

Social support, posttraumatic cognitions, and PTSD: The influence of family, friends, and a close other in an interpersonal and non-interpersonal trauma group



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ABSTRACT

Research has suggested that social support can shape posttraumatic cognitions and PTSD. However, research has yet to compare the influence of separate domains of support on posttraumatic cognitions. Multiple-group path analysis was used to examine a model in a sample of 170 victims of intimate partner violence and 208 motor vehicle accident victims in which support from friends, family, and a close other were each predicted to influence posttraumatic cognitions, which were in turn predicted to influence PTSD. Analyses revealed that support from family and friends were each negatively correlated with posttraumatic cognitions, which in turn were positively associated with PTSD. Social support from a close other was not associated with posttraumatic cognitions. No significant differences in the model were found between trauma groups. Findings identify which relationships are likely to influence posttraumatic cognitions and are discussed with regard to interpersonal processes in the development and maintenance of PTSD.

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1. Introduction

Available research suggests a strong relationship between posttraumatic cognitions and posttraumatic stress disorder (PTSD; Ehlers, Ehring, & Kleim, 2012). Several studies have found that posttraumatic cognitions differentiate individuals with and without PTSD (Dunmore, Clark, & Ehlers, 1997; Ehring, Ehlers, & Gluckman, 2006; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). Posttraumatic cognitions also appear to be an important factor in outcome studies, with a recent longitudinal study by Kleim et al. (2013) finding that positive alterations in posttraumatic cognitions predicted subsequent improvements in PTSD (although the reverse relationship was not found), suggesting that changing dysfunctional posttraumatic cognitions plays a key role in reducing PTSD symptoms. Consequently, identifying factors that may shape and modulate posttraumatic cognitions has significant implications for understanding the etiology, maintenance, and treatment of PTSD.

Several theories of PTSD have proposed that interpersonal processes influence a trauma victim's cognitions, including appraisals

about the cause of the trauma, attributions of self-blame, and the perceived dangerousness of the world. Joseph, Williams, and Yule (1997) theorized that social support following trauma allows a trauma victim to alter their interpretation of the trauma to be more benign. Similarly, Ehlers and Clark (2000) assert that the actions or inactions of important people in a trauma victim's social network can have a strong influence on the attributions drawn after the occurrence of a traumatic event. Likewise, the social-cognitive processing model of adjustment to trauma (Lepore, 2001) posits that recovery following trauma is facilitated by interactions with supportive persons in a trauma victim's interpersonal network. This theory also proposes that negative interactions with others can serve to fuel dysfunctional cognitions and thus exacerbate PTSD symptoms.

Both experimental and non-experimental studies provide evidence to support these proposals about the interplay between social support and posttraumatic cognitions. In a longitudinal study of 102 motor vehicle accident victims, Robinaugh et al. (2011) found that the longitudinal relationship between positive support and PTSD symptoms became non-significant when controlling for posttraumatic cognitions, suggesting that low social support influenced maladaptive posttraumatic cognitions, which in turn influenced PTSD. Belsher, Ruzek, Bongar, and Cordova (2011) provided further evidence for the conclusions from Robinaugh et al.'s (2011)

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study, finding in a mixed trauma sample that the relationship between PTSD and negative social interactions was mediated by dysfunctional posttraumatic cognitions. Additional studies, including Lepore and Helgeson (1998) and experimental work by Lepore, Ragan, and Jones (2000) as well as Lepore, Fernandez-Berrocal, Ragan, and Ramos (2004) also provide empirical support about the interplay between social support and posttraumatic cognitions.

These studies lend credibility to several assertions about social support's interrelationship with posttraumatic cognitions and bolster the notion that social support can positively or negatively impact PTSD through shaping of posttraumatic cognitions (Charuvastra & Cloitre, 2008). Although this research establishes a link between posttraumatic cognitions and social support in PTSD, studies have examined social support as a general construct and have yet to compare the influence of support from different types of interpersonal relationships on posttraumatic cognitions. It is this gap that the present study seeks to bridge.

