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Longitudinal associations among negative cognitions, depressive and posttraumatic stress symptoms in women recently exposed to stalking

Brooklynn Bailey¹, Matthew C. Morris^{1,2,1}

¹Meharry Medical College, Nashville, TN, USA.

²Vanderbilt University, Nashville, TN, USA.

Abstract

Being stalked is a potentially traumatic experience associated with a threat to personal safety. Although major depression and posttraumatic stress disorder are highly prevalent among stalking victims, little is known about factors associated with risk for the onset and maintenance of depressive and posttraumatic stress (PTS) symptoms in individuals with recent stalking exposure. The aim of this study was to determine the role of cognitive appraisals (negative views about the self, negative views about the world, self-blame) in the development of depressive and PTS symptoms in young adult women who had experienced stalking within one month of their baseline assessment. Participants (n = 82) completed self-report, online surveys of posttraumatic cognitions and symptoms four times over the course of 3 months. Levels of posttraumatic cognitions among female stalking victims were comparable to those in other studies of trauma-exposed individuals. Multilevel models revealed that within-person changes in cognitions were differentially associated with concurrent changes in depressive and PTS symptoms over time, controlling for the influence of time, age, race, ethnicity, lifetime stalking victimization, childhood trauma exposure, and symptoms of the other disorder. Whereas more negative cognitions about the world were associated with higher levels of concurrent depressive and PTS symptoms, negative cognitions about the self were uniquely associated with higher concurrent depressive symptoms. Contrary to expectation, self-blame was not significantly associated with depressive or PTS symptoms. Results provided support for the potential utility of negative cognitions as risk markers for depressive and PTS symptoms in young adult female stalking victims. The present findings suggest that interventions targeting symptom-specific thinking patterns could help reduce risk for negative mental health outcomes associated with stalking victimization.

Keywords

stalking; posttraumatic cognitions; PTSD; major depression; longitudinal

Stalking is commonly defined as the willful, malicious, and repeated following or harassing of a specific person that threatens his or her safety (Meloy & Gothard, 1995). These

¹ Corresponding Author: Matthew C. Morris, Ph.D., Address: 1005 Dr. D. B. Todd Jr. Boulevard, Nashville, TN 37208, Phone:(615) 327-6962, mmorris@mmc.edu.

behaviors may include following, surveillance, telephone calls, social media and other online contact, property destruction, breaking and entering, unwanted in-person approaches, threats to harm or kill, and physical or sexual assault (Sheridan & Davies, 2010). Over 5 million women are stalked each year in the United States and approximately 15% of women have experienced stalking during their lifetimes (Breiding, 2015). Stalking is a significant public health problem that is associated with a host of negative mental and physical health outcomes, including increased risk for suicide, as well as substantial interpersonal and financial costs to victims (Blaauw, Winkel, Arensman, Sheridan, & Freeve, 2002; Davis, Coker, & Sanderson, 2002; Logan & Walker, 2010; Pathé and Mullen, 1997; Sheridan, Blaauw, & Davies, 2003).

Being stalked is a potentially traumatic experience associated with a threat to personal safety that is commensurate with other types of traumatic stressors (Kamphuis & Emmelkamp, 2001). Depressive and posttraumatic stress (PTS) symptoms are commonly reported by victims of stalking. As many as 20–30% of stalking victims meet full diagnostic criteria for major depressive disorder (MDD; Sheridan et al., 2003; Dressing, Kuehner, & Gass, 2005). In addition, one study found that 78% of stalking victims reported PTS symptoms in the clinically significant range (Kamphuis, Emmelkamp, & Bartak, 2003), and another found that 37% of stalking victims met full diagnostic criteria for posttraumatic stress disorder (PTSD; Pathé & Mullen, 1997). Compared to men, women have a much higher likelihood of experiencing stalking victimization; further, female stalking victims experience more threats to their safety and wellbeing and report higher levels of fear (Bjerregaard, 2000). Epidemiologic studies indicate that among individuals with PTSD, women are more likely to have experienced stalking than men (Goldstein et al., 2016). Taken together, these findings suggest that exposure to stalking may place women at increased risk for developing depressive and/or PTS symptoms. The aim of the present study is to assess factors associated with risk for developing depressive and PTS symptoms in women with recent stalking exposure.

