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Hopelessness as a Risk Factor for Post-traumatic Stress Disorder Symptoms Among Interpersonal Violence Survivors

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Abstract

Post-traumatic stress disorder often co-occurs with depression, and they may share common risk factors. One possible common cognitive risk factor is hopelessness. Thus, we examined whether hopelessness was related to symptoms of post-traumatic stress disorder. Participants were 202 female survivors of interpersonal violence. Relationships between self-reported and interviewer-rated measures of hopelessness gathered at 2 weeks post-trauma and self-reported and interviewer-rated symptoms of post-traumatic stress disorder gathered at 2 weeks and 3 months post-trauma were examined. Hierarchical, simultaneous regression analyses that co-varied trauma type revealed that hopelessness was related to self-reported symptoms of post-traumatic stress disorder, both concurrently and prospectively. Follow-up analyses revealed that relationships between hopelessness and symptoms of post-traumatic stress disorder were due almost entirely to shared variance with depression. No relationships were found between hopelessness and interviewer-rated symptoms of post-traumatic stress disorder.

Keywords

post-traumatic stress disorder; trauma; cognitions; beliefs; attributions; depression; major depression; co-morbidity; risk factors

Maladaptive cognitions have been linked to the development of symptoms of post-traumatic stress disorder (PTSD), both theoretically and empirically (Dunmore, Clark, & Ehlers, 2001; Ehlers & Clark, 2000; Ehlers, Mayou, & Bryant, 2003; Foa & Rothbaum, 1998; Koss, Figueredo, & Prince, 2002; McCann & Pearlman, 1990; McCann, Sakheim, & Abrahamson, 1988; Resick & Schnicke, 1992). While such theorizing and research has impacted productively on our understanding of the development of the symptoms of PTSD, there is little information on whether cognitive factors that influence PTSD may also simultaneously impact on the development of co-morbid conditions. Moreover, it is unclear whether such cognitive factors uniquely influence the development of PTSD, or whether they may non-specifically affect the development of PTSD as well as other types of symptoms.

Of particular interest may be whether cognitions implicated in the development of PTSD may also impact the development of depression and vice versa. Indeed, depression co-occurs up to 50% with PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; see also Kessler et al., 1996) and epidemiological data suggest that they may share common risk factors (Breslau,

Davis, Peterson, & Schultz, 2000). Among possible common risk factors are cognitions regarding oneself, others and the future (Beck, 1967, 1987; Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Kovacs & Beck, 1978; McCann & Pearlman, 1990; McCann et al, 1988).

Within this broad set of cognitions, hopelessness beliefs may have particular relevance for the development of symptoms of both PTSD and depression. The hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989) posits a chain of factors that may culminate in psychological distress. Of relevance to the development of symptoms of both PTSD and depression, the theory suggests that, following a negative event, several factors contribute to the development of hopelessness: identifying the event as important, attributing the cause of the event to stable and global factors, believing that the event will have negative consequences for one's life, and believing that the event suggests something negative about oneself. Such hopelessness then culminates in psychological distress. Since the introduction of the hopelessness theory, research has been steadily accumulating that supports its tenets for a hypothesized subtype of unipolar depression, termed "hopelessness depression" (see Abramson et al., 2002, for a brief review). Moreover, hopelessness theory may also have some relevance to PTSD (Joseph, 1999; Joseph, Yule, & Williams, 1993). Specifically, as noted by Joseph, (1999), theoretical discussions of post-trauma adjustment have emphasized a role for hopelessness, and many depression symptoms accounted for by hopelessness theory overlap with symptoms of PTSD.

These ideas have been complemented by research suggesting that factors hypothesized to precipitate hopelessness (Abramson et al., 1989) are related to PTSD. Several studies have found that attributional style for negative events or event-specific attributions specified in the hopelessness theory are related to PTSD symptoms (e.g. Ginzburg, Solomon, Dekel, & Neria, 2003; Gray, Pumphrey, & Lombardo, 2003; Mikulincer & Solomon, 1988, 1989; Wenninger & Ehlers, 1998). There is also evidence that negative beliefs surrounding a traumatic event are related to PTSD symptoms. For example, Dunmore and colleagues (Dunmore, Clark, & Ehlers, 1999; Dunmore et al., 2001) found that beliefs that a trauma has negative consequences for one's life were related to PTSD symptoms. These findings support the idea that hopelessness cognitions may be a common risk factor for symptoms of both PTSD and depression following trauma.

