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Social Support in Relation to Posttraumatic Stress Disorder Symptoms Among Patients With Violent Versus Nonviolent Injury

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Abstract

Objective: Violent injuries have become increasingly more common in the United States. Individuals experiencing violent injury are at increased risk for the development of posttraumatic stress disorder (PTSD) as compared to those experiencing nonviolent injury. Social support is touted as a protective factor against various psychiatric symptoms (i.e., PTSD), though little is known about the relation between PTSD symptoms and social support in traumatic injury populations. The aims of the present paper were twofold: (1) examine the prevalence of PTSD as a function of injury type (2) explore differences in levels of social support as a function of injury type and (3) explore the association between injury type and later PTSD symptoms as moderated by baseline social support.

Method: Participants were 553 adults from a level-one trauma center in the Southeast United States who experienced a violent injury or nonviolent injury and completed measures of social support at baseline as well as PTSD symptoms at the 30-day follow-up timepoint. The study utilized data from both the baseline timepoint (i.e., upon admission to the trauma surgery unit), as well as a 30-day follow-up timepoint.

Results: Results demonstrated that those endorsing nonviolent injury reported lower levels of social support and PTSD symptoms. Social support predicted later PTSD symptoms until injury type was included as a covariate in the model. Social support did not moderate the relationship between injury type and later PTSD symptoms.

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Conclusions: Findings highlight the interrelatedness of key risk variables (i.e., injury type) with protective factors in influencing the trajectory of psychopathology postinjury. Violence intervention and interruption programs may have the capacity to fill patient needs when social support networks are insufficient.

Keywords

traumatic injury; social support; PTSD; trauma type; violence prevention

Trauma exposure is common, with prevalence estimates in the general population estimated to be upwards of 89% (Kilpatrick et al., 2013). “Trauma” exposure (i.e., Criterion A event) as defined by the American Psychiatric Association [APA] (2013) is an event that involves “actual or threatened death, serious injury, or sexual violence,” whereby psychosocial stressors (e.g., divorce, loss of jobs, etc.) are not included in this definition. Further, the Diagnostic and Statistical Manual of Mental Disorders, Version 5 (*DSM-5*; APA, 2013) specifies that an individual must have had qualifying exposure to the event including direct personal exposure, witnessing of trauma to others, indirect exposure through trauma experience of a family member or other close associate, or repeated or extreme exposure to aversive details of a traumatic event. Trauma exposure is associated with a range of psychiatric symptoms and disorders. Posttraumatic stress disorder (PTSD) is the hallmark psychiatric disorder following exposure to a traumatic event with lifetime prevalence estimated to be 8.3% (Kilpatrick et al., 2013).

PTSD symptom trajectory and clinical presentation may vary as a function of trauma type, with some types conferring a greater risk for psychiatric sequelae. Indeed, prior research has demonstrated that assaultive injuries are associated with an increased risk for initial PTSD symptom development, as well as an increased risk for longer-term symptoms of PTSD as compared to nonassaultive injuries (Lowe et al., 2020). The existing literature examining trauma type and PTSD suggests that individuals experiencing violent injury (e.g., gunshot wound, stabbing) are at increased risk for the development of PTSD as compared to those experiencing nonviolent injury (e.g., motor vehicle crash, serious fall; Rahtz et al., 2017). Relative to patients who experience nonviolent injuries, individuals who experience violent injuries have increased risk for negative mental health outcomes including PTSD, depression (Lowe et al., 2020; Richmond et al., 2019), and suicidal ideation (e.g., Kao et al., 2019). As such, identifying psychosocial moderators of outcome following exposure to a violent injury is imperative for improving prevention and intervention efforts.