The lack of understanding of which types of relationships are most influential in shaping posttraumatic cognitions is notable. The majority of research in the trauma literature has focused on romantic partners, neglecting an understanding of the influence of other close relationships (Beck, 2010). The hesitancy to examine social support in finer detail leads to an incomplete understanding of the function of different types of interpersonal relationships in trauma. As previous research has identified that general social support is one of the strongest predictors of PTSD (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003), and studies reviewed previously suggest that one pathway accounting for this relationship occurs via modification of posttraumatic cognitions, it is important to understand which relationships may be especially likely to shape a victim's posttraumatic appraisals. Moreover, the ability to delineate which relationships hold strong associations with causal factors in PTSD has the potential to inform and improve treatment, especially therapies incorporating interpersonal elements into treatment (e.g., Monson et al., 2011).

It is important to note that the relationship between social support and posttraumatic cognitions may not be the same for all types of trauma. A plethora of epidemiological studies have shown that the psychological sequelae of interpersonal traumas tends to be more severe than that of non-interpersonal traumas (Charuvastra & Cloitre, 2008; Kessler et al., 1994; Kessler et al., 2005). Additionally, interpersonal traumas (e.g., intimate partner violence, IPV) are often stigmatized and likely to elicit negative responses from individuals in a victim's social network compared to non-interpersonal traumas (e.g., motor vehicle accidents, MVA), such as blame for the event (Charuvastra & Cloitre, 2008; Punamäki, Komproe, Quoata, El-Masri, & de Jong, 2005). Thus, it is possible that the nature of the trauma itself may be a contributing factor that shapes how social processes influence posttraumatic cognitions, whereby interpersonal trauma victims may be more apt to perceive negative interpersonal behaviors within their support network, which in turn could impact posttraumatic cognitions and subsequent PTSD, relative to victims on non-interpersonal traumas.

The purpose of this study was to examine the relative influence of several different domains of social support in association with posttraumatic cognitions and PTSD. More specifically, the goals were to (a) examine the sequential association between three domains of social support (i.e., two broad social domains consisting of friends and family and a more confined domain consisting of support from a close other), posttraumatic cognitions, and PTSD symptoms first in a sample of IPV victims (an interpersonal trauma) and then MVA victims (a non-interpersonal trauma) and (b) examine whether findings varied depending on the type of trauma experienced. It was hypothesized that all three domains of social support would be negatively associated with posttraumatic cognitions, which in turn would

be positively associated with PTSD. It was hypothesized that the Close Other subscale would show the strongest association with posttraumatic cognitions, relative to comparable associations with family and friends, as this subscale might represent the most influential domain of perceived support. However, as no previous studies in the trauma literature have compared the relative contributions of different domains of social support, this hypothesis was speculative. It was also hypothesized that social support would exhibit stronger associations with maladaptive posttraumatic cognitions in the IPV sample than in the MVA sample, given that not only may interpersonal trauma victims be more likely to receive unsupportive behaviors from others in general, they may also be more likely to interpret the actions of those in their social network as hostile given the nature of their trauma exposure (Charuvastra & Cloitre, 2008; Punamäki, Komproe, Quoata, El-Masri, & de Jong, 2005).

2. Method

2.1. Participants

Participants included 170 female IPV victims and 208 female MVA victims who were seeking mental health assistance following their trauma exposure at two university-based research clinics. Participants were included if the trauma qualified as a Criterion A event for PTSD as outlined in the DSM-IV (APA, 2000) and the participant responded with intense fear, helplessness, or the perception that they would die; these features were assessed using trauma-specific semi-structured interviews described below. As the entire IPV sample was female and research has suggested that dysfunctional posttraumatic cognitions may vary by gender (Baker et al., 2005), men were excluded from the MVA sample to make the samples similar. Details on the inclusion/exclusion criteria for the larger studies can be found in previously published research (IPV: Beck et al., 2011; Woodward et al., 2013; MVA: Beck, Grant, Clapp, & Palyo, 2009).

2.1.1. MVA sample

A sample of 225 female MVA victims was initially available. As the purpose of the study was to assess posttraumatic cognitions related to PTSD, individuals whose MVA did not qualify as a Criterion A event for PTSD were removed from the analyses ($n=7$). In order to make the samples more comparable, MVA victims who reported IPV on the Traumatic Life Events Questionnaire (TLEQ; Kubany & Haynes, 2004) and identified any symptoms of PTSD associated with IPV on the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995; see description below) were excluded ($n=8$). An additional two women were excluded for unreliable reporting. The final sample included 208 MVA victims.