Given this possibility, we sought to examine (i) whether hopelessness was related to PTSD symptoms at both 2 weeks and 3 months post-trauma and (ii) whether any relationships between hopelessness and PTSD symptoms were due to shared variance with concurrent depressive symptoms. To investigate these ideas, survivors of rape and physical assault completed a self-report measure of depression and both self-report and interview measures of hopelessness and PTSD symptoms. Regression analyses were used to examine relationships between hopelessness and symptoms.

Method

Participants

Participants were 202 women who had experienced a rape or physical assault. They were recruited at local police departments, victim assistance agencies and hospitals. Participants initiated contact with the investigators by responding to recruitment postcards. They ranged in age from 18 to 57 years ($M(SD)=31.47(8.77)$). Most were single ($n=109$; 54.0%), with annual incomes of \$10,000 or less ($n=132$; 65.4%). Almost three-quarters of the sample had 12 or more years of education ($n=148$; 73.2%). Ethnic/ racial distribution was as follows: 68.3% African-American ($n=138$), 25.2% Caucasian ($n=51$) and 4.0% Hispanic, American Indian or Other ($n=8$). Over three-quarters of this initial sample completed at least 1 measure relevant

to the study at a 3-month follow-up ($n=154$; 76.2%). The initial scores of completers and non-completers did not differ on any variable.

Procedure

As part of a study on recovery following sexual or physical assault, participants were assessed at 2 points in time: 2 weeks post-trauma (Time 1) and 3 months post-trauma (Time 2). Each assessment took place over 2 days. At both assessment points, participants completed self-report instruments, interviews, and psychophysiological and behavioral measures. These measures assessed psychological symptoms and hypothesized recovery-related factors, including cognitions, information processing, social support, coping, and history of victimization. Measures relevant to the current hypotheses are described below.

Measures

Beck Depression Inventory (BDI; Beck, 1967)—The BDI was used at both time points to assess depressive symptoms. It is a self-report measure designed to assess depressive symptoms over the past week. The BDI has demonstrated reliability and validity, including average internal consistency reliability of 0.86 for clinical samples and 0.81 for non-clinical samples and concurrent validity with several measures of depression (Beck, Steer, & Garbin, 1988). To avoid predictor-criterion contamination (Anastasi, 1988), item 2, which assesses hopelessness, was not included in the total BDI score for this study. Possible scores on this modified BDI range from 0 to 60, with higher scores indicating higher levels of symptoms. The correlations between original BDI scores and modified BDI scores were greater than $r=0.99$ at both time points.

Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974)—The BHS was used to assess hopelessness at Time 1. It is a self-report measure designed to assess negative expectations about the future over the past week. Scores range from 0 to 20, with higher scores indicating higher levels of hopelessness. The BHS has demonstrated reliability and validity, including internal consistency reliability ranging from 0.84 to 0.93 and concurrent validity with clinician-rated hopelessness (Beck et al., 1974; Katz, Katz, & Shaw, 1999).

Clinician Administered PTSD Scale (CAPS; Blake et al., 1995)—The CAPS was used at Time 1 to assess hopelessness, and at Time 1 and Time 2 to assess PTSD symptoms. The CAPS is an interview designed to assess the frequency and intensity of PTSD symptoms and associated features. To assess hopelessness, we used the frequency scale of the item assessing hopelessness. This item is rated from 0 to 4, with higher scores indicating greater frequency of symptoms. We used both an item of the CAPS and the BHS to assess hopelessness in order to (i) decrease the probability that findings are due solely to method variance and (ii) provide a fuller assessment of the hopelessness construct. The correlation of the CAPS hopelessness item and the BHS was 0.35. To determine the number of PTSD symptoms, we used the “1–2 rule”; items rated with a frequency of 1 or higher and an intensity of 2 or higher were considered symptoms (Blake et al., 1995). At Time 1, symptoms and associated features were assessed over the past week; at Time 2, symptoms and associated features were assessed over the past month. The CAPS PTSD symptom items have demonstrated reliability and validity with civilian trauma populations, including inter-rater reliability of symptom ratings, and convergent validity with several self-report measures of post-traumatic stress symptoms (Weathers, Keane, & Davidson, 2001). Information on the reliability and validity of associated features is lacking. In the present study, the CAPS was administered by trained clinical interviewers with masters or doctoral degrees in clinical psychology.

PTSD Symptom Scale –Self-Report (PSS-SR; Foa, Riggs, Dancu, & Rothbaum, 1993)—The PSS-SR was used at both time points to assess PTSD symptoms. It is a 17-item

self-report measure that assesses frequency of Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (American Psychiatric Association, 1987) PTSD symptoms over the past 2 weeks. Possible scores range from 0 to 51, with higher scores indicating greater frequency of symptoms. The PSS-SR has demonstrated reliability and validity with a heterogeneous trauma group, including 1-month test-retest reliability of 0.74 for overall symptom frequency scores and concurrent validity with the Impact of Events Scale (Foa et al., 1993).