Traumatic life events and stalking behaviors are highly prevalent (Breiding, 2015; Sledjeski, Speisman, & Dierker, 2008) and elicit a wide range of posttraumatic symptoms (Kamphuis et al., 2003). Resilience is the norm: symptoms are often short-lived and remit without need for treatment (McNally, Bryant, & Ehlers, 2003). However, between 7 to 19% of individuals develop MDD in the aftermath of trauma (MacMillan et al., 2001; Shalev et al., 1998) and 8 to 18% develop PTSD (Kessler et al., 1995). Identifying individuals at elevated risk for posttraumatic psychopathology in the acute aftermath of trauma is critical for early detection and prevention. Despite growing understanding of the individual and event-related characteristics that characterize these high-risk individuals (Brewin, Andrews, & Valentine, 2000; McNally, 2003; Morris & Rao, 2013; Ozer, Best, Lipsey, & Weiss, 2003), relatively little is known about the factors associated with risk for MDD and/or PTSD among recent stalking victims. MDD and PTSD are highly comorbid following trauma exposure (Breslau, Davis, Peterson, & Schultz, 2000), each disorder increases risk for the other (Breslau, Davis, Peterson, & Schultz, 1997), and both disorders share similar risk factors (Breslau et al., 1998; Kendler, Gardner, & Prescott, 2002). Determining whether risk factors are uniquely associated with MDD or PTSD, or shared between both disorders, will have important

implications for prevention programs targeting stalking victims and can inform theoretical models of posttraumatic comorbidity (O'Donnell, Creamer, & Pattison, 2004).

Event-related characteristics including the severity of stalking behaviors (e.g. duration, pervasiveness) explain a significant but small proportion of variance in mental health outcomes for stalking victims (Blaauw et al., 2002; Kamphuis et al., 2003). Considering the limited predictive utility of stalking severity measures, individual vulnerability factors likely play an important role in the development of depressive and/or PTS symptoms following stalking exposure. One individual vulnerability factor influencing the development and maintenance of posttraumatic symptomology is cognitive appraisal (Ehring, Ehlers, & Glucksman, 2008; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Lancaster, Rodriguez, & Weston, 2011; Zalta et al., 2014). Cognitive models of depression suggest that negative and self-devaluative thoughts following trauma contribute to depressive symptomology (Ingram, Miranda, & Segal, 1998). Cognitive models of PTSD focus on appraisals of the trauma and its aftermath, including threat perceptions, negative evaluations of oneself, the world, and others, and self-blame (Ehring, Ehlers, & Glucksman, 2006; Ehring et al., 2008; Foa et al., 1999; Lancaster et al., 2011). These negative cognitions are associated with elevated PTS symptoms and differentiate traumatized individuals with and without PTSD (Foa et al., 1999; Beck et al., 2004). One longitudinal study found that more negative posttraumatic cognitions predicted higher subsequent levels of depressive and PTS symptoms; importantly, depressive and PTS symptom levels did not predict subsequent levels of posttraumatic cognitions (Zalta et al., 2014). Taken together, these findings provide support for negative posttraumatic cognitions as individual vulnerability factors for depressive and PTS symptoms.

Few studies have examined levels of negative cognitions in stalking victims and their associations with mental health outcomes. One cross-sectional study found that women who experienced intimate partner stalking reported more negative cognitions compared to other sexual assault victims without stalking exposure, including higher self-blame and distrust of others (Kamphuis et al., 2003). The authors of this study concluded that being stalked may invoke a fundamental change in schemata related to the self, world, and others. A second cross-sectional study of female stalking victims found that greater self-blame, rumination, catastrophizing, and refocus on planning (i.e. thinking about what steps to take and how to handle the stalking) were associated with higher levels of depressive and PTS symptoms, over and above the effect of stalking severity (Kraaij, Arensman, Garnefski, & Kremers, 2007).