2.1.2. IPV sample

A total of 203 female IPV victims were initially included in the study. Of these, 20 were excluded as the IPV did not meet Criterion A for PTSD. Similar to procedures with the MVA sample, any IPV victim who identified experiencing an MVA on the Life Events Checklist (LEC; Blake et al., 1995) and reported symptoms of PTSD ($n=8$) or driving phobia ($n=4$) related to this event was excluded from the analyses. One additional person was excluded for unreliable reporting, bringing the final sample to 170 IPV victims. The type of abuse experienced for the IPV sample included physical abuse only (.6%), sexual abuse only (.6%), emotional abuse only (7.8%), physical and emotional abuse (40.7%), sexual and emotional abuse (4.2%), and physical, sexual, and emotional abuse (46%).

2.2. Measures

2.2.1. MVA/IPV

For the MVA sample, information about the accident as well as the participant's emotional response to the trauma (i.e., fear, helplessness, perception you would die) was assessed using the MVA Interview (Blanchard & Hickling, 2004). The MVA Interview is a semi-structured interview that assesses details about the nature of the trauma (e.g., "describe what happened", "how many vehicles were involved?", "did you go to the hospital?", extent of the damage and injuries). The measure also assesses the participant's emotional responses during the MVA on a Likert scale ranging from 0 (not at all) to 100 (extreme), including "how fearful or afraid were you?", "how helpless did you feel?", and "how certain were you that you were going to die?" The IPV interview was adapted from the MVA Interview and was used to ascertain similar information from the IPV sample (Beck, 2008). The interview gathers detailed information about physical, sexual, and emotional abuse encountered from abusive romantic partners, as well as the frequency of the abuse and injuries resulting from the abuse. Similar to the MVA Interview, the IPV interview assesses participant's emotional responses during the abuse (e.g., fear, helplessness, horror) on a 0 (not at all) to 100 (extreme) scale. The MVA and IPV interviews were used to determine whether participants' signature trauma met Criterion A1 and A2 of the DSM-IV for PTSD (APA, 2000).

2.2.2. Posttraumatic cognitions

The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) is a 36-item self-report measure of posttraumatic cognitions that assesses posttraumatic cognitions about the self (e.g., "I cannot stop bad things from happening to me"), the world (e.g., "The world is a dangerous place"), and self-blame (e.g., "The abuse occurred because of the way I acted"). The PTCI was anchored to the participants' signature trauma (i.e., MVA or IPV) and the total sum score of posttraumatic cognitions was used in the analyses. Higher scores reflect higher levels of posttraumatic cognitions. The PTCI has shown adequate psychometric properties across multiple trauma samples (Beck et al., 2004; Foa et al., 1999; van Emmerik, Schoorl, Emmelkamp, & Kamphuis, 2006). In previous research, the PTCI has demonstrated excellent internal consistency, with coefficient alpha values of .97 for cognitions of the self, .88 for cognitions of the world, .86 for cognitions of self-blame, and .97 for the total score (Foa et al., 1999). Internal consistency for the current study was excellent with a coefficient alpha value of .95 for the total score in both the MVA and IPV samples.

2.2.3. Social support

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item self-report measure of social support that contains three subscales: Support from Friends (e.g., "I can talk about my problems with my friends"), Support from Family (e.g., "I get the emotional help and support I need from my family"), and Support from an Unspecified Close Other (e.g., "There is a special person with whom I can share joys and sorrows"). Items are rated from 1 (very strongly disagree) to 7 (very strongly agree). The mean item score was used for the subscales. The MSPSS has shown good psychometric properties, including high internal consistency, test-retest reliability, and convergent validity in multiple studies (Clara, Cox, Enns, Murray, & Torgrud, 2003; Zimet et al., 1988; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). High internal consistency was found in this study, with coefficient alpha values for the friends, family, and close other subscales as follows: .95, .90, and .94 for the IPV sample and .92, .93, and .92 for the MVA sample.

2.2.4. PTSD

Posttraumatic stress disorder was assessed in both samples using the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995), a semi-structured interview administered by trained interviewers. In this study, PTSD symptoms were assessed using DSM-IV-TR criteria (APA, 2000), as these data were collected prior to publication of the Diagnostic and Statistical Manual of Mental Disorder-5th edition (DSM-5; APA, 2013). Symptoms were assigned both a frequency rating ranging from 0 (the symptom does not occur) to 4 (the symptom occurs nearly every day) and intensity rating ranging from 0 (not distressing) to 4 (extremely distressing). These ratings were summed to create a total severity score, which ranges from 0 to 136 with higher levels reflecting more PTSD symptoms. In this study, the total severity score was used.