Data analysis overview

Descriptives for all variables are displayed in Table 1. To investigate the possibility that hopelessness may have a shared relationship with both PTSD and depression, initial hierarchical, simultaneous regression analyses were conducted to determine whether initial self-reported and interviewer-rated hopelessness were related to self-reported and interviewer-rated PTSD symptoms at 2 weeks and 3 months post-trauma. When hopelessness was related to PTSD symptoms, a follow-up regression analysis was conducted to determine whether the relationship between hopelessness and PTSD was due to shared variance with concurrent depression. Given that the risk for PTSD may vary by trauma type (Breslau et al., 1998; Kessler et al., 1995) we co-varied trauma type (i.e. physical assault or sexual assault) in all analyses. Results of all regression analyses are displayed in Table 2 and summarized below¹.

Results

Relationship of hopelessness and PTSD symptoms at 2 weeks post-trauma

To examine whether hopelessness was related to self-reported Time 1 PTSD symptoms, we first conducted a regression analysis in which trauma type was entered on Step 1 and hopelessness as assessed by the BHS and CAPS was entered on Step 2 to predict Time 1 PTSD symptoms as assessed by the PSS-SR. Hopelessness was related to Time 1 PTSD symptoms beyond the effect of trauma type, accounting for an additional 18.5% of variance, $F_{\Delta}(2,165) = 20.48, p < 0.001$. To examine whether hopelessness was related to PTSD symptoms beyond the contribution of co-occurring depression, we conducted a second regression in which trauma type was entered on Step 1, depression as assessed by the Time 1 BDI was entered on Step 2, and hopelessness as assessed by the BHS and CAPS was entered on Step 3. Hopelessness was no longer related to PTSD symptoms when accounting for the effects of trauma type and depression, $F_{\Delta}(2,164) = 1.33, n.s.$ These findings suggest that the relationship between self-reported PTSD symptoms and hopelessness is due almost entirely to shared variance with concurrent depression.

To examine whether hopelessness was related to interviewer-rated Time 1 PTSD symptoms, we conducted an initial regression analysis in which trauma type was entered on Step 1 and hopelessness as assessed by the BHS and CAPS was entered on Step 2 to predict Time 1 PTSD symptoms as assessed by the CAPS. Hopelessness was not related to interviewer-rated PTSD symptoms at Time 1 beyond the effect of trauma type, $F_{\Delta}(2,171) = 1.15, n.s.$

¹We checked for univariate and multivariate outliers and non-normality in accord with the suggestions of Tabachnick and Fidell (2001). There were no outliers in the data. However, the BHS, CAPS Hopelessness frequency item, and Time 2 BDI scores all demonstrated statistically significant non-normality at $p < 0.001$. To correct for non-normality, we performed a square root transformation on BHS and BDI scores, and dichotomized the CAPS Hopelessness scores according to the “1–2” symptom determination criteria (described further in the section describing the CAPS). The CAPS Hopelessness scores were dichotomized, as no transformation suggested by Tabachnick and Fidell was helpful in normalizing the data. We then re-ran all analyses using these altered variables. Results did not change (including no marked changes in proportions of variance accounted for), with 1 minor exception: the BHS no longer predicted Time 2 self-reported PTSD symptoms (CAPS Hopelessness scores continued to predict). Given that the results were essentially the same, and the difficulty in interpreting transformed variables, we report our analyses using unaltered variables.

Prediction of PTSD symptoms at 3 months post-trauma

To examine whether hopelessness predicted self-reported Time 2 PTSD symptoms, we conducted a regression analysis in which trauma type was entered on Step 1 and hopelessness as assessed by the BHS and CAPS was entered on Step 2 to predict Time 2 PTSD symptoms as assessed by the PSS-SR. Hopelessness predicted Time 2 PTSD symptoms beyond the effect of trauma type, accounting for an additional 14.4% of variance, $F_{\Delta}(2,105)=9.20, p<0.001$. To examine whether hopelessness predicted Time 2 PTSD symptoms beyond the contribution of co-occurring depression, we conducted a second regression in which trauma type was entered on Step 1, depression as assessed by the Time 2 BDI was entered on Step 2, and hopelessness as assessed by the BHS and CAPS was entered on Step 3. Hopelessness was not related to PTSD symptoms beyond the effects of trauma type and depression, $F_{\Delta}(2,89)=1.79, n.s.$ As with the 2-week findings, the relationship between self-reported PTSD symptoms at 3 months post-trauma and hopelessness is due almost entirely to shared variance with concurrent depression.