Violent injuries have become increasingly more common in the United States. For example, firearm injuries claim the lives of 39,773 individuals/year, and nonfatal firearm injuries are estimated to be between 85,000 and 116,000/year (Hink et al., 2019). Prior work has identified age, sex, and socioeconomic status as key predictors of recovery following exposure to a traumatic injury whereby female sex, younger age, and lower levels of education are associated with worse mental health outcomes (e.g., Haagsma et al., 2012; Haider et al., 2020; Herrera-Escobar et al., 2019; Holtslag et al., 2007). When looking at sociodemographic predictors of PTSD specifically, female sex, low educational level, and low-income level were associated with greater odds of developing PTSD following a

traumatic injury (Haagsma et al., 2012; Herrera-Escobar et al., 2019). Patients endorsing low education level and low-income level were more likely to be younger, male, black or African America, and have a higher proportion of penetrating trauma (Herrera-Escobar et al., 2019), further highlighting demographic disparities in outcomes following exposure to a traumatic injury. However, these demographic facets are generally not readily modified, and thus, it is important to examine modifiable protective factors against PTSD for individuals who have experienced a violent injury, such as social support.

Social support is touted as a protective factor against various psychiatric symptoms and disorders, including but not limited to PTSD (e.g., for a meta-analysis see Zalta et al., 2021). Various conceptualizations of social support exist in the extant literature regarding the form of support (e.g., behaviors [quantity of supportive actions received by an individual], perceptions [satisfaction with and availability of support]), the type of support (e.g., informational, tangible, emotional), and the source of support (family, spouse, friends, etc.; for a meta-analysis, see French et al., 2019). In the present study, social support was conceptualized as perceived support, given that perceived social support is more strongly correlated with an individual's ability to adjust and cope with stress, as compared to levels of received social support (e.g., Norris & Kaniasty, 1996). Indeed, the value of social support appears to be more dependent of the recipients' perception of the interaction/support than of the intention or action of the person providing support (i.e., it is protective if the recipient perceives others as reliable during stressful experiences; Pruitt & Zoellner, 2008). In their meta-analysis, Prati and Pietrantonio (2010) found that moderator analysis showed that the effect size of perceived social support was significantly greater than the effect size of received social support, further highlighting perceived social support as an important potential buffer against psychopathology in the wake of traumatic injury.

With regard to the type of support, the present study assessed a combination of emotional (e.g., "How often is someone available to give you good advice about a crisis"?) and tangible support (e.g., "How often is someone available to help you if you were confined to a bed"). The measure used to assess social support in the present study did not ask specifically about the source of support, but rather, asked about the availability of "someone" allowing for each individual to assess a wide range of networks that may support them. This should be considered when contextualizing findings from the present study.

Cross-sectional research has widely demonstrated the main effects theory such that higher levels of social support, broadly defined, are related to a lesser likelihood of developing PTSD symptoms (e.g., Gros et al., 2016; Seitz et al., 2021), as well as less severe PTSD symptoms (e.g., Stanley et al., 2019). The majority of the work in this area is cross-sectional in nature, however, limiting the inferences that can be made about the lasting protective impact of social support on PTSD symptoms.

Existing research has also examined social support as both a mediator and a moderator of outcome following trauma exposure. The social support deterioration model (Barrera, 1986) posits that social support is a mediator, or causal link, between trauma and future psychopathology whereby the trauma exposure weakens one's perceived availability and usefulness of social supports, leading to increased psychopathology. The extant literature

base testing social support as a mediator is largely mixed (e.g., Bradley et al., 2005; Vranceanu et al., 2007).

As is conceptualized in the present study, social support may also be a potential moderator of outcome following trauma exposure, whereby social support networks act as a buffer and lessen the adverse psychological consequences of stress (i.e., the “buffering model”) on later psychopathology. For example, Panagioti et al. (2014) demonstrated that perceived social support moderated the impact of PTSD symptoms on subsequent suicidal behavior whereby those perceiving themselves as having high support, an increased number of PTSD symptoms were less likely to lead to suicidal behavior. In other words, social support is closely related to one’s mental health, and protects against adverse consequences of stressful life events (Cohen & McKay, 1984), and thus researchers have highlighted the need to understand the relationship between various stressor types and social support (Cohen & Willis, 1985).