All interviews were videotaped, and a portion of the recordings were randomly selected and rated by a second interviewer to assess diagnostic reliability (28% IPV sample, 31% MVA sample). Using intraclass correlations, high inter-rater reliability was found in both the IPV ($r = .95$) and MVA samples ($r = .98$).

2.3. Procedure

After informed consent was obtained, participants completed a brief packet of questionnaires followed by indicators of their trauma history (i.e., TLEQ in the MVA sample and LEC in the IPV sample). Both samples then completed the CAPS and additional questionnaires, including the MSPSS and PTCI, before they were provided with feedback and referrals as needed. All procedures were reviewed and approved by the Institutional Review Board at the respective institutions where data were collected.

3. Data analytic plan

Prior to the main analyses, data were examined for univariate and multivariate outliers, skew, and kurtosis using guidelines from Tabachnick and Fidell (2012). No significant skew, kurtosis, or outliers were found. In order to examine hypotheses, multiple-group path analysis was used following guidelines from Brown (2006) and Kline (2005). Multiple-group path analysis is used to test model invariance (i.e., do the variables hold the same relationship with each other in different samples?). In this study, this analytic approach can be thought of as examining whether the strength of the associations between three domains of social support, posttraumatic cognitions, and PTSD are equivalent in an interpersonal and non-interpersonal trauma sample.

In multiple-group path analysis, the path model is first run in each group separately to ensure that the model adequately fits in each sample. If adequate fit is found, the path model is then run in the combined sample. This model, referred to as the configural model, allows parameters to be estimated freely and thus find optimized values that are most likely to reproduce the observed data, irrespective of group membership. Consequently, this model can be thought of as the least restrictive model and serves as a baseline for comparing more restricted models. If adequate model fit is found in the configural model, a constrained model is then run in which the paths between the variables are held equal across the groups. In this step, the parameters are neither free nor fixed (e.g., to values of 0 or 1), but are constrained to find an optimized value *between* the two groups. Using the chi-square value and degrees of freedom from both models, the constrained model can be compared to the configural model to examine whether the constrained model results in a statistically significant reduction in fit. If no significant reduction is found, it can be interpreted that the paths between the variables are equal in both samples, and thus the strength of the relationships between the variables are similar in both groups.

Table 1
Sample descriptors.

	Intimate partner violence ^a (n = 170)	Motor vehicle accident ^a (n = 208)	Statistic
Age (years)	37.34 (12.41)	43.57 (11.64)	$t(373) = -5.01, p < .001$
Race			$\chi^2(1,376) = 37.3, p < .001$
Caucasian	52.9%	82.7%	
African American	34.7%	13.9%	
Hispanic	1.8%	1.9%	
Other	9.4%	1.5%	
Relationship status			$\chi^2(2,377) = 18.8, p < .001$
Single	29.4%	27.4%	
Married or cohabitating	26.5%	46.6%	
Separated, divorced, or widowed	43.5%	26.0%	
Education			$\chi^2(3, 377) = 13.1, p = .004$
High school or below	11.2%	20.2%	
Some college	42.9%	33.2%	
College degree	23.5%	32.6%	
Attended or completed graduate training	21.8%	14.0%	
Household income			$\chi^2(2, 350) = 14.9, p = .001$
Below \$10,000	18.2%	12.0%	
\$10,000–\$20,000	25.3%	16.3%	
\$20,000–\$30,000	10.0%	15.9%	
\$30,000–\$50,000	12.4%	25.0%	
\$50,000–\$60,000	3.5%	10.6%	
Over \$60,000	15.9%	13.5%	
Time since trauma (months)	32.33 (60.97)	30.26 (58.16)	$t(375) = .33, p = .74$
CAPS total score	28.27 (21.69)	46.47 (22.56)	$t(366) = 7.81, p < .001$
PTSD diagnosis	21.2%	56.7%	$\chi^2(1, 369) = 44.1, p < .001$

Note: Numbers in parentheses represent the standard deviation; CAPS = Clinician Administered PTSD Scale.

^a Some categories may not sum to 100% due to incomplete responding.