To examine whether hopelessness predicted interviewer-rated Time 2 PTSD symptoms, we conducted an initial regression analysis in which trauma type was entered on Step 1 and hopelessness as assessed by the BHS and CAPS was entered on Step 2 to predict Time 2 PTSD symptoms as assessed by the CAPS. Hopelessness was unrelated to interviewer-rated PTSD symptoms beyond the effect of trauma type, $F_{\Delta}(2,105)=0.11, n.s.$

Discussion

Using a multi-method assessment strategy, we examined whether a possible common cognitive factor in symptoms of PTSD and depression – hopelessness – was cross-sectionally and prospectively related to symptoms of PTSD. An initial regression analysis indicated that both self-reported and interviewer-rated hopelessness were concurrently related to self-reported PTSD symptoms at 2 weeks post-trauma, accounting for 18.5% of variance. This relationship virtually disappeared when the effects of concurrent depression were accounted for, suggesting that the relationship was due to shared variance with depression. Regression analysis also indicated that self-reported and interviewer-rated hopelessness assessed at 2 weeks post-trauma accounted for 14.4% of variance in self-reported PTSD symptoms assessed at 3 months post-trauma. As with the 2-week post-trauma findings, the prospective relationship between hopelessness and PTSD symptoms virtually disappeared when the effects of concurrent depression were accounted for; again, it appears that relationships between hopelessness and PTSD symptoms are due to shared variance between PTSD symptoms and depression. Overall, these findings suggest that hopelessness has a shared relationship with symptoms of both PTSD and depression.

Kazdin and colleagues (Kazdin, Kraemer, Kessler, Kupfer, & Offord, 1997; Kraemer, Kazdin, Offord, Kessler, Jensen, & Kupfer, 1997) provide several ideas for understanding and defining whether a given correlate is a risk factor for an outcome of interest. In part, they propose the following: (i) when 2 factors are associated with one another at the same time point, these factors may be characterized as correlates and (ii) when 2 factors are associated with one another, and one factor precedes the other, the preceding factor may be characterized as a special type of correlate, that is, a risk factor. Risk factors are further described according to their manipulability and causal status. For example, a risk factor that is potentially malleable but that has not yet been shown to alter outcomes when manipulated is termed a variable risk factor. Using this typology, the cross-sectional findings of this study suggest that hopelessness is a correlate of PTSD symptoms, and the prospective findings suggest that hopelessness is a variable risk factor for PTSD symptoms. The findings do not address whether hopelessness has a causal role in the development of PTSD symptoms.

While this study found consistent relationships between hopelessness and self-reported PTSD symptoms, analyses also suggested that neither self-reported nor interviewer-rated hopelessness is related to interviewer-rated PTSD symptoms. This discrepancy may be due to several factors. First, given the relatively low correlations between self-reported and interviewer-rated measures of PTSD symptoms found in this sample (ranging from 0.13 to 0.39), the PSS-SR and CAPS may be assessing somewhat different aspects of the same phenomenon. The 2 measures also differ in terms of whose perceptions are recorded. Moreover, both measures are open to unique biases that may have affected the findings, including halo effects for the CAPS (Groth-Marnat, 2003; Schnurr, Friedman, & Bernardy, 2002) and limited opportunity to clarify questions or responses for the PSS-SR. Nonetheless, given that both self-reported and interviewer-assessed hopelessness were related to self-reported PTSD symptoms, the discrepancy in findings when utilizing different methods of symptom assessment deserves further investigation.

Overall, our findings have potential clinical and research implications. First, assessing for hopelessness in the initial post-trauma period may be helpful in identifying persons who are at risk of developing co-morbid PTSD and depression symptoms. Second, for both conceptual and clinical reasons, it may be important to determine whether hopelessness is a causal risk factor for the development of PTSD symptoms, perhaps by addressing hopelessness cognitions as part of post-trauma psychotherapeutic intervention and then examining whether changes in hopelessness alter levels of PTSD symptoms. It may also be fruitful to compare relationships between hopelessness and PTSD symptoms among various trauma samples, as various trauma types have been associated with different levels of risk for the development of PTSD (Breslau et al. 1998; Kessler et al., 1995). This differential level of risk may lead to differential importance of specific variable risk factors such as hopelessness. Due to power considerations, we did not conduct such analyses in the current sample.