In this conceptualization, social support can be thought of as a “resilience factor” that protects an individual from developing PTSD symptoms following exposure to a traumatic injury. Although high perceived social support has been linked to lower PTSD severity (e.g., Hyman et al., 2003) and better treatment outcomes (Thrasher et al., 2010), it remains unclear whether perceived social support confers resilience against PTSD in those with violent injury. In applying this conceptual framework to the present study, identifying at what levels of social support the relationship between injury type and PTSD symptoms may become nonsignificant is critical for informing intervention approaches that could then foster higher levels of social support, for example. As such, the current study will test the interaction between injury type and perceived levels of social support in predicting later PTSD symptoms.

The literature is largely mixed with regard to associations between social support and specific types of trauma exposure. For example, some research has demonstrated that trauma type moderates the relationship between social support and PTSD such that effect sizes of social support on PTSD are weaker in samples exposed to a natural disaster as compared to combat trauma or interpersonal violence (for a meta-analysis, see Zalta et al., 2021), whereas other research has shown no differences between levels of social support across trauma types (Woodward et al., 2015). Wilson and Scarpa (2014) found that perceived social support interacted with the type of child abuse (i.e., physical vs. sexual) such that higher levels of support were protective for children who experienced physical abuse but not those experiencing sexual abuse. Although it remains unclear *how* social support interacts with violent versus nonviolent injury specifically, there is evidence to suggest that injury type and social support do interact to influence later outcomes, highlighting the need to examine levels of social support and how they relate to psychiatric outcomes in this population by injury type.

Further, PTSD symptoms and social support are dynamic in nature, and thus, should be examined over time. The majority of the literature examining the association between trauma type and PTSD symptoms include samples of participants recruited months, or even years, following their traumatic event (e.g., Hyland et al., 2017). The present study

naturally controls the impact of the passage of time posttrauma given that all participants were assessed within a few days of their injury; a unique strength that is not true of the majority of existing research in this area.

As such, the present paper had three primary aims: (a) examine the 1-month prevalence of probable PTSD as a function of injury type (e.g., violent vs. nonviolent injury), (b) examine differences in social support by injury type, and (c) examine social support as a moderator of the relationship between injury type and 30-day PTSD symptoms in order to investigate how social support and injury type may interact to influence subsequent 30-day PTSD symptoms. Our primary hypotheses were that (1) those who experienced a nonviolent injury would report lower levels of PTSD symptoms 30 days postinjury; and (3) social support would interact with injury type in predicting PTSD symptoms. Given the lack of research into social support by injury type, we did not specify hypotheses for aim 2 regarding differences in levels of social support by trauma type.

Method

Participants

Participants were enrolled in the Trauma Resilience and Recovery Program (TRRP) at a Level I Trauma Center in the Southeastern United States. TRRP is a technology-assisted, stepped-care program launched in 2015 aimed at addressing the emotional and behavioral health needs of traumatic injury patients from the time that they are admitted to the hospital up until 90 days following their injury. Patients are approached for enrollment upon entrance into the hospital, and if enrolled, are contacted 30 days following discharge regarding psychiatric symptoms and need for services. The program has shown high rates of engagement, with 98% of patients approached enrolling in the program and agreeing to a 30-day follow-up mental health screening (Ruggiero et al., 2020). (For more information regarding the TRRP program, see Ridings et al., 2019; Ruggiero et al., 2016, 2020.)

The current study includes data from 553 adults enrolled in TRRP between September 2015 and September 2021 who experienced a violent injury (i.e., gunshot wound, stabbing, or physical assault/abuse) or nonviolent injury (i.e., motor vehicle accident, motorcycle accident, or fall) and completed measures of social support at baseline as well as posttraumatic stress disorder (PTSD) symptoms at the 30-day follow-up timepoint ($N_{\text{total}} = 553$, $N_{\text{violent}} = 94$, $N_{\text{nonviolent}} = 458$; $M_{\text{age}} = 46.1$, $SD = 19.9$; 64.3% male; 53.9% White, 43.2% Black/African American, 0.5% Asian, 0.2% American Indian or Alaska Native, 0.2% Hawaiian or Pacific Islander, 2.3% other or more than one race). Table 1 provides demographic characteristics of the sample by injury type. This study utilized data from both the baseline time-point (i.e., upon admission to the trauma surgery unit), as well as a 30-day follow-up timepoint at which TRRP providers contact patients via telephone to follow-up on their emotional recovery.