The present study will seek to elucidate the role cognitive appraisals play in the development of depressive and PTS symptoms over a three-month period in young adult women who have recently been stalked. The Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999) was used to assess three types of negative cognitions that commonly follow trauma: negative cognitions about oneself, negative cognitions about the world and other people, and self-blame for the traumatic experience. Although women with a history of stalking report negative cognitions about themselves and the world, the extent to which these cognitions are associated with the development of depressive and PTS symptoms remains unclear. Based on previous studies examining posttraumatic cognitions (Beck et al., 2004; Ehring et al.,

2008; Foa et al., 1999; Ozer et al., 2003), we hypothesize that more negative posttraumatic cognitions related to the self, world, and self-blame will be associated with higher levels of concurrent depressive and PTS symptoms over time. Finally, the present study will explore whether negative cognitions are differentially associated with changes in concurrent depressive and PTS symptoms. If distinct patterns of negative cognitions predict depressive versus PTS symptoms, this could enhance the efficacy of prevention programs by tailoring content to stalking victims' negative cognitive profiles.

Methods

Procedures

Young adult women (ages 18 to 30) across the United States reporting two or more experiences of stalking behaviors in the past month were recruited from online sources (i.e., [Craigslist.org](https://www.craigslist.org), [ResearchMatch.org](https://www.researchmatch.org)) to participate in a survey-based longitudinal study on the impact of stalking on mental and physical health. Examples of stalking behaviors included unwanted phone calls or text messages, unwanted online messages on social media, and being followed or threatened by someone. Interested women were contacted for a phone screen by a trained research assistant to verify that they have been exposed to at least two instances of stalking within the past month that made them feel threatened. Eligible participants completed online surveys at baseline and at one-, two-, and three-month follow-ups. Participants were compensated with a \$10 gift card for each assessment completed, with an additional \$10 gift card incentive for completing all four assessments. All participants provided informed consent online, and study procedures were approved by the institutional review board.

Measures

Posttraumatic cognitions.—Negative cognitions and beliefs that may arise in response to being stalked were assessed by self-report with the 33-item Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999). The PTCI is made up of three subscales: negative cognitions about the self (21 items), negative cognitions about the world (7 items), and self-blame (5-items). The 'negative cognitions about self' subscale is comprised of items that assess general negative views of self, permanent change, alienation, hopelessness, self-trust, and negative interpretations of symptoms (e.g., "*I am a weak person*"). The 'negative cognitions about world' subscale is comprised of items that assess beliefs in an unsafe world and mistrust of other people (e.g., "*the world is a dangerous place*"). The self-blame subscale includes items that assess participants' sense of blame for the traumatic incident(s) in question (e.g., "*the event happened to me because of the sort of person I am*"). Items are rated on a 7-point scale (1 = *totally disagree*; 4 = *neutral*; 7 = *totally agree*) for statements reflecting types of negative cognitions. Subscales are averaged to address differences in the number of items per scale and to allow for comparison (range: 1–7). Reliability estimates for the PTCI subscales were good to excellent across study time points: negative cognitions about self (alphas from .95 to .97); negative cognitions about world (alphas from .93 to .96); self-blame (alphas from .82 to .91).

Depressive symptoms.—The Beck Depression Inventory - Second Edition (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item, self-report measure that assesses level of depressive symptoms experienced over the past week. Each item is scored on a 4-point severity scale. Items are summed (range: 0–63) to create a total depressive symptom severity score. In this sample, the BDI-II exhibited excellent internal consistency (alphas from .95 to .96).

PTS symptoms.—The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015; Weathers et al., 2013) is a 20-item measure that assesses severity of DSM-5 PTS symptoms (American Psychiatric Association [APA], 2013) in the past month. Instructions were modified to include “being stalked” as an example of a very stressful experience. Respondents are asked to indicate how much each symptom bothered them on a 5-point scale (0 = *not at all*; 4 = *extremely*). Scores were summed (range: 0–80) to reflect overall PTS symptom severity. Internal consistency for the PCL-5 was excellent across time points (alphas from .97 to .98).