While these results and their potential implications are intriguing, they must be considered in light of some limitations. First, this study was conducted with an entirely female sample. Accordingly, these findings may not generalize to men, who generally have lower risk for both PTSD and depression (Breslau et al., 1998; Brewin, Andrews, & Valentine, 2000; Kessler et al., 1995; Kessler et al., 1996; Nolen-Hoeksema, 1990). Second, the divergence in results when using self-report vs interview measures of PTSD symptoms deserves further scrutiny (see Griffin, Uhlmansiek, Resick, & Mechanic, 2004, for a recent empirical comparison of self-report and interview PTSD measures).

In summary, our results suggest that hopelessness has a shared relationship with self-reported PTSD and depression symptoms. These findings have several potential implications, both for a better understanding of the nature and development of PTSD symptoms and for early identification of persons at risk. Nonetheless, consistent with the exploratory nature of this study, additional research is needed to replicate these findings among men and people with other types of trauma, to further examine relationships between hopelessness and self-reported vs interviewer-assessed PTSD symptoms, and to determine whether hopelessness is a causal risk factor for PTSD.

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Table 1

Descriptive statistics for all variables.

Variable	Mean	SD	Range
Time 1 BDI	18.62	10.66	0–51.00
Time 2 BDI	13.10	10.67	0–48.00
BHS	5.51	4.96	0–20.00
CAPS – Hopelessness frequency item	.93	1.40	0–4.00
Time 1 PSS-SR	28.05	11.90	0–51.00
Time 2 PSS-SR	16.15	11.63	0–46.00
Time 1 CAPS – Symptoms	10.51	3.73	0–17.00
Time 2 CAPS – Symptoms	7.33	4.63	0–17.00

BDI=Beck Depression Inventory; BHS=Beck Hopelessness Scale; CAPS=Clinician Administered PTSD Scale; PSS-SR=PTSD Symptom Scale- Self-Report; SD=standard deviation.

Table 2

Simultaneous, hierarchical regression analyses predicting PTSD symptoms.

Variable entry	R^2_{Δ}	B	SE B	β
Predicting Time 1 PSS-SR				
Step 1	0.07***			
Trauma type		-6.39	1.83	-0.26***
Step 2	0.19****			
Trauma type		-5.86	1.67	-0.24***
Time 1 BHS		0.62	0.17	0.26****
Time 1 CAPS – Hopelessness frequency item		2.27	0.62	0.27****
Predicting Time 1 PSS-SR and co-varying Time 1 BDI				
Step 1	0.07***			
Trauma type		-6.39	1.83	-0.26***
Step 2	0.33****			
Trauma type		-4.06	1.50	-0.17**
Time 1 BDI		0.65	0.07	0.58****
Step 3	0.01			
Trauma type		-3.92	1.53	-0.16*
Time 1 BDI		0.58	0.09	0.52****
Time 1 BHS		0.01	0.18	0.00
Time 1 CAPS – Hopelessness frequency item		0.96	0.59	0.11
Predicting Time 1 CAPS symptoms				
Step 1	0.05***			
Trauma type		21.67	0.57	-0.22***
Step 2	0.01			
Trauma type		-1.70	0.58	-0.22***
Time 1 BHS		0.08	0.06	0.11
Time 1 CAPS – Hopelessness frequency item		0.03	0.21	0.01
Predicting Time 2 PSS-SR				
Step 1	0.03			
Trauma type		-4.25	2.27	-0.18
Step 2	0.14****			
Trauma type		-3.64	2.15	-0.15
Time 1 BHS		0.46	0.22	0.19*
Time 1 CAPS – Hopelessness frequency item		2.22	0.80	0.27**
Predicting Time 2 PSS-SR and co-varying Time 2 BDI				

Variable entry	R^2_{Δ}	B	SE B	β
Step 1	0.03			
Trauma type		-4.25	2.45	-0.18
Step 2	0.43****			
Trauma type		-4.09	1.84	-0.17*
Time 2 BDI		0.71	0.08	0.66****
Step 3	0.02			
Trauma type		-3.49	1.85	-0.15
Time 2 BDI		0.74	0.10	0.68****
Time 1 BHS		-0.30	0.22	-0.13
Time 1 CAPS – Hopelessness frequency item		1.10	0.70	0.13
Predicting Time 2 CAPS symptoms				
Step 1	0.02			
Trauma type		-1.31	0.91	-0.14
Step 2	0.00			
Trauma type		-1.33	0.93	-0.14
Time 1 BHS		0.04	0.10	0.05
Time 1 CAPS – Hopelessness frequency item		0.00	0.35	0.00

BDI=Beck Depression Inventory; BHS=Beck Hopelessness Scale; CAPS=Clinician Administered PTSD Scale; PSS-SR=PTSD Symptom Scale – Self-Report.

*
p < 0.05.

**
p < 0.01.

p < 0.005.

p < 0.001.