

How Do Social Interactions with a Significant Other Affect PTSD Symptoms? An Empirical Investigation with a Clinical Sample

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Abstract

Social support and coping are both related to posttraumatic stress disorder (PTSD) symptoms, but the mechanisms underlying their relationships remain unclear. This study explores these relationships by examining the perceived frequency of supportive and countersupportive interactions with a significant other in PTSD patients. Ninety-six participants with PTSD were recruited and completed questionnaires assessing social interactions, ways of coping, and PTSD symptoms. Associations of social interactions ($r^2 = 4.1\%–7.9\%$, $p < .05$) and coping ($r^2 = 15.9\%–16.5\%$, $p < .001$) with symptoms were independent, and suggested a direct association between social interactions and PTSD. Countersupportive interactions were more associated to symptoms than supportive interactions. Our findings suggest the development of psychotherapies that integrate social support interventions.

Keywords

anxiety; coping; depression; PTSD; social support; symptoms

Many individuals are exposed to traumatic events during their lifetime, and the impact of the trauma on their mental health can be extensive. Posttraumatic stress disorder (PTSD) is one

of the most well-known conditions resulting from a traumatic experience. PTSD is an important health issue, with an estimated lifetime prevalence in the United States of 7% (Kessler et al., 2005). PTSD is characterized by persistent reexperiencing of the traumatic event, persistent avoidance of stimuli associated with the trauma, numbing of general responsiveness, and persistent symptoms of increased arousal (American Psychiatric Association [APA], 2000). The objective of this study is to investigate the role of social support, one of the most significant predictors of PTSD symptoms. The study focuses specifically on support provided by the victim's most significant other.

SOCIAL SUPPORT, TRAUMA, AND PTSD

Many studies have demonstrated a clear relationship between social support and the intensity of PTSD symptoms (see Guay, Billette, & Marchand, 2006, for a review). Indeed, three meta-analyses (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003, 2008) concluded that lack of social support and poor quality of support were among the most important predictors of PTSD symptoms (standardized effect sizes = 0.40, 0.28, and 0.28, respectively). Although the meta-analyses included both retrospective and prospective studies, Brewin et al. (2000) concluded that the research design did not influence the relationship between social support and PTSD. The relationship between PTSD symptoms and social support is included in most psychosocial models of PTSD. Although many researchers in this field consider social support to be a key variable in the development and maintenance of symptoms (Ehlers & Clark, 2000; Foy, Osato, Houskamp, & Neumann, 1992; Jones & Barlow, 1990), the mechanisms underlying the relationship are still debated (for a review, see Charuvastra & Cloître, 2008). Moreover, some studies (Kaniasty & Norris, 2008) have found that the intensity of PTSD symptoms can also have a detrimental effect on social support. Next, a definition of social support is provided, followed by a discussion of coping methods as a potential mediating variable between social support and PTSD symptoms.

WHAT IS SOCIAL SUPPORT?

Social support can be defined as the quality of the interactions within an individual's social network. Because social support is nearly always assessed by self-report, the results generally reflect perceived social support, rather than the actual support provided by the network. Assessing social support in the context of PTSD creates a methodological challenge because social support constitutes numerous elements that play varied roles in the development and maintenance of PTSD symptoms. Indexes of social support can measure functional or structural aspects of support, they can assess availability or frequency of support behaviors, and they can focus on positive or negative aspects of support behaviors. A more recent distinction within the construct of social support is the source of the support. Whereas most traditional measures of the construct assess support provided by the social network as a whole, recent studies suggest that the source of support (e.g., the partner or the most significant other) is an important element to consider (Scarpa, Haden, & Hurley, 2006). The distinctions between various types of social support are explored in the following sections.

The Functional–Structural Distinction

Whereas functional support refers to social interactions, structural support refers to the size, availability, and complexity of the support network. Although both types of support are related to PTSD symptoms, functional aspects of social support seem to have a greater impact on symptomatology than do structural aspects, at least for victims of natural disasters (Norris & Kaniasty, 1996). This finding suggests that the size of an individual's social support network is likely to be less relevant than the quality of his or her interactions with the people included in the network.

The Availability–Frequency Distinction

Functional measures of support assess the perceived availability of support (i.e., the belief that help would be available if needed) or the perceived frequency of support behaviors. Many authors describe perceived availability of support as “perceived social support” and describe perceived frequency of support as “received social support” (Kaniasty & Norris, 2001; Kessler, 1992). A study of victims of natural disasters (Norris & Kaniasty, 1996) demonstrated that perceived availability of support was a better predictor of posttraumatic symptoms than was perceived frequency of support. Further, the effect of perceived frequency of support seemed to be mediated by perceived availability. Much research on social support and stress has focused primarily on the perceived availability of support. However, many authors in the field have urged for more research on the perceived frequency of support (Dunkel-Schetter & Bennett, 1990; Kessler, 1992), arguing that measures of frequency of support reveal more about the behavioral aspect of social support (i.e., the actual social interactions). They argue that availability scales primarily measure cognitive schema (e.g., personal predictions), producing results that are influenced by interpersonal experiences and personality traits.