As outlined in the introduction, social support has been shown to influence posttraumatic cognitions, and posttraumatic cognitions have been shown to influence PTSD. Consequently, the three domains of social support (i.e., Family, Friends, a Close Other) were theorized to predict posttraumatic cognitions, which were in turn theorized to predict PTSD. Path models were run using MPlus. Model fit was evaluated by examining the chi-square statistic and corresponding p-value, root-mean-square error of approximation (RMSEA), standardized root-mean-square residual (SRMR), comparative fit index (CFI), and Tucker-Lewis index (TLI) using guidelines from Brown (2006) and Kline (2005). Acceptable model fit was determined by a non-significant model chi-square, an RMSEA smaller than .08, an SRMR smaller than .10, and a CFI and TLI greater than .90 (Bentler 1990; Brown & Cudeck 1993; Kline 2005)

4. Results

4.1. Sample descriptors and bivariate correlations

Sample descriptors are presented in Table 1. Group comparisons revealed several differences between the two samples. The IPV sample was significantly younger than the MVA sample, had a larger proportion of minorities, had significantly lower income, was more likely to be separated or divorced, and had more education. Groups did not differ in how many months had elapsed since trauma exposure, but did differ in PTSD severity and rate of PTSD diagnosis. Bivariate correlations between the variables for the combined sample are presented in Table 2. Correlations revealed a similar association between posttraumatic cognitions and support from friends ($-.39$), support from family ($-.31$), and support from a close other ($-.33$).

Table 2

Summary of intercorrelations, means, and standard deviations for social support from family, friends, and a close other, posttraumatic cognitions, and PTSD.

Measure	1	2	3	4	5
MSPSS – friends	–	.39***	.59**	–.39***	–.12*
MSPSS – family	.39***	–	.46**	–.31***	–.15**
MSPSS – close other	.59***	.46***	–	–.33***	–.05
PTCI total	–.39***	–.31***	–.33***	–	.31***
CAPS total	–.12*	–.15**	–.05	.31***	–
M	5.05	4.03	5.44	120.44	38.51
SD	1.60	1.58	1.69	42.32	23.03

Note: N = 378; MSPSS = Multidimensional Scale of Perceived Social Support; PTCI = Posttraumatic Cognitions Inventory; CAPS = Clinician Administered PTSD Scale.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

4.2. Path model in each sample

Per the procedures discussed above, the model was first run in the two trauma samples separately to ensure adequate model fit was found in each sample. Analyses revealed acceptable model fit statistics in both the IPV ($\chi^2(3) = 1.11, p = .77, RMSEA = .00$ [90% CI = .00 – .09], CFI = 1.00, TLI = 1.07, SRMR = .01) and MVA sample ($\chi^2(3) = 6.24, p = .10, RMSEA = .07$, [90% CI = .00 – .15], CFI = .96, TLI = .91, SRMR = .03). Examination of parameter estimates revealed that in both models, all three domains of social support were positively correlated with each other ($\beta \geq .40, p < .001$), support from family was negatively associated with posttraumatic cognitions ($\beta \leq -.20, p \leq .008$), Support from friends was negatively associated with posttraumatic cognitions ($\beta \leq -.24, p \leq .005$), and posttraumatic cognitions were positively associated with PTSD ($\beta \geq .42, p < .001$). However, the path from close other support to posttraumatic cognitions was non-significant ($\beta = -.07, p \geq .37$).

4.3. Path model in the combined sample without equality constraints

The same path model was then run in the combined sample without equality constraints imposed (i.e., the configural model). Analyses also revealed acceptable model fit statistics, with $\chi^2(3) = 4.45$, $p = .22$, RMSEA = .04 [90% CI = .000 – .10], CFI = .99, TLI = .97, and SRMR = .02. Similar to the models in each of the individual samples, examination of parameter estimates in the combined sample (see Fig. 1) revealed that all three domains of social support were positively correlated with each other ($\beta \geq .39$, $p < .001$), support from family was negatively associated with posttraumatic cognitions ($\beta = -.16$, $p = .002$), support from friends was negatively associated with posttraumatic cognitions ($\beta = -.27$, $p < .001$), and posttraumatic cognitions were positively associated with PTSD ($\beta = .31$, $p < .001$). Additionally, the path from close other support to posttraumatic cognitions was non-significant ($\beta = .10$, $p = .10$).

4.4. Path model in the combined sample with equality constraints

In the last step, the same path model was run in the combined sample with equality constraints imposed. Although the primary paths of interest regarding equivalency between groups were the paths from the three domains of social support to posttraumatic cognitions, procedures for constraining the model began with the most restrictive model in which all paths between the variables (i.e., the association between the three domains of social support, the paths from the three domains of social support to posttraumatic cognitions, and the path from posttraumatic cognitions to PTSD) were held equal between groups to examine broader model invariance.

