportunity for nurturance. Responses to each item are on a 4-point rating scale. Responses range from one (strongly disagree) to four (strongly agree). Total scores range from 24 to 96. A higher score indicates a greater degree of perceived social support from the network.

It has demonstrated very good internal consistency (α of 0.85 and 0.96) and test-retest reliability ($r=0.86$) (Cutrona and Russel, 1987). The internal consistency was very good in the current sample ($\alpha=0.85$).

2.3.3. Questionnaire on social support behaviors in anxious situations (QSBA)

The QSBA (Guay et al., 2011) is a 31-item self-report questionnaire that measures the perceived frequency of supportive social interactions (QSBA-positive: 9 items) and negative social interactions (QSBA-negative: 22 items) with a significant other in anxiety-provoking situations. Responses to each item are on a

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