Measures

Injury Mechanism (Baseline)—Mechanism of injury was assessed at baseline, when one is admitted to Medical University of South Carolina. TRRP staff review patient electronic

medical records once they are admitted. For research purposes, injury mechanisms are coded as discrete numbers. For example, motor vehicle accidents are coded as a “1.” Individuals who experienced a nonviolent injury (i.e., motor vehicle accident, motorcycle accident, fall) were coded as “1” and individuals experiencing a violent injury were coded as “0.”

Social Support (Baseline)—Social support was assessed at the baseline timepoint when individuals choose to enroll in the TRRP program. Social support was measured using a modified version of the Medical Outcomes Study Social Support Survey Instrument (Sherbourne & Stewart, 1991), as has been done widely across extant literature examining social support in the context of trauma exposure (e.g., Acierno et al., 2006; Amstadter et al., 2009). The present study used five items ($\alpha = 0.73$) to assess three domains of social support: two items from the emotional/information support subscale (e.g., “How often is someone available to give you good advice about a crisis?”), one item from the tangible support subscale (e.g., “How often is someone available to help you if you were confined to a bed?”), one from the affectionate support subscale (e.g., “How often is someone available to love you and make you feel wanted?”), and one from the positive social interaction subscale (“How often is someone available to get together with for relaxation?”). All items were answered on a Likert scale ranging from 1 to 5, with 1 being *all of the time*, 5 being *none of the time*. Items were summed across participants to create a sum score of social support at the baseline timepoint, with lower scores indicating higher amounts of support.

PTSD Symptoms (30-Day)—PTSD symptoms were assessed at the 30-day follow-up timepoint whereby TRRP staff contact enrolled patients via telephone to assess emotional recovery 30 days following their discharge from the hospital. Symptoms were assessed using the PTSD Checklist for *DSM-5* (PCL-5; Weathers et al., 2013). The PCL-5 is a 20-item self-report checklist that assesses the 20 symptoms of PTSD included in the *DSM-5* (APA, 2013). For the present study, all 20 items were used (e.g., “In the past month, how often have you been bothered by repeated, disturbing dreams of the stressful experience?”; $\alpha = 0.94$). Questions were anchored to the event that caused an individual to be admitted to the hospital. Answers were reported on a Likert scale ranging from 0 to 4 with 0 indicating *not bothered at all* and 4 indicating *extremely bothered*. Scores were summed to create a total PTSD symptom score at the 30-day follow-up timepoint.

Analyses

Power analyses were conducted for all analyses described below. With a significance criterion of $\alpha = .05$, the required total sample size to detect a difference in PTSD symptoms of medium effect size with 0.95 power was 120 individuals. Similarly, the required total sample size to detect a difference of medium effect in levels of social support between the two groups at 0.95 power was 444. For the hierarchical regression model (Aim 3), in order to detect a medium effect (i.e., $f^2 = 0.5$), the required sample size to detect an interaction effect at $\alpha = .05$ was 53 with power at 0.95. As such, the present study was powered to detect all hypothesized effects.

All scale variables were examined for distributional properties. Transformations were completed as needed. Descriptive statistics were conducted to determine the prevalence

of violent versus nonviolent injuries within the sample, as well as mean levels of PTSD symptoms and social support. Correlations between all study variables can be found in Table 2. For Aim 1, independent samples *t*-tests were conducted. Multiple hierarchical regression in SPSS 26 was used to assess the main effects of covariates, social support, trauma type, and the interaction between social support and trauma type on 30-day PTSD symptoms (see Table 3). For our exploratory aim, an independent samples *t*-test was used to examine levels of social support by injury type.

Results

Zero-Order Correlations

Table 2 provides the correlations among primary study variables. In terms of associations among injury type, social support, and PTSD symptoms, associations were generally as would be predicted such that higher levels of PTSD were correlated with lower levels of social support. Higher levels of PTSD symptoms were also significantly correlated with violent injury type. Race, age, and gender were all significantly correlated with at least one primary variable of interest and thus all were included in regression models.