The Positive–Negative Distinction

Although social support usually refers to positive, supportive social interactions (e.g., helping, encouraging, or caring), a growing number of researchers believe that negative, or countersupportive, social interactions (e.g., criticizing, avoiding, yelling, blaming, or stigmatizing) form a distinct pattern of social support related to mental health (for reviews, see Finch, Okun, Pool, & Ruehlman, 1999; Rook, 1998). Negative social interactions have been described as interpersonal friction (Zoellner, Foa, & Brigidi, 1999), interpersonal stress (Laffaye, Cavella, Drescher, & Rosen, 2008), social constraints (Lepore & Revenson, 2007), or simply as negative social support (Charuvastra & Cloître, 2008). In this article, the terms *supportive* and *countersupportive social interactions* are employed. Countersupportive social interactions have been demonstrated to be better predictors of PTSD symptoms than supportive social interactions for victims of sexual or nonsexual assault, using cross-sectional (Ullman & Filipas, 2001) and longitudinal designs (Andrews, Brewin, & Rose, 2003; Dunmore, Clark, & Ehlers, 2001; Zoellner et al., 1999). Supportive social interactions have been reported to be better predictors of posttraumatic growth than are countersupportive interactions for adult, female, university student victims of sexual assault (Borja, Callahan, & Long, 2006). Finally, the impact of countersupportive social interactions on psychological health appears to be independent of the impact of supportive social

interactions in a population of university students (Abbey, Abramis, & Caplan, 1985). Therefore, an adequate scale of social support requires separate measures for supportive and countersupportive social interactions.

The Source Distinction

Although functional social support has often been assessed on a global level (i.e., support provided by the social network as a whole; Ullman, 2000), social support from specific sources (e.g., spouse, family, friends, etc.) can also be measured. Although the distinction between sources is fairly recent, the finding that sources of social support are not equally helpful to PTSD victims has created an increased interest among trauma researchers in exploring types of support. For example, individuals in couple relationships often turn to their partner for support following a traumatic event, such as criminal victimization (Denkers, 1999) or a catastrophic illness (Coyne & Fiske, 1992). Indeed, following a threatening situation, individuals tend to seek support from people with whom they feel close, confident, and secure, such as a spouse, partner, or a close friend. This finding is equally true for victims of a natural disaster (Kaniasty & Norris, 2000) and victims of varied traumatic experiences (Cohen & McKay, 1984). In a study with victims of violence from the community, family support decreased PTSD severity across trauma levels, whereas support from a friend was beneficial only at low levels of victimization (Scarpa et al., 2006). In light of findings such as this, some studies focus primarily on support from the significant other (e.g., the spouse or partner) to evaluate the impact of the most important and frequent source of social interactions (Lehoux, Guay, Chartrand, & Julien, 2007; Lepore & Revenson, 2007).

THE RELATIONSHIP BETWEEN PTSD AND SOCIAL SUPPORT

Although the relationship between PTSD symptoms and various aspects of social support is well established in most contemporary psychosocial models of PTSD, debates about the nature of the mechanisms underlying the relationship continue. In their psychosocial model of PTSD, Joseph, Williams, and Yule (1997) proposed potential mechanisms to explain the relationship between symptoms and social support. According to their model, social support can affect symptom-related variables of PTSD (e.g., symptoms, appraisal mechanisms, ruminative processes, emotions, and cognitions) directly, or via influence on ways of coping (i.e., the thoughts and actions used to cope with a stressful event; Folkman & Lazarus, 1988). Joseph and colleagues' model proposes two potential relationships between social support and PTSD symptoms: (a) a direct route, in which social interactions directly affect internal elements such as emotions, cognitions, and symptoms; and (b) an indirect route, in which social interactions affect internal elements via their impact on individuals' ways of coping.

Similarities can be drawn between Joseph et al.'s (1997) model and Ehlers and Clark's (2000) model of PTSD. Although the latter does not include explicit hypotheses about social support, it suggests that trauma victims' social interactions can influence their symptoms via their perception and interpretation of the interactions. The victim's interpretation can both (a) directly trigger symptoms (e.g., social withdrawal, depression), and (b) influence the

victim's relationships in a manner that maintains and promotes his or her PTSD symptoms (e.g., by preventing discussion and thus, preventing opportunities for therapeutic reliving).

Both models suggest that social support can affect PTSD symptoms either (a) *directly*, by affecting the individual's cognitive system (e.g., beliefs, emotions, and symptoms), or (b) *indirectly*, by affecting the individual's ways of coping with the situation, which, in turn, affect his or her cognitive system (see Figure 1). These two mechanisms are not necessarily mutually exclusive.

Evidence for a Direct Route to Symptoms

The results of the Kaniasty and Norris (2001) study with victims of a disaster are consistent with the direct route hypothesis. Their results suggest that perceived frequency of support behaviors directly affects perceived availability of support, which, in turn, directly impacts level of psychological distress. The results of many studies assessing the role of coping in the relationship between the perceived availability of support and PTSD symptoms have supported the direct route hypothesis. For example, no mediation effects were found in populations of college students who experienced traumatic events (Haden, Scarpa, Jones, & Ollendick, 2007), mothers of pediatric cancer patients (Manne, DuHamel, & Redd, 2000), and victims of conjugal violence (Kocot & Goodman, 2003).