Childhood trauma.—The Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003) is a 28-item, self-report measure that assesses the frequency of different types of abuse experienced during childhood and adolescence. Respondents rate each item on a five-point scale from “*never true*” to “*very often true*”. Five items are dedicated to each of the following subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Subscale scores were summed (range: 0–100) to reflect overall childhood trauma exposure. Internal consistency for the CTQ was adequate ($\alpha = .73$).

Lifetime stalking victimization.—The Obsessive Relational Intrusion Scale-Short Form (ORI-SF; Cupach & Spitzberg, 2004) is a 28-item self-report measure that assesses lifetime exposure to four types of intrusive behaviors: pursuit (e.g., “*following you*”), violation (e.g., “*covertly obtaining private information*”), threat (e.g., “*physically threatening you*”), and hyper-intimacy (e.g., “*leaving unwanted messages of affection*”). Items reflect frequencies for each stalking behavior (0 = *never*; 2 = *2 or 3 times*; 4 = *over 5 times*). Items were summed (range: 0–112) to create an overall index of stalking victimization. The ORI-SF displayed excellent reliability ($\alpha = .97$).

Data Analytic Strategy

All variables were examined for distributional properties and cases were screened for univariate and multivariate outliers. Multilevel models (MLMs) tested within- and between-person associations between predictors and outcomes (i.e., depressive and PTS symptoms) using Hierarchical Linear Models (HLM v. 6) software (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004) to account for the nesting of repeated measures within individuals. Time-varying (Level 1) variables were group mean-centered (i.e., the means of these variables equaled zero for each individual) so that estimates reflected changes from person means. Time was coded so that intercepts reflected main effects at baseline assessment. Person means of all variables (Level 2) were grand mean-centered and included as predictors of intercepts in order to remove between-person variance from within-person variables and to prevent predictors from correlating with individual intercepts (Hoffman &

Stawski, 2009). A coefficient representing linear time was included as a random effect in all MLMs. Separate models examined predictors of changes in concurrent depressive and PTS symptoms. Demographic (i.e., age, race, ethnicity) and clinical (i.e., childhood trauma, stalking history) characteristics known to be associated with posttraumatic symptomology (Brewin et al., 2000; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011) were included as covariates. Each model included all three negative cognition subtypes to examine their unique effects on outcomes. The HLM equation for PTS symptoms is presented below:

Level 1 Model:

$$PTS\ symptoms = \beta_0 + \beta_1(Linear\ time) + \beta_2(Depressive\ symptoms) + \beta_3(PTCI\ self) + \beta_4(PTCI\ world) + \beta_5(PTCI\ self-blame) + R$$

Level 2 Model:

$$\begin{aligned} \beta_0 &= \gamma_{00} + \gamma_{01}(Age) + \gamma_{02}(Race) + \gamma_{03}(Hispanic) + \gamma_{04}(Childhood\ trauma) + \gamma_{05}(Lifetime\ stalking\ victimization) + \gamma_{06}(Mean\ depressive\ symptoms) + \gamma_{07}(Mean\ PTCI\ self) + \\ &\quad \gamma_{08}(Mean\ PTCI\ world) + \gamma_{09}(Mean\ PTCI\ self-blame) + U_0 \\ \beta_1 &= \gamma_{10} + U_1 \quad \beta_2 = \gamma_{20} \quad \beta_3 = \gamma_{30} \quad \beta_4 = \gamma_{40} \quad \beta_5 = \gamma_{50} \end{aligned}$$

In this model, γ_{00} represents the mean level of PTS symptoms at baseline and γ_{10} represents the linear rate of change in PTS symptoms throughout the study. The parameters γ_{20} through γ_{50} represent within-person relations between predictors and concurrent PTS symptoms over time. Of primary interest are the parameters representing within-person relations between the following predictors and changes in concurrent PTS symptoms: negative cognitions about self (γ_{30}), negative cognitions about world (γ_{40}), and self-blame (γ_{50}). The MLM testing predictors of depressive symptoms was identical except that PTS symptoms were included as a Level 1 predictor (β_2) and mean PTS symptoms were included as a Level 2 predictor (γ_{06}). HLM models used maximum likelihood estimation to analyze all available data.