Analyses revealed acceptable model fit statistics for the constrained model, with $\chi^2(13) = 16.39$, $p = .23$, RMSEA = .04 [90% CI = .00 – .09], CFI = .98, TLI = .98, and SRMR = .09. Examination of parameter estimates revealed similar results to the models above in which all three domains of social support were positively correlated with each other ($\beta \geq .34$, $p < .001$), support from family was negatively associated with posttraumatic cognitions ($\beta \leq -.19$, $p < .001$), support from friends was negatively associated with posttraumatic cognitions ($\beta \leq -.24$, $p < .001$), and posttraumatic cognitions were positively associated with PTSD ($\beta \geq .42$, $p < .001$).¹ As in previous models, support from a Close Other was not significantly associated with posttraumatic cognitions ($\beta = -.07$, $p = .23$).

The constrained model was then compared to the configural model using a chi-square difference test to determine whether constraining parameters to equality between groups significantly reduced model fit. Results did not suggest a significant reduction in model fit when equality constraints were imposed on the model, with $\chi^2 \Delta(10) = 11.94$; $p = .29$. Analyses also revealed similar fit statistics to the configural model (see Table 3 for an overview).²

¹ MPlus uses unstandardized coefficients when constraining parameters to equality; consequently, the standardized coefficients differ slightly between the two samples but are reported due to ease of interpretability and consistency with the previous sections.

² Even though the model did not differ between samples, additional models were examined in which potential confounds were included given several demographic differences between the samples. Age, race, education, income, and relationship status were entered into the configural model as control variables; however, none of the control variables changed the relationship between the variables of interest and were not included in the final model.

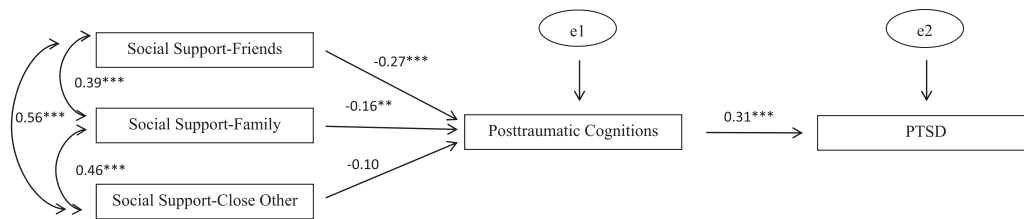
5. Discussion

The purpose of the current study was to examine the relative influence of three domains of social support (i.e., family, friends, a close other) on maladaptive posttraumatic cognitions and PTSD following trauma, and to examine whether findings varied depending upon the type of trauma experienced. Based upon previous research, a model was tested in which the three domains of social support were hypothesized to influence posttraumatic cognitions, and posttraumatic cognitions were in turn hypothesized to influence PTSD. Analyses suggested good model fit, and when the model was constrained to equality between the two samples, no notable differences were found, suggesting model invariance. Parameter estimates revealed that support from friends and support from family were negatively associated with posttraumatic cognitions, and posttraumatic cognitions were in turn positively associated with PTSD. Surprisingly, support from a close other was not associated with posttraumatic cognitions.

Findings from this study provide a possible pathway accounting for the strong relationship observed between social support and PTSD (Brewin et al., 2000; Ozer et al., 2003), suggesting that social support may shape PTSD through the modification of posttraumatic appraisals. In line with the social-cognitive processing model of adjustment to trauma (Lepore, 2001), results imply that positive and negative social support could exert a significant influence on PTSD symptoms. A lack of social support following trauma may bolster perceptions of self-blame, the world as a dangerous place, and people as untrustworthy, cognitions thought to be central to PTSD (Foa et al., 1999). The heightening of these attributions may in turn elevate PTSD symptoms. This dynamic may also encourage maladaptive coping habits, such as avoiding talking about the trauma, further preventing alleviation of trauma symptoms. In contrast, positive social support may help the trauma survivor to question these negative cognitions and encourage adaptive coping habits (e.g., confronting traumatic content), subsequently improving symptoms.