Evidence for an Indirect Route to Symptoms via Mediation by Ways of Coping

Lepore's (2001) concept of social constraints reflects the idea that some types of negative interactions regarding trauma-related issues (e.g., facing criticism or physical avoidance from a significant other) could decrease the victim's willingness to discuss the issues, to express distress, or to ask for help, and could even increase the likelihood that the victim would use avoidance to deal with the trauma-induced distress. Avoidance behaviors could limit the opportunities to habituate to trauma-related stimuli and could slow the victim's recovery process (Lepore & Revenson, 2007). The mediation role of avoidant coping in the relationship between social constraints and distress was also supported in studies with cancer patients (Lepore & Helgeson, 1998; Manne, Ostroff, Winkel, Grana, & Fox, 2005). Mediation via avoidant coping was also found for structural support with victims of sexual abuse (Ullman, Townsend, Filipas & Starzynski, 2007), for structural and functional support with paramedics (Stone, 1998), and for the perceived frequency of countersupportive social interactions with the network for victims of sexual abuse (Ullman, 1996). Finally, further studies revealed that the relationship between perceived availability of social support and PTSD symptoms interacted with avoidant coping for torture survivors (Hooberman, 2008), and with problem-focused coping for victims of conjugal violence (Kocot & Goodman, 2003).

Overall, these results suggest that the use of avoidance to cope with distress mediates the relationship between PTSD symptoms and some aspects of social support. However, most of the findings refer to social support from the victim's entire support network and do not provide information about support from a specific source. Although some studies suggest a moderation effect of coping (i.e., an interaction), the relationship between symptoms and perceived availability of support does not appear to be mediated by ways of coping. The

hypothesis of mediation by coping is more strongly supported for structural support and for the perceived frequency of countersupportive interactions.

THIS STUDY

The objective of this study was to investigate the mechanisms underlying the relationship between the severity of PTSD symptoms (i.e., PTSD-specific, depressive, and anxious symptoms) and the perceived frequency of both supportive and countersupportive social interactions with the most significant other in a sample of participants diagnosed with PTSD. More specifically, the primary objective was to evaluate the extent to which ways of coping mediate the relationship between support and symptoms (i.e., the indirect route hypothesis). Secondary objectives were as follows:

- To investigate the hypothesis that PTSD symptoms would be more strongly associated with the perceived frequency of negative interactions than with the perceived frequency of positive interactions.
- To explore the potential interactions between social support and coping in post-hoc analyses.

METHOD

Participants

Participants were recruited by advertisements in newspapers and through referrals to the PTSD clinic by psychiatrists and other health practitioners in the Montreal (Canada) metropolitan area who knew about the PTSD clinic. The PTSD clinic is in the research center of a large psychiatric hospital, and is well known in the mental health community for providing psychotherapy for PTSD. Potential participants were informed that the study was a treatment study for PTSD involving psychotherapy and taking place in the research center of a large psychiatric hospital. PTSD had to be the participants' primary diagnosis. To meet the primary objective of the broader research project (to assess the effect of social support in treatment for PTSD), participants' spouses or significant others were required to take part in the study. Exclusion criteria were (a) being less than 18 years old, (b) alcohol or substance abuse or dependence, and (c) past or present psychotic episode, bipolar disorder, or organic mental disorder. Because the spouse or significant other had to actively participate in the treatment, individuals with a history of conjugal violence were also excluded. A total of 585 French-speaking individuals were screened during a brief telephone interview with the research coordinator. The majority of the potential participants (407 of 585) were excluded, either because they did not meet the basic criteria for a diagnosis of PTSD, or because they reported psychiatric disorders that met the exclusion criteria. The elevated rate of exclusion was primarily due to the large number of individuals who called after reading the ad in the newspaper, but did not meet the basic inclusion criteria. The 178 individuals who were not excluded during the screening phase were given an appointment for an evaluation with a semistructured clinical interview for assessing psychiatric disorders. The 96 individuals who were diagnosed with PTSD and who met the inclusion criteria were included in the study. The characteristics of the final sample are presented in Table 1.

Measures

The Questionnaire on Social Support Behaviors in Anxious Situations—The Questionnaire on Social Support Behaviors in Anxious Situations (QSBA; Guay, Marchand, & O'Connor, 2003) is a 31-item self-report questionnaire assessing the perceived frequency of supportive social interactions (QSBA-positive: 9 items) and countersupportive social interactions (QSBA-negative: 22 items) with the most significant other when the participant is notably very anxious or distressed. Participants tend to report fewer countersupportive interactions than supportive interactions; the countersupportive scale therefore includes more items to avoid a floor effect (and subsequent decreased sensitivity of the scale). The items were selected based on their relevance to anxiety disorders. Examples of supportive social interactions include when the significant other “asks me how I feel,” “reminds me of my strong points,” or “helps me clarify my emotions.” Examples of countersupportive social interactions include when the significant other “criticizes me,” “makes me feel guilty,” or “tells me I am crazy.” The QSBA was developed and validated with university students and with PTSD outpatients (Beaudoin, St-Jean Trudel, Nachar, Guay, & Marchand, 2008; St-Jean Trudel, Guay, Marchand, & O'Connor, 2005). The average score for each item is calculated for each factor. The internal consistency for each factor is very good ($\alpha = .86-.90$ in this sample) and test-retest reliability is moderate (correlations ranging from .56 to .69 over a 4- to 5-month delay for a clinical sample, $n = 56$). Each factor also shows good convergent validity. The correlations with the Social Provisions Scale (a scale of perceived availability of support from the social network; Cutrona & Russell, 1987) are .43 for the positive factor and $-.45$ for the negative factor ($n = 96$). The QSBA is the only existing scale that evaluates the perceived frequency of both supportive and countersupportive interactions with the significant other, focusing on interactions in anxiety-provoking situations. The significant other was the partner for participants in couples, and the most significant confidant for participants who were not in relationships.