Results

A total of 82 women with stalking exposure within the last month completed surveys at baseline. The mean age of participants was 26 years ($SD = 3.28$). Participants primarily identified as Caucasian/White (58.5%), followed by Black/African American (14.6%), Biracial (14.6%), Asian (11%), and American Indian or Alaskan Native (1.2%). Three participants (3.7%) identified as Hispanic. The majority of women in this sample were single (61%) and lived with others (i.e. not in a residence by themselves; 78%). For over half of participants (54.8%), the stalker was a past romantic partner. In other cases, the stalker was identified as a stranger (23%) or acquaintance (20.7%).

Descriptive statistics for study variables including means and standard deviations (SD) are presented in Table 1. Means for depressive and PTS symptoms throughout the study (+/- standard error of the mean [SEM]) are depicted in Figure 1. Mean depressive symptom severity scores fell within the mild range across all time points; however, 39.5% of

participants reported scores reflecting moderate-to-severe depression severity at baseline (BDI-II 20; Beck et al., 2004). Prior work with veterans suggests that a cutoff score of 31 to 33 on the PCL-5 indicates probable PTSD (Bovin et al., 2016); based on this cutoff, 20–30% of participants reported scores reflecting probable PTSD at baseline. Preliminary MLMs without substantive predictors revealed significant within-person decreases in PTS symptoms over the three-month study period ($b = -2.48$, $SE = 0.60$, $p < .001$) but no significant changes in depressive symptoms over time ($b = -0.47$, $SE = 0.49$, $p = .34$). Correlations among study variables across follow-up are presented in Table 2. All significant associations are in the expected direction.

Relations Between Negative Cognitions and Depressive Symptoms

Results of MLMs testing negative cognitions as predictors of concurrent changes in depressive and PTS symptoms are presented in Table 3. Within-person increases in negative cognitions about the self ($b = 3.94$, $SE = 0.98$, $p < .001$) and the world ($b = 1.12$, $SE = 0.56$, $p < .05$) were independently associated with higher concurrent depressive symptom levels at each assessment, over and above the influence of PTS symptoms, time, age, race, ethnicity, lifetime stalking victimization, and childhood trauma exposure. However, changes in self-blame were not associated with changes in depressive symptom levels ($b = -1.13$, $SE = 0.68$, $p = .10$).² Higher mean levels of PTS symptoms ($b = 0.27$, $SE = 0.09$, $p < .01$) and negative cognitions about the self ($b = 4.21$, $SE = 1.58$, $p = .01$) throughout the study were associated with higher depressive symptom levels at the baseline assessment. Neither lifetime stalking victimization ($b = 0.03$, $SE = 0.05$, $p = .57$) nor childhood trauma exposure ($b = 0.07$, $SE = 0.07$, $p = .30$) were associated with depressive symptom levels at the baseline assessment.

Relations Between Negative Cognitions and PTS Symptoms

Within-person increases in negative cognitions about the world ($b = 2.37$, $SE = 0.79$, $p < .01$) were associated with higher concurrent PTS symptom severity levels at each assessment, controlling for depressive symptoms, time, age, race, ethnicity, lifetime stalking victimization, and childhood trauma exposure. However, changes in negative cognitions about the self ($b = 1.35$, $SE = 1.47$, $p = .36$) and self-blame ($b = 1.10$, $SE = 0.99$, $p = .27$) were not associated with concurrent changes in PTS symptom levels.³ Higher mean depressive symptom levels ($b = 0.39$, $SE = 0.13$, $p < .01$) and negative cognitions about the self ($b = 8.71$, $SE = 1.67$, $p < .001$) throughout the study were associated with higher PTS symptom levels at baseline. In contrast, higher mean negative cognitions about the world throughout the study were associated with *lower* PTS symptom levels at baseline ($b = -2.56$,