Aim 1

Of the total 553 participants, 94 (17.0%) experienced a violent injury, whereas 458 (83.0%) experienced a nonviolent injury. More than one-half ($n = 52$, 55.3%) of those experiencing a violent injury were victims of a gunshot wound. The two most common nonviolent injury types were falls ($n = 75$) and motor vehicle accidents ($n = 246$). Consistent with our first hypothesis, patients who experienced violent injury had higher mean PTSD symptom scores 30-days post-injury ($M = 30.2$, $SD = 22.9$) than patients with nonviolent injury $M = 17.7$, $SD = 18.1$, $t(227) = 7.09$, $p < .001$. Using the established threshold for clinically relevant PTSD symptoms (i.e., score of 40 or more on the PCL-5), 15.9% of individuals experiencing a violent injury, and 8.1% of individuals experiencing a nonviolent injury reported clinically significant PTSD symptoms, respectively.

Aim 2

We examined differences in social support by injury type. We found that patients with violent injury reported higher levels of social support ($M = 5.94$, $SD = 2.48$) than patients with nonviolent injury ($M = 6.41$, $SD = 2.86$), $t(229) = -1.89$, $p < .05$, where lower reflect higher levels of social support on this measure.

Aim 3

After examining the correlations of potentially relevant demographic covariates with primary variables, age, race, and gender were significantly correlated and thus included in the final model (see Table 1). The final model in the hierarchical regression accounted for approximately 8.03% of the variance in 30-day PTSD symptoms (see Table 3). In Step 1, younger age ($B = -0.15$, $p < .001$), identifying as a female ($b = -4.98$, $p < .01$), and identifying as Black and/or African American ($b = 5.45$, $p < .001$) were associated with 30-day PTSD symptoms. Both gender and age remain significant in all subsequent steps, though race was nonsignificant in Steps 3 and 4. In Step 2, baseline social support was

associated with 30-day PTSD symptoms ($b = 0.92, p < .001$), where, again, lower scores on the social support measure reflect high levels of support on this measure. In Steps 3 and 4, only age and gender remain significantly associated with 30-day PTSD symptoms. The interaction term between social support and injury type was not significant ($b = 1.01, p = .30$).

Discussion

The present study had three aims focused on examining differences between violent and nonviolent injury patients in relation to PTSD symptoms and social support. These data may inform improvements to trauma centers' approaches to predicting mental health trajectories after injury and to uncover potentially modifiable risk factors for intervention. Initial findings suggested that lower levels of social support were associated with subsequent PTSD symptoms. However, in final models, only age and gender remained significantly associated with PTSD symptoms among patients served by a level 1 trauma center. These findings are consistent with prior research and reinforce the need to consider these factors in bedside risk screening and early intervention. A unique finding of this paper was that baseline levels of social support were higher for violent injury versus nonviolent injury patients. Further exploration is needed to identify opportunities to leverage strengths in the social networks of violent injury patients to improve trajectories of mental health recovery, connection to care, and access to a range of other resources critical for emotional and physical health.

Our finding that individuals experiencing a nonviolent injury reported fewer PTSD symptoms at the 30-day timepoint as compared to individuals with a violent injury supports the study hypothesis for Aim 1. This finding is consistent with prior literature demonstrating that both interpersonal trauma exposures and assaultive injury confer greater risk for the development of PTSD symptoms (e.g., Benfer et al., 2018) as compared to accidental trauma exposure or nonviolent injuries such as natural disasters. Findings from Aim 1 of the present study further highlight the need to address mental health care needs via both early screening procedures and early identification of protective factors, such as social support, that can be harnessed in stepped-care approaches. Suggestions for these procedures are discussed in the Clinical Implications section of this manuscript.