The Ways of Coping Questionnaire–Short Version—The original Ways of Coping Questionnaire (WCQ; Folkman & Lazarus, 1988) is a self-report questionnaire designed to assess and identify thoughts and actions used to cope with a stressful event. Each item is rated on a scale from 0 (*does not apply and/or not used*) to 3 (*used a great deal*). This study used a short version of the scale (WCQ-S), validated with a large sample of couples (Bouchard, Sabourin, Lussier, Richer, & Wright, 1995). The WCQ-S uses 21 of the 66 items from the original questionnaire and includes three strong, stable factors identified as important in many other studies: (a) seeking social support (WCQ-support), (b) distancing/avoidance (WCQ-distancing), and (c) reappraisal/problem solving (WCQ-reappraisal). For this study, participants had to indicate how frequently they used each way of coping for problems related to anxiety. The internal consistency of the three factors was adequate in the original sample ($\alpha = .85, .76, \text{ and } .80$, for support, distancing, and reappraisal, respectively) and in this sample ($\alpha = .77, .58, \text{ and } .85$, respectively). The internal consistency was lower than expected for the distancing scale in the current sample.

The Modified PTSD Symptom Scale–Self-Report—The Modified PTSD Symptom Scale–Self-Report (MPSS-SR; Falsetti, Resnick, Resick, & Kilpatrick, 1993) is a 17-item self-report questionnaire that assesses the frequency and severity of PTSD symptoms.

Symptoms correspond to those listed in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed, text revision [DSM-IV-TR]; APA, 2000). Total scores range from 0 to 119. The MPSS-SR has been demonstrated to have good psychometric properties in clinical samples (Guay, Marchand, Iucci, & Martin, 2002). The internal consistency was adequate in the current sample ($\alpha = .94$).

The Beck Depression Inventory—Second Edition—The Beck Depression Inventory—Second Edition (BDI-II; Beck, Steer, Ball, & Ranieri, 1996) includes 21 items that describe symptoms of depression. For each item, four statements describe different degrees of symptom intensity; respondents are required to choose the statement that best reflects their state during the past seven days. The BDI-II has been extensively validated and has good psychometric properties (Beck et al., 1996; Dozois, Dobson, & Ahnberg, 1998). The internal consistency was adequate in the current sample ($\alpha = .92$).

The Beck Anxiety Inventory—The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) is a 21-item questionnaire about anxiety symptoms. Each item is rated on a scale from 0 (*not at all*) to 3 (*severely—it bothered me a lot*). Total scores range from 0 to 63. The BAI presents good psychometric properties (Freeston, Ladouceur, Thibodeau, Gagnon, & Rhéaume, 1994). The internal consistency was adequate in the current sample ($\alpha = .92$).

Procedure

Participants were evaluated using a semistructured clinical interview that assesses psychiatric disorders, including PTSD, the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1996). All of the clinical interviews were conducted by a psychologist who was extensively trained in administering the SCID. The interview was also used to ensure that the participant met all of the inclusion criteria. The first author provided training and ongoing supervision of the evaluation process. In addition to the clinical interview, participants were required to complete questionnaires at home and return them at their first treatment session. For individuals with a partner, conjugal violence (physical or psychological) in the current relationship was assessed during the evaluation interview by self-report and with the Conflict Tactics Scale (Strauss, Hamby, Boney-McCoy, & Sugarman, 1996), a widely used and validated measure of domestic violence. The study was approved by the Louis H. Lafontaine Hospital's Ethics Board Committee. Because only the preintervention data were used in this study, the intervention procedure is not described here.

Data Analysis

Three hierarchical multiple regressions were conducted to assess the relationship between the perceived frequency of supportive and counter-supportive social interactions and PTSD symptom intensity, and the role of coping methods in the relationship. The primary analyses were conducted with PTSD-specific symptom intensity (MPSS-SR) as the outcome variable. To support the primary analysis, secondary analyses were conducted with depressive symptom severity (BDI-II) and anxious symptom severity (BAI) as additional outcome variables. Similar patterns of results were predicted for all three indicators. The

alpha level was set at .05 for all analyses unless otherwise specified. Because the secondary analyses were all exploratory in nature, no statistical correction was made for multiple tests.

From a statistical point of view, a direct effect of the perceived frequency of social interactions (i.e., the direct route hypothesis) implies that this variable explains a substantial amount of the variance of PTSD symptom intensity. It further implies that the variance is not affected by controlling for ways of coping. A complete mediation (i.e., the indirect route hypothesis) implies that the perceived frequency of social interactions explains a substantial amount of the variance in PTSD symptom intensity, but that this variance is explained away after controlling for ways of coping. An in-between result implies a partial mediation. Each mediation analysis was conducted with a two-step procedure. In the first step, nine specific predictors (see later) were entered into the analysis in three consecutive blocks. In the second step, the variables for which the zero-order correlation with the outcome was not statistically significant were removed, and the analysis was rerun. This procedure ensured that the predictors included in the final model were conceptually relevant and empirically useful, and that the total explained variance was not artificially increased with statistical noise. The first block was entered to control for the potential effects of sociodemographic characteristics on PTSD symptom intensity. The variables included gender, relationship status, type of trauma, and time elapsed since the trauma. Because of its polytomous nature, type of trauma was entered in the regression using a dummy variable procedure. In keeping with the study objective (determining whether or not ways of coping mediate the relationship between perceived frequency of supportive and countersupportive social interactions and symptom severity), the second block included the three measures of coping (seeking social support, distancing, and reappraisal), and the third block consisted of the two measures of perceived frequency of social interactions (QSBA-positive and QSBA-negative). To confirm the results of the mediation analyses, a bootstrap test of indirect effect based on the Sobel test (Baron & Kenny, 1986) was also conducted for each potential mediation effect, using the same variables used in the final regression (for details, see Preacher & Hayes, 2008). This bootstrap test allows for control variables and provides a confidence interval for the unstandardized beta coefficient representing the mediated (indirect) effect. The mediation effect is considered statistically nonsignificant if the confidence interval includes zero. All of the statistical analyses were conducted with SPSS 15.