²To address concerns regarding symptom overlap among the PCL-5, BDI-II, and PTCL, items from the BDI-II assessing negative cognitions (i.e., pessimism, guilt feelings, punishment feelings, self dislike, self criticalness, worthlessness) and one item that overlapped with the PCL-5 (i.e., irritability) were removed and a revised total score was computed. The pattern of results remained essentially the same: both negative cognitions about the self ($b = 2.46$, $SE = .75$, $p = .002$) and PTS symptoms ($b = 0.13$, $SE = 0.06$, $p = .042$) remained significantly associated with depressive symptoms, but negative cognitions about the world were now positively associated with depressive symptoms at the level of a non-significant trend ($b = 0.82$, $SE = 0.43$, $p = .057$).

³To address concerns regarding symptom overlap among the PCL-5, BDI-II, and PTCL, items from the PCL-5 assessing negative cognitions (i.e., “Having strong negative beliefs about yourself, other people, or the world?”, “Blaming yourself or someone else for the stressful experience or what happened after it?”) and depressive symptoms (i.e., “Loss of interest in activities that you used to enjoy?”, “Feeling distant or cut off from other people?”, “Having difficulty concentrating?”, “Trouble falling or staying asleep?”) were removed and a revised total score was computed. The pattern of results remained essentially the same: negative cognitions about the world remained positively and significantly associated with PTS symptoms ($b = 1.97$, $SE = 0.56$, $p = .001$) but depressive symptoms were now positively associated with PTS symptoms at the level of a non-significant trend ($b = 0.21$, $SE = 0.11$, $p = .057$).

$SE = 0.84, p < .01$). Whereas greater lifetime stalking victimization at baseline was associated with higher mean PTS symptom levels ($b = 0.28, SE = 0.05, p < .001$), childhood trauma exposure was not associated with mean PTS symptom levels ($b = 0.04, SE = 0.08, p = .57$).

Discussion

Major depression and PTSD are highly prevalent among stalking victims (Dressing et al., 2005; Kamphuis et al., 2003; Pathé & Mullen, 1997; Sheridan et al., 2003). The primary aim of the present study was to determine if posttraumatic cognitions play a role in the development of symptoms of these disorders in women with recent stalking exposure. Levels of posttraumatic cognitions among stalking victims were comparable to those in other studies of trauma-exposed individuals (Beck et al., 2004; Foa et al., 1999; Lancaster et al., 2011). It was hypothesized that more negative cognitions related to the self, world, and self-blame would be associated with higher depressive and PTS symptom levels. Changes in cognitions were differentially associated with concurrent changes in depressive and PTS symptoms over time, after controlling for the influence of time, age, race, ethnicity, lifetime stalking victimization, childhood trauma exposure, and symptoms of the other disorder. Findings provided support for the potential utility of negative cognitions as risk markers for depressive and PTS symptoms in young adult female stalking victims.

The present findings demonstrate for the first time that negative cognitions about the self and world are independently associated with higher concurrent depressive symptom levels in recent stalking victims, *over and above* the influence of PTS symptoms. Negative cognitions about the self and the world are vulnerability factors for depression in general (Ingram et al., 1998) and for depression following trauma exposure (Beck et al., 2004; Foa et al., 1999). One cross-sectional study of stalking victims revealed that rumination and catastrophizing were associated with higher depressive symptom levels (Kraaij et al., 2007). Notably, the three negative inferential styles implicated in the hopelessness theory of depression (i.e., tendency to infer stable and global causes, negative consequences, and negative self-characteristics in response to negative events) (Abramson, Metalsky & Alloy, 1989) overlap considerably with the negative self and world subscales of the PTCI.