Although a relationship between social support, posttraumatic cognitions, and PTSD has been speculated in several theories about trauma (Ehlers & Clark, 2000; Joseph et al., 1997; Lepore, 2001), few studies have explicitly tested this pathway. Belsher et al. (2011) were the first to model a pathway from social support to posttraumatic cognitions to PTSD, but their study included a mixed-trauma sample of only 41 individuals, most of whom reported a bereavement-related trauma. Additionally, participants were not thoroughly screened for Criterion A, and PTSD was assessed using a self-report measure, making it unclear whether these individuals were definitively experiencing trauma-related symptoms. This study improves upon the Belsher et al. (2011) study in several ways, including a larger sample size, carefully screening individuals for Criterion A, assessing PTSD using a clinician-based interview, and comparing distinct traumas. Belsher et al. (2011) also examined social support as a unitary construct; in contrast, the current report is the first study to model a relationship between social support, posttraumatic cognitions, and PTSD using different domains of support.

These findings suggest that the interpersonal domains of family and friends are particularly influential in shaping the attributions a victim may make following trauma. These findings are notable given that few studies have examined the influence friends or family (e.g., parents) have on trauma victims and little is known about how these relationships may shape PTSD (Beck, 2010). Findings from this study indicate that these domains have a significant influence over the attributions a trauma victim makes following trauma, although whether these domains affect posttraumatic cognitions through the same pathway is unclear. The type of support provided may vary by interpersonal domain (e.g., more emotional support



Note. ** $p < .002$, *** $p < .001$

Fig. 1. Configural model examining the relationship between three domains of social support, posttraumatic cognitions and PTSD with standardized coefficients.

Table 3

Overview of model fit statistics and model comparisons.

	χ^2	df	χ^2 diff	Δ df	RMSEA	CFI	TLI	SRMR
Individual samples								
IPV ($n = 170$)	1.11	3			.00	1.00	1.07	.01
MVA ($n = 208$)	6.24	3			.07	.96	.91	.03
Combined sample ($N = 378$)								
Configural model	4.45	3			.04	.99	.97	.02
Equal paths model	16.39	13	11.94	10	.04	.98	.98	.09

Note: χ^2 diff = nested χ^2 difference, RMSEA = root mean square error of approximation, CFI = comparative fit index, TLI = Tucker–Lewis index, SRMR = standardized root mean square residual.

from friends vs. more instrumental support from family), suggesting relationships could shape posttraumatic cognitions through different means. These results indicate that additional study of how different types of interpersonal relationships influence trauma victims is warranted, particularly in exploring how these social domains shape posttraumatic appraisals.

The lack of association between support from a close other and posttraumatic cognitions in the model is interesting and warrants further consideration. This finding suggests that trauma victims' may be more likely to discount support from a close other regarding interpretations about the trauma. Although speculative, there are several reasons why this may occur. Trauma victims may feel that support from a close other is biased in terms of objectivity and may easily discount attempts by a close other to alter the victim's negative cognitions. Related research by Hoyt and Renshaw (2013) found that veterans' disclosure of positive emotions (e.g., pride) about combat to romantic partners was associated with lower PTSD, but no relationship was found between disclosure of negative emotions (e.g., guilt) about combat and PTSD. Also in line with the influence of role obligations, friends and family may be more likely to challenge a trauma victim's posttraumatic appraisals, whereas a close other may actually accommodate a trauma victim's posttraumatic cognitions in an attempt to maintain rapport (e.g., agreeing to drive an MVA victim). In line with experimental research by Lepore et al. (2004), as well as research by Fredman, Vorstenbosch, Wagner, Macdonald, and Monson (2014), accommodation of trauma-related distress by a close other may serve to maintain maladaptive behavior, whereas challenging traumatic appraisals may force victims to confront traumatic material, resulting in a form of exposure to traumatic material and a resolution of symptoms.

It is also possible that the lack of a significant association between posttraumatic cognitions and support from a close other may be explained by the nature of posttraumatic cognitions. Maladaptive posttraumatic cognitions are thought to reflect a fundamental shift in a trauma victim's perceptions of safety, trust, and the benevolence of the world (e.g., no one can be trusted), and thus reflect a broad change in worldview (Dunmore, Clark, & Elhers, 1997; Ehrling et al., 2006; Foa et al., 1999). The domains of friends and family in this study assess support from a broader set of rela-

tionships, whereas the close other domain references support from a single individual. It is possible that support from a single individual (no matter how much support is provided) is unlikely to change broad generalizations about the world in the context of poor support received from a trauma victim's broader social network. For example, a high amount of support received from a best friend may be unlikely to alter the belief that people are untrustworthy when a trauma victim still receives poor support from multiple family members and friends. Trauma victims may find it easier to provide "evidence" against negative appraisals (e.g., the world is dangerous) when support is received from multiple sources.