With regard to our second aim, the present study evidences differences in baseline levels of social support between violent and nonviolent injury patients, with violent injury patients reporting higher levels of social support at baseline. One potential explanation for our finding that violent injury patients report higher levels of social support and higher levels of PTSD symptoms is related to demographic differences between violent and nonviolent injury patients, such as age, gender, and race/ethnicity. In the current study, violent injury patients were significantly younger than individuals who experienced a nonviolent injury. Consistent with prior literature demonstrating that younger age is a risk factor for the development of PTSD (e.g., Haagsma et al., 2012; Herrera-Escobar et al., 2019), violent injury patients in the present paper were younger than those experiencing a nonviolent injury and reported higher levels of social support. Similarly, extant research supports that social support decreases as age increases, with findings demonstrating that older persons are more likely to report the severest forms of isolation, potentially linked to role changes such as the

increased likelihood of living alone (Schnittker, 2007). As such, findings from the present study align with past work examining age as a key sociodemographic factor in relation to the development of PTSD symptoms as well as levels of social support.

In addition to age, race and ethnicity are important demographic variables to consider in the context of these findings. It is well-established that individuals experiencing violent injuries tend to identify as racial and ethnic minorities as compared to individuals experiencing nonviolent injuries (e.g., Zebib et al., 2017), and that racial and ethnic minorities report PTSD symptoms at higher rates (e.g., Copeland et al., 2022). More specifically, the literature has demonstrated that those identifying as African Americans and Latinx report the highest rates of PTSD, as compared to all other racial/ethnic groups (Hall-Clark et al., 2016), even though those identifying as White report higher exposure to trauma overall (Roberts et al., 2011). Exposure to trauma type differs by race and ethnicity status such that African Americans have been found to report higher rates of interpersonal trauma and violence as compared to non-Hispanic Whites (Alegría et al., 2013; Roberts et al., 2011).

In terms of racial and ethnic differences in social support, individuals who identify as racial/ethnic minorities may be more inclined to rely on their communities to promote health behaviors and for emotional support. Indeed, research has shown that racial and ethnic minorities, and specifically individuals identifying as Black and/or African American rely on features of their culture such as collectivism and group collaboration when coping with and surviving amid trauma (Jackman, 1996), engaging in social coping practices such as religious gatherings, media viewing, and race-centered interpersonal interactions with organizations (Bowleg et al., 2003; Stamps, 2021). These socially based community coping strategies is consistent with the higher levels of support reported by those experiencing a violent injury given that racial and ethnic minorities also report experiencing violent injuries at higher rates.

Lastly, there are also known differences in rates of PTSD symptoms and levels of social support between males and females such that the prevalence of PTSD is twice that in females as compared to males (Kilpatrick et al., 2013). Female's higher rates of PTSD are robust against differences in trauma type, diagnostic criteria, culture, methodology, measurement error, and reporting bias. These well-established differences in rates of PTSD are consistent with our findings demonstrating that female gender significantly predicted PTSD symptoms in final models over and above key variables such as social support and injury type. Although the literature base on gender differences in perceived social support is mixed, research generally indicates that females may receive more social support than men (Kendler et al., 2005; Neff & Karney, 2005), contrastingly to female gender being associated with increased risk for PTSD. These differences, though, are consistent with findings from the present study which further suggest gender as a key consideration, perhaps even above and beyond social support, in the development of PTSD following traumatic injury. Efforts aimed at improving patients' use of social supports may be most effective if personalized to ensure that patient preferences and social support structures are assessed and properly leveraged.

Contrary to hypotheses, there was no main effect of baseline levels of social support on 30-day PTSD symptoms once the main effect of injury type was included in the final model. Although this finding differs from the cross-sectional literature showing an inverse association between social support and PTSD symptoms (e.g., Gros et al., 2016), the present study found that social support at baseline was associated with later PTSD symptoms until injury type was included. Age and gender were the only predictors that remained significant of PTSD symptoms in Steps 3 and 4, further highlighting the interrelatedness of key risk variables that should be accounted for in order to glean a comprehensive picture of the trajectory of psychopathology postinjury.