Contrary to expectation, but consistent with one prior study of motor vehicle accident survivors (Beck et al., 2004), self-blame was not associated with depressive symptoms. As other researchers have noted (Startup et al., 2007), the PTCI self-blame subscale contains items that assess both behavioral and characterological self-blame. Behavioral self-blame involves attributing the causes of events to an individual's specific (in)actions, is associated with guilt, and could be adaptive; in contrast, characterological self-blame involves attributing the causes of events to an individual's character, is associated with shame, and is generally considered maladaptive (Janoff-Bulman, 1979). Prior work shows that depressive symptoms are more strongly associated with characterological than behavioral self-blame (Tilghman-Osborne, Cole, Felton, & Ciesla, 2008), which suggests that future studies should assess these constructs separately in recent stalking victims. Notably, depressive symptom levels at baseline were not significantly associated with either childhood trauma exposure or lifetime stalking victimization.

Despite the inclusion of negative cognitions about the self and self-blame as symptoms of PTSD in the DSM-5 (APA, 2013), and empirical support for their ability to discriminate between trauma-exposed individuals with and without PTSD (Foa et al., 1999), neither of these PTCI subscales were associated with concurrent changes in PTS symptoms among recent stalking victims. Instead, the present findings indicate that only negative cognitions about the world were associated with higher PTS symptom levels, after controlling for concurrent depressive symptoms. The PTCI negative world subscale includes items that assess beliefs in an unsafe world and mistrust of other people. A lack of trust and sense of security in the world and others could lead to increases in the following PTS symptoms: behavioral avoidance, hypervigilance, an exaggerated startle response, and a sense of detachment or estrangement from others (APA, 2013). Negative cognitions about the world may have particular clinical relevance for victims of stalking, as stalking involves a persistent threat to one's safety and wellbeing.

The absence of a relationship between self-blame and PTS symptoms in the present study conflicts with previous findings showing positive associations between self-blame and PTSD following interpersonal violence (Moor & Farchi, 2011; O'Neill & Kerig, 2000). Inconsistent findings regarding self-blame and PTSD have been highlighted by other researchers (Reich et al., 2014) and could be driven, in part, by the aforementioned failure to distinguish behavioral from characterological self-blame (Startup et al., 2007). The absence of a relationship between changes in negative cognitions about the self and PTS symptoms may be due to the inclusion of time-varying BDI-II scores in MLMs, which suggests the unique importance of these cognitions as risk factors for depressive symptoms. In the present study, women reporting greater lifetime stalking victimization at baseline also had higher PTS symptom levels across the study, suggesting that a history of stalking exposure could sensitize women to more recent stalking experiences. Notably, childhood trauma exposure was not associated with PTS symptoms in this sample.

Some researchers have argued that "the bulk of psychopathology in the aftermath of trauma is best conceptualized as a general traumatic stress factor" (O'Donnell, Creamer, & Pattison, 2004, p. 1395). The present findings inform this debate by revealing both unique and shared risk factors for depressive and PTS symptoms following recent stalking exposure. Whereas negative cognitions about the world represent a shared risk factor for both depressive and PTS symptoms, negative cognitions about the self could reflect a specific vulnerability to depressive symptoms in stalking victims.

Limitations of this study provide directions for future research. First, this study included a modest sample size of young adult women and requires replication in larger and more diverse samples. Second, the reliance on self-report measures introduces the potential for retrospective biases such that participants reporting higher levels of depressive and/or PTS symptoms at baseline may have been more likely to recall childhood trauma exposure and more instances of stalking victimization. Third, while the longitudinal design allowed examination of within-person relations between cognitions and posttraumatic symptoms over time and extends prior work conducted primarily using cross-sectional designs, the 'post-post' design did not include assessments of cognitions and mental health functioning *prior to* stalking exposure. Prospective designs that assess women before their first