RESULTS

Descriptive Statistics

As presented in Table 1, 59% of the participants' significant other was their partner. The remaining participants' significant other was a family member (e.g., mother, sister) or a friend. The distribution of the time elapsed since the trauma included three outliers (i.e., more than 3 *SD* above the mean). For the analyses, the outliers were replaced by the value representing 3 *SD* above the mean. The distribution of QSBA-negative and time elapsed since the trauma was positively skewed (skewness/*SE* of 0.98/0.25 and 1.92/0.25, respectively). Time elapsed since the trauma also had a positive kurtosis (kurtosis/*SE* of 3.37/0.50). All of the other variables were adequate in terms of outliers, skewness, and

kurtosis. Although the results of the linear regressions presented in this article are based on the untransformed data, a second set of regression analyses was performed with the transformed variables to ensure that the results were not affected by the heteroscedasticity of the variables' distributions. To normalize the distributions, a natural logarithm transformation was used for the QSBA-negative and a root of fourth-degree transformation was used for the time elapsed since the trauma.

Social Interactions, Ways of Coping, and PTSD

Table 2 presents the zero-order correlations of the predictors (social support and coping variables) with the three measures of symptoms (MPSS–SR, BDI, and BAI). The only statistically significant correlation among the four sociodemographic variables (i.e., gender, relationship status, type of trauma, and time elapsed since trauma) was between PTSD-specific symptoms (MPSS–SR) and relationship status ($r = -.26$). Consequently, no other sociodemographic variables were used in the regression analyses.

In the primary analyses (i.e., the prediction of PTSD-specific symptoms), the only variables with a statistically significant correlation were relationship status, WCQ-distancing, and QSBA-negative (see Table 2). Regarding relationship status, the results revealed that individuals with a partner had less intense symptoms. None of the other variables were statistically significantly correlated with the MPSS–SR (the threshold of statistical significance is $R^2 = 4\%$; i.e., $r = .20$, for $n = 96$). From the first block of variables (control), only relationship status was retained for the second step of the analysis. From the second and third blocks, only WCQ-distancing and QSBA-negative were retained. The results of the final regression analysis revealed that relationship status provided a statistically significant contribution ($R^2 = 6.7\%$), $F_{\text{inc}}(1, 94) = 6.78$, $p = .011$, to the model. The results also demonstrated that the addition of WCQ-distancing statistically significantly increased the amount of explained variance ($R^2_{\text{change}} = 16.5\%$), $F_{\text{inc}}(1, 93) = 19.7$, $p < .001$, and that the further addition of QSBA-negative provided a statistically significant increase of 4.1% of explained variance, $F_{\text{inc}}(1, 92) = 5.24$, $p = .024$. The total explained variance was 27.3% (see Table 3 for details).

For the prediction of depressive symptoms (BDI–II), WCQ-distancing and QSBA-negative were the only variables with a statistically significant correlation (see Table 2). The results of the final regression analysis demonstrated that WCQ-distancing contributed significantly to the regression model ($R^2 = 15.9\%$), $F_{\text{inc}}(1, 94) = 17.78$, $p < .001$, and that the addition of QSBA-negative significantly increased the amount of explained variance by 7.5%, $F_{\text{inc}}(1, 93) = 9.14$, $p = .003$. The total explained variance was 23.4% (see Table 3 for details).

For the prediction of anxious symptoms (BAI), three variables had statistically significant correlations. The significant correlations from the second block (ways of coping) were WCQ-distancing and WCQ-support; the significant correlation from the third block (social interactions) was QSBA-negative (see Table 2). These three variables were entered into the final model according to the preestablished order. The final regression analysis revealed that the two coping variables (WCQ distancing and WCQ-support, Block 2) provided a statistically significant contribution ($R^2 = 16.0\%$), $F_{\text{inc}}(2, 93) = 8.89$, $p < .001$, to the regression model. The addition of the QSBA-negative (Block 3) provided a statistically

significant increase of 7.9%, $F_{inc}(1, 92) = 9.56, p = .003$, for a total of 23.9% of explained variance (see Table 3 for details).

Using the transformed QSBA-negative variable, the three regression analyses yielded nearly identical patterns, correlations, and amounts of explained variance. A closer examination of the residuals for the three regressions indicated that they were normally distributed and that only one of the standardized residuals was greater than 3.16. These results suggest that the predicted relationships are valid and appropriate for all response patterns. Furthermore, for all three linear regressions, the semipartial correlations were nearly identical to their respective zero-order correlation. This result demonstrates that, in this sample, the contributions of the respective predictors were independent and no mediation effect was present (see Table 3 for details).

Bootstrap tests of the indirect effects were computed for each of the three final regression models with 5,000 bootstrap resamples and a confidence interval of 95%. The normal theory tests for indirect effects were nonsignificant ($p > .10$) for each mediation effect tested, and all of the percentile confidence intervals included zero. These results confirm that none of the mediation effects were statistically significant.