Further, findings from the present study may be attributed to the timing of assessment in the present study. In other words, it is plausible that the long-term impact of social support is different than in the acute recovery phase at the 30-day point following an injury, whereby the protective influence of social support on later psychopathology is not seen until the patient has been discharged and at home receiving support for longer than one month following an injury.

Social support did not moderate the relationship between injury type and later PTSD symptoms, consistent with our findings that suggest that injury type may be more important than social support in predicting later PTSD symptoms such that social support at baseline was no longer associated with PTSD symptoms when injury type was included in the model. There is a dearth of literature examining social support as a moderator of trauma *type* and later psychopathology, making it difficult to contextualize our findings. However, these results suggest that social support may be important in relation to outcomes following both types of injury.

Limitations and Future Directions

Although the present study makes important contributions to the field of traumatic injury research, findings should be considered in the context of a number of limitations. First, the program from which data was used (i.e., TRRP), administers assessments at an individual's bedside. For feasibility purposes, assessments are shortened to allow for completion at the bedside. Although future research may benefit from more detailed measurement of relevant constructs, such as social support, it may not be feasible given the constraints of assessment at hospital bedside. The social support measure used in the present study used five items from an existing measure, as conducted in prior research (e.g., Acierno et al., 2006; Amstadter et al., 2009). Perhaps as a result, the alpha of the measure in this sample was acceptable but not strong. Further, the timing of the social support assessment at baseline precludes information regarding changes in social support throughout the recovery process that may impact PTSD symptoms at the 30-day follow-up time-point.

Second, the present study does not include additional covariates that may also influence relations between injury type, social support, and PTSD symptoms such as injury severity, distress at bedside, baseline PTSD, or acute stress symptoms, and medical recovery process. Given feasibility concerns, all potentially important variables were not considered in the present study, though suggest important directions for future research. Last, given that the

primary outcome of PTSD symptoms was assessed at the 30-day timepoint, it is plausible that findings are biased based on who completes the 30-day follow-up assessment.

Future research examining social support and PTSD symptoms in both violent and nonviolent injury patients should assess social support at follow-up timepoints as well as the baseline timepoint to capture any change that may happen between the two timepoints. For example, if social support is decreasing between a person's admission to the hospital, the 30-day timepoint, and a 90-day timepoint, interventions would be able to target the sustainment of social support for traumatic injury patients, as opposed to solely ensuring they have enough support at the time of admission. Additionally, PTSD is not the sole sequelae of traumatic injury. Future research should examine how injury type and social support are related to other potential sequelae such as depressive symptoms.

Implications

Findings from the present study highlight differences in PTSD symptoms and social support levels between violent and nonviolent injury victims. Our findings suggest a number of clinical implications. First, our finding that individuals experiencing a violent injury reported higher PTSD symptoms at 30-day follow-up as compared to those experiencing a nonviolent injury has important clinical implications with regard to the importance of identifying factors at the time of injury that may protect victims of violent injuries from later PTSD symptoms upon discharge. Indeed, Ruggiero et al. (2022) highlight the lack of mental health care available to patients served by trauma centers in the "intermediate" phase (i.e., initial days and week postdischarge). Based on findings from the first aim of the present study, trauma centers may consider implementing programs aimed at educating patients on how to better leverage amenable interventions targets, such as social supports, through strategies such as highlighting the use of community connections as support and engaging victims of violent injury in conversations about the importance of social support and how to use supports, prior to discharge.

Second, higher social support among patients who experience violent injury underscores an opportunity for clinicians to leverage these social support networks with the goal of improving continuity of care and preventing the high levels of PTSD symptoms that violent injury patients are more likely to report at follow-up timepoints. Stepped-care models such as that described by Ruggiero et al. (2020) can begin to harness social support networks at the time of admission and continue to do so at each follow-up contact point to ensure a continued protective influence. Similarly, collaborative care models that combine case management, pharmacotherapy, and behavioral intervention elements (Zatzick et al., 2008) may be well positioned to bolster support generally, both through providing access to material support (e.g., financial) via case management, as well as social support through behavioral interventions.