It is important to mention that these findings do not necessarily imply that support from a close other was not influential on posttraumatic cognitions, as bivariate correlations revealed a significant association between close other support and posttraumatic cognitions (see Table 2). Rather, the current findings may suggest that close other support was less influential in light of support from the broader domains of family and friends. Support from a close other may still have had an association with posttraumatic cognitions via overlap across the three domains of social support (e.g., emotional support in general), but this influence may have disappeared when examined in conjunction with other interpersonal domains. Findings emphasize the importance of examining social support beyond a general construct to further break down the complex relationship between social support and PTSD.

This is the first study to explicitly compare different types of relationships' influence on posttraumatic cognitions and to examine this model in two different trauma samples. Interestingly, trauma type did not differentially affect the associations between the three domains of social support, posttraumatic cognitions, and PTSD. This is surprising given the notable differences in social stigma and psychological sequelae experienced following interpersonal versus non-interpersonal traumas (Charuvastra & Cloitre, 2008), as well as several differences found between these two samples. The lack of model differences between samples provides additional support for the relationships found in this study between social support, posttraumatic cognitions, and PTSD, although this model should be further explored in additional types of traumas, such as with veterans.

As positive changes in posttraumatic cognitions are thought to be one of the factors related to improvement in PTSD symptoms (Kleim et al., 2013), results imply that improvements in interpersonal functioning may be one avenue for PTSD symptom reduction, although few treatments for PTSD have attempted to incorporate interpersonal elements (Monson, Stevens, & Schnurr, 2005). Efforts aimed at improving relationships in addition to intimate partner functioning, particularly relationships with friends and family, may provide additional benefit for PTSD symptoms. Findings may also caution against focusing solely on improving one specific relationship as a means of reducing PTSD, as results from this study suggest that posttraumatic cognitions are shaped by a broad set of interpersonal associations. Although improving a specific relationship may enhance relationship quality, this may not alter trauma appraisals, resulting in little symptom reduction. Clinicians may see more change in PTSD when focusing on improving trauma victims' interpersonal functioning across a variety of relationships.

It is important to mention some limitations within the study. First, the Close Other subscale of the MSPSS was specifically worded as to allow individuals to rate either romantic or platonic relationships (e.g., "there is a special person in my life who cares about my feelings"). Consequently, it is unclear who participants may have been referencing when completing the measure. Even though no differences were found between the two groups, it is possible that participants may have rated different types of people, particularly given that one sample had experienced IPV and was more likely to be separated/divorced. However, the lack of significant model differences between the samples could indicate similarities in perceived support, irrespective of whether the close other was a romantic partner or not, although future work in this domain should query the nature of the individual who is identified as the close other. Additionally, who participants may have been referencing in the close other subscale may not be as important as the notion that participants were reporting on a single individual that they felt closest to, which was contrasted with the broader domains of family and friends. Factor analytic work on the MSPSS supports the presence of three distinct subscales, assessing friends, family, and a close other (Zimet et al., 1988), suggesting that the subscales tap separate domains of perceived social support. A second limitation was that data presented in this study were cross-sectional. Although the research discussed above has found that interpersonal processes shape posttraumatic cognitions, it is also possible that posttraumatic cognitions can shape interpersonal processes, such as withdrawal from relationships. Thus, it should not be concluded that the relationship between social support and posttraumatic cognitions is unidirectional. Lastly, this study included participants experiencing both diagnostic and sub-diagnostic levels of PTSD. Additionally, both samples were primarily Caucasian. Future studies may benefit from examining these relationships in other samples, such as in participants with only diagnostic levels of PTSD or specific minority groups.

This study helps disentangle the complex relationship between social support and PTSD by examining perceptions of support within specific types of relationships, although additional research is needed to further explore the association between interpersonal processes and trauma pathology. As most studies in the trauma literature have focused on social support as a whole, much less is known about the influence of specific relationships, although this study suggests that breaking down support beyond a unitary construct is an important step in understanding the relationship between interpersonal processes and PTSD. Taken together, findings highlight the salient influence that interpersonal processes have upon trauma pathology, and show that not all relationships are equivalent.

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