The results provide more support for the direct route hypothesis than for the indirect route hypothesis regarding the relationship between perceived countersupportive interactions and each indicator of PTSD symptomatology (PTSD-specific, anxious, and depressive symptoms). The analyses revealed an absence of substantial effect for perceived supportive interactions; this result confirms that PTSD symptoms are more closely related to countersupportive interactions than to supportive interactions (see Figure 2 for a summary).

Exploratory Analyses of Interactions

The research in this area suggests that social support might be a moderating variable in the relationship between coping and PTSD symptoms. In this study, six potential interactions (two types of perceived social interactions times three types of coping) were tested for each of the three indicators of PTSD symptomatology (PTSD-specific, anxious, and depressive symptoms). Of the 18 regression analyses, only one revealed a small moderation effect. Although neither variable was substantially related to the intensity of PTSD-specific symptoms, the interaction between QSBA-positive and WCQ-reappraisal explained an additional 3.6% of the variance in the final model, $F_{inc}(1, 89) = 4.81, p = .031$. However, the statistical significance of the effect disappeared when a correction for multiple tests was applied to the p value.

DISCUSSION

The results of this study add to the body of literature that demonstrates the relationship between social support and PTSD (Brewin et al., 2000; Ozer et al., 2003, 2008) and provides new information about the mechanisms underlying this relationship. This is the second study to evaluate whether or not the relationship between perceived frequency of support behaviors and PTSD symptoms is mediated by ways of coping. Moreover, it is the first study to explore this question with an exclusive focus on the victim's interactions with his or her

most important source of support. As such, the results confirm for the first time that the independence between general social support and ways of coping reported in studies using measures of perceived support availability (Haden et al., 2007; Manne et al., 2000) also applies to the perceived frequency of support-related interactions with the victim's most significant other. Finally, the relationship between PTSD symptoms and supportive interactions was statistically nonsignificant, implying that the lack of mediation is more meaningful for the relationship between PTSD symptoms and countersupportive interactions.

Comparison with Previous Studies

The results of this study demonstrate that the relationship between PTSD symptoms and functional social support from the most significant other is not mediated by ways of coping, even when social support is assessed with measures of perceived frequency of supportive and countersupportive social interactions. These results are relevant because perceived frequency of support is probably a better indicator of social support interactions as they really occur than are measures of perceived availability of social support. The results of this study diverge from the results of two studies by Ullman (1996) and Ullman and colleagues (2007), in which avoidance coping partially mediated the effect of negative social interactions on PTSD symptoms. Two factors could explain the differences between Ullman and colleagues' results and our results. First, unlike Ullman et al.'s study, this study targeted one specific source of support. Second, the samples in the two studies were different, in that Ullman and colleagues studied victims of sexual abuse with or without PTSD, whereas the research reported here studied victims of diverse trauma with PTSD. Due to the social stigma associated with sexual assault, coping and PTSD symptoms in sexual assault survivors appear to be strongly and particularly influenced by the attitudes of significant others (for reviews, see Billette, Guay, & Marchand, 2005; Ullman, 1999).

The exploratory analyses of interactions between ways of coping and perceived frequency of supportive and countersupportive social interactions did not yield any convincing results. One of the 18 analyses uncovered a potential interaction but the effect was not considered for the final model for two reasons. First, from an empirical point of view, the statistical significance of the effect disappeared after a correction for multiple tests was applied. Further, the effect size is relatively small and including it in the final model would mean adding two variables that are not directly correlated with the dependent variable (i.e., QSBA-positive and WCQ-reappraisal). Second, from a theoretical point of view, there is no convincing model to support such an interaction effect. Only one unreplicated study found a similar pattern using a support availability scale rather than a support frequency scale (Kocot & Goodman, 2003). The moderation effect found in this study might represent an undefined and irrelevant peculiarity of the sample, rather than a relevant and generalizable effect.

Methodological Caveats

Supportive and countersupportive social interactions were measured exclusively by the trauma victim's self-report. No observational data were collected, limiting inferences about the interactions as they actually occurred. Although this limitation applies to nearly every study about social support and PTSD, it is still worthy of mention. Next, although the

amount of explained variance in the final model might seem low, the presence of a scale attenuation effect for the three indicators of PTSD symptoms must be considered for an adequate interpretation of the results. Potential participants who were not diagnosed with PTSD (i.e., those with less intense symptoms) were screened out, reducing the variability of the symptoms to be predicted. This issue was especially present for the PTSD-specific symptoms on which the screening procedure was based. The issue is inherent to the prediction of symptoms in nearly every clinical sample. Therefore, in the event that the statistical models are applied to the broader population of victims of traumatic experiences, the values should be considered conservative estimates for predicting the appearance of symptoms.

Another limitation of this study is the focus on the participant's current or most recent trauma, to the exclusion of the lifetime history of traumatic experiences. Given this exclusion, it is possible that the results do not apply equally to individuals exposed to a single traumatic event and individuals exposed to multiple traumas. However, the analyses demonstrated that type of trauma (e.g., sexual assault, physical assault, motor vehicle accident) did not have any impact on the results.