The existing research on interventions to bolster social support have mixed evidence for effectiveness (for a review see Hogan et al., 2002), and further, many of these intervention strategies are resource intensive (i.e., time to ensure patients are connected with networks postdischarge), making them unfeasible for hospital systems. However, violence intervention and interruption programs may have the capacity to fill patient needs when social support

networks are insufficient. For example, the extant literature on violence intervention programs have demonstrated that these programs are successful in reducing recidivism and in meeting patient needs such as mental health services, victim-of-crime compensation, employment, and housing (Cooper et al., 2006; Juillard et al., 2016; R. Smith et al., 2013), and are cost-effective relative to the services provided to patients (Chong et al., 2015; Purtle et al., 2015).

Conclusions

The present study sought to extend the extant literature on social support, PTSD, and trauma type through examining differences in these constructs in violent versus nonviolent traumatic injury patients. Findings support significant differences in both PTSD symptoms and social support levels between the groups, with nonviolent injury victims reporting lower levels of PTSD symptoms, and violent injury victims reporting higher levels of social support. Baseline social support did not predict subsequent PTSD symptoms once relevant covariates were included in the model. Given that demographics are not typically amenable to intervention efforts, social support is an important target for intervention and prevention efforts, across injury types, aimed at lessening the impact of trauma-related psychopathology (e.g., Cloitre et al., 2016), in traumatic injury patients across trauma centers globally.

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Clinical Impact Statement

Traumatic injury is common and is associated with deleterious mental health outcomes, as such, identifying potential moderators of these outcomes by various injury types is important. This work found that social support did not moderate the relationship between injury type and later posttraumatic stress disorder symptoms, but instead, highlights factors such as injury type, age, and gender as important to consider in terms of prevention and intervention efforts for this population.

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Table 1

Demographic Characteristics of Study Sample by Injury Type

Variable	Nonviolent injury		Violent injury	
	<i>M (SD)</i>	% (<i>n</i>)	<i>M (SD)</i>	% (<i>n</i>)
Age	48.8 (18.5)	—	35.6 (13.3)	—
Sex (male)	—	60.9% (274)	—	88.7% (83)
Race (White)	—	63.0% (288)	—	16.7% (16)

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Table 2

Correlations for Study Variables

Variable	1	2	3	4	5	6	7
1. Age	—						
2. Race: W versus B	-.26**	—					
3. Race: W versus O	.05	.16**	—				
4. Gender	-.11**	.062	-.02	—			
5. Social support	.09*	-.07	-.06	.02	—		
6. Injury type	.27**	-.38**	-.06	-.22**	.06	—	
7. PTSD	-.18**	.18*	-.02	-.12**	.12**	-.12*	—

Note. For all race variables, White = 0, African American or other is coded as 1. For gender, 0 = female 1 = male. For injury type, 0 = violent injury 1 = nonviolent injury.

* $p < .05$.

** $p < .01$.

Table 3

Hierarchical Regression Predicting 30-Day PTSD Symptoms

Measure	Step 1		Step 2		Step 3		Step 4	
	B	SE	B	SE	B	SE	B	SE
Constant			21.7	4.75	30.9	6.29	35.9	7.93
Age	-0.15**	0.04	-0.16**	0.04	-0.18**	0.05	-0.18**	0.05
Gender	-4.98*	1.58	-5.11*	1.57	-5.32*	1.98	-5.28*	1.98
Race: W to B	5.45**	1.61	5.65**	1.59	2.80	2.08	2.88	2.08
Race: W to O	-1.57	4.08	-1.08	4.04	-3.11	4.88	-3.26	4.88
Social support	—	—	0.92**	0.26	0.49	0.34	-0.39	0.91
Injury type	—	—	—	—	-3.65	2.71	-9.54	6.27
SS × IT	—	—	—	—	—	—	1.01	0.97

Note. SS × IT denotes the interaction between social support and injury type. For all race variables, White = 0, African American or other is coded as 1. W to B refers to those identifying as White as compared to those identifying as Black and/or African American. W to O refers to those identifying as White as compared to those identifying as “other.”

* $p < .01$.

** $p < .001$.