experience of stalking are needed to determine whether negative cognitions are trait markers predating stalking exposure, state-like concomitants of posttraumatic symptoms, or cognitive 'scar markers' emerging as a result of stalking exposure (Adam, Sutton, Doane, & Mineka, 2008). Future work in this area should include semi-structured clinical interviews to determine rates of current and lifetime psychiatric diagnoses among stalking victims, and their associations with cognitions. Fourth, mental health service utilization – which could have influenced cognitions and depressive/PTS symptoms - was not assessed during the study. Fifth, although the measures used in the present study to assess depressive and PTS symptoms and posttraumatic cognitions are all well-validated, they exhibit a high degree of symptom overlap. Reassuringly, the pattern of findings remained essentially unchanged when overlapping items were removed. Nevertheless, addressing this measurement issue for these constructs remains a significant challenge for the field of trauma research. Finally, the data is correlational and precludes causal inferences regarding temporal relations between cognitions and depressive and PTS symptoms.

In conclusion, this study highlights both the severity of depressive and PTS symptoms in recent stalking victims as well as the potential role of posttraumatic cognitions as risk factors for these mental health outcomes. While certain aspects of the stalking experience may be difficult or impossible to control, cognitions are potentially amenable to psychotherapeutic interventions (Ehlers & Clark, 2000; Ingram et al., 1998). Reductions in negative cognitions during Prolonged Exposure therapy for PTSD have been shown to predict subsequent decreases in both PTS and depressive symptoms in female assault survivors (Zalta et al., 2014). The present findings suggest that early interventions targeting symptom-specific thinking patterns in women recently exposed to stalking may help prevent or reduce both depressive and PTS symptoms. Evidence for differential associations among negative cognition subtypes and depressive/PTS symptoms could inform how clinicians prioritize and implement cognitive behavioral approaches. For example, targeting negative cognitions about the self may be especially important for individuals presenting with elevated depressive symptoms in the aftermath of stalking exposure. Addressing negative cognitions early in treatment may have the added benefit of increasing motivation to seek help through the criminal justice system, as expectations that no one will believe them or that the police would not take action (i.e., negative cognitions about the self/world) prevent many women from reporting stalking or seeking orders of protection (Logan, 2010). Future studies should further unpack cognitive vulnerability factors unique to stalking victims and assess whether interventions targeting these cognitions improve the health and wellbeing of those impacted by stalking victimization.

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Figure 1.
Mean Depressive (BDI-II) and Posttraumatic Stress (PCL-5) Symptom Scores (+/- SEM) from Baseline Assessment to Three-Month Follow-Up.

Table 1.

Demographic and Descriptive Statistics

Variable	Baseline		1 Month		2 Month		3 Month	
	<i>n</i>	%						
Race								
Caucasian/White	48	58.5%						
Black/African American	12	14.6%						
Biracial	12	14.6%						
Asian	9	11.0%						
American Indian or Alaskan Native	1	1.2%						
Hispanic	3	3.7%						
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	26	3.28						
Childhood trauma (CTQ)	33.72	15.17						
Lifetime stalking victimization (ORI)	29.08	27.04						
Posttraumatic cognitions (PTCI)								
Negative self	2.55	1.31	2.26	1.33	2.24	1.27	2.30	1.47
Negative world	4.22	1.75	3.95	1.91	3.75	1.76	3.78	1.83
Self-blame	2.58	1.42	2.45	1.45	2.36	1.51	2.40	1.55
Depressive symptoms (BDI-II)	19.31	13.87	17.59	14.11	14.50	13.07	15.00	14.56
PTS symptoms (PCL-5)	23.09	20.10	17.32	18.21	16.11	18.28	12.38	17.61

Note. CTQ = Childhood Trauma Questionnaire; ORI = Obsessive Relational Intrusion Scale-Short Form; PCTI = Posttraumatic Cognitions Inventory; BDI-II = Beck Depression Inventory-Second Edition; PTS = posttraumatic stress; PCL-5 = Posttraumatic Stress Disorder Checklist for DSM-5.

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Note. CTQ = Childhood Trauma Questionnaire; ORI = Obsessive Relational Intrusion Scale – Short Form; BDI = Beck Depression Inventory – Second Edition; PCL = Posttraumatic Stress Disorder Checklist for DSM