One last important issue is causality. Due to the cross-sectional nature of the design, the finding of a statistical mediation does not necessarily imply a causal mediation. However, because a causal mediation implies a statistical mediation, the absence of a statistical mediation is a good indicator of an absence of causal mediation, and constitutes a good argument against the indirect route hypothesis. However, although the indirect route hypothesis can be eliminated as a potential explanation for the results, the nature of the design does not allow us to determine whether increases in perceived frequency of countersupportive social interactions precede or follow increases in PTSD symptomatology. In fact, the current literature suggests that support variables constitute both causes (Charuvastra & Cloître, 2008) and consequences (Kaniasty & Norris, 2008) of variations in the intensity of PTSD symptoms. This issue is worth investigating in future longitudinal research.

Implications

Altogether, the results of this study suggest that the functional support that PTSD patients receive from their most significant other and PTSD patients' ways of coping with their symptoms are independently related to symptom intensity. This finding is especially true for countersupportive interactions. The primary theoretical implication of these findings is that clinicians and researchers should question Joseph et al.'s (1997) idea that social support affects PTSD symptoms by influencing the trauma victim's ways of coping. Nonetheless, the investigation of the relationship between coping and social support in the context of PTSD should be further pursued. To our knowledge, the following two components of Joseph and colleagues' model have not yet been explored: (a) the role of victims' self-presentation in eliciting supportive versus nonsupportive social interactions, and (b) the way that each type of interaction influences specific cognitions, such as attributions of causation and responsibility.

The results of this study yield highly relevant clinical implications. First, the results demonstrate that perceived countersupportive interactions between PTSD patients and their most significant other directly correlate with the development and maintenance of symptoms. Further, our results are consistent with several previous claims from several researchers about the impact of improved social support from significant others, especially the partner, on PTSD victims (see Guay et al., 2006; Monson, Fredman, & Adair, 2008; Riggs, Monson, Glynn, & Canterino, 2008; Tarrier & Humphreys, 2003). In some situations, PTSD patients might benefit from interventions that target the dyadic relationship (for patients who are in a couple). The intervention would be designed to address the countersupportive elements of the couple's interactions and, ideally, to empower the victim's partner in the situation (Billette, Guay & Marchand, 2008). One method of targeting the dyadic relationship is to include the spouse in treatment and to work on improving his or her social support behaviors (Guay et al., 2006).

CONCLUSION

Overall, this study helps clarify the mechanisms underlying the relationship between PTSD symptoms and supportive and countersupportive social interactions between the victim and his or her most significant other. The findings have highly relevant clinical implications. They demonstrate that perceived social support from the most significant other and ways of coping with stressful events are independently related to PTSD symptoms. They further demonstrate that countersupportive interactions are more closely related to symptoms than are supportive interactions. This implies that evaluating PTSD patients' social support and ways of coping with stress should be considered complementary, rather than redundant, aspects of a clinical assessment. Given the finding that countersupportive interactions could play a role in the maintenance of PTSD symptoms, therapists might wish to consider including the victim's partner in treatment when the presence of countersupportive interactions is suspected.

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APPENDIX

Instructions

First, please identify your most significant confidant (if you are in a couple relationship, you need to choose your partner) and write his or her name and his or her relationship to you (partner, parent, friend, etc.). “When I am in a situation where I am notably very anxious or distressed, he or she:”

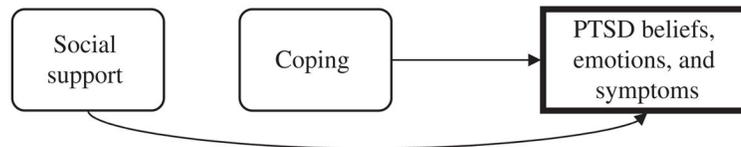
1. gives me advice¹
2. stays calm²
3. complains about my difficulties
4. criticizes the way I react
5. asks me how I feel¹
6. makes jokes that stress me
7. tells me that he or she does not understand my problem
8. tries to confront me
9. answers some questions for me
10. minimizes the importance of my ailments
11. criticizes me
12. exposes my weaknesses in public
13. tells my problems to others
14. ignores me
15. puts pressure on me
16. makes me feel guilty
17. tells me he or she is tired of hearing me speak about my difficulties
18. isolates himself or herself from me
19. demands things from me that I am scared to do
20. ridicules me
21. attempts to inform me about my problem¹
22. tells me I am crazy
23. encourages me to talk to him or her about my difficulties¹
24. respects my rhythm²

¹This item belongs to the supportive subscale.

²This item is reverse-scored.

25. helps me clarify my emotions¹
26. threatens to leave me
27. notices when I make an effort to overcome my problems¹
28. rewards me when I make an effort to overcome my problems¹
29. reminds me of my strong points¹
30. encourages me to do what I am capable of doing¹
31. does not pressure me²

Model of the *direct route hypothesis* (i.e., without mediation)



Model of the *indirect route hypothesis* (i.e., mediation via coping)

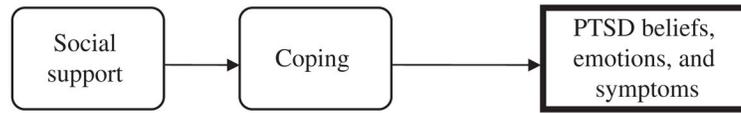


FIGURE 1. Two theoretical models of the relationship between social support and posttraumatic stress disorder.

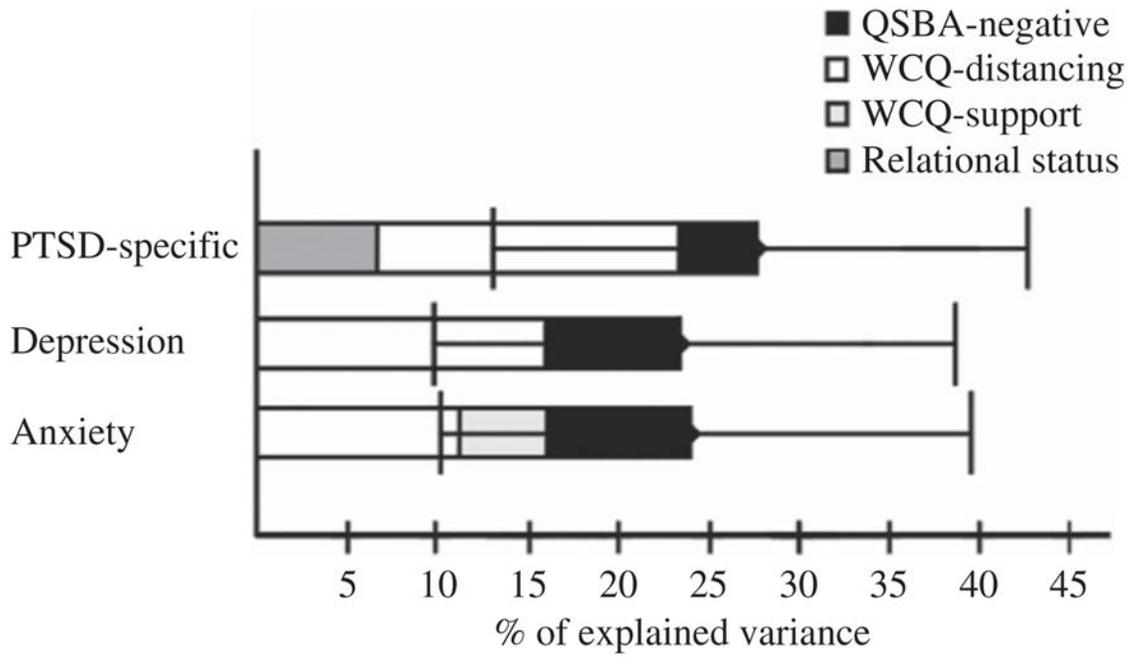


FIGURE 2. Proportion of variance explained by the predictors and 95% confidence intervals for each of the three indicators of PTSD symptom severity.

TABLE 1

Descriptive Statistics for the Sample

Variable	<i>M (SD) or %</i>	Range
Age	39.4 (12.8)	18–68
Gender (% female)	72%	
Relationship status (% with a partner)	59%	
Type of trauma		
Physical assault/threats	42%	
Sexual assault	9%	
Vehicle accident	26%	
Witnessing a traumatic event (e.g., accident, assault)	13%	
Other	10%	
Time elapsed since trauma (months)	62.4 (76.8)	1–411
PTSD symptoms		
MPSS–SR (PTSD-specific)	76.15 (22.04)	20–117
BDI (depression)	28.26 (12.61)	0–58
BAI (anxiety)	25.82 (13.44)	1–63
QSBA (social interactions)		
Supportive interactions	3.06 (0.94)	1.11–5.00
Countersupportive interactions	1.73 (0.52)	1.00–3.32
WCQ–S (coping)		
Seeking social support	9.33 (4.38)	0–18
Distancing	8.86 (3.70)	0–18
Reappraisal	10.73 (6.18)	0–27

Note. N = 96. PTSD = posttraumatic stress disorder; MPSS–SR = Modified PTSD Symptom Scale–Self-Report; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; QSBA = Questionnaire on Social Support Behaviors in Anxious Situations; WCQ–S = Ways of Coping Questionnaire–Short version.

TABLE 2Zero-Order Correlations between Predictors and Measures of Symptoms ($N = 96$)

	MPSS-SR	BDI	BAI
WCQ-distancing	0.41 *	0.40 *	0.34 *
WCQ-support	0.17	0.10	0.22 *
WCQ-reappraisal	0.05	-0.16	0.14
QSBA-positive	0.03	-0.03	-0.04
QSBA-negative	0.22 *	0.29 *	0.26 *

Note. MPSS-SR = Modified PTSD Symptom Scale–Self-Report; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; WCQ = Ways of Coping Questionnaire; QSBA = Questionnaire on Social Support Behaviors in Anxious Situations.

* $p < .05$.

TABLE 3

Standardized Coefficients (β), Statistical Significance, and Semipartial Correlations (Part) for Each Predictor in the Final Regression Models for Predicting PTSD-Specific Symptoms, Depressive Symptoms, and Anxious Symptoms

Regression model	β	<i>t</i>	<i>p</i>	Part
Prediction of PTSD-specific symptoms				
Relational status	-0.251	-2.82	.006	-0.25
WCQ-distancing	0.398	4.48	<.001	0.40
QSBA-negative	0.203	2.29	.024	0.20
Prediction of depressive symptoms				
WCQ-distancing	0.388	4.28	<.001	0.40
QSBA-negative	0.274	3.02	.003	0.27
Prediction of anxious symptoms				
WCQ-distancing	0.320	3.51	.01	0.32
WCQ-support	0.258	2.79	.06	0.25
QSBA-negative	0.286	3.09	.03	0.28

Note. N = 96. As mentioned in the Results section, the final regression models exclude the variables for which the zero-order correlation with the outcome was statistically nonsignificant. PTSD = posttraumatic stress disorder; WCQ = Ways of Coping Questionnaire; QSBA = Questionnaire on Social Support Behaviors in Anxious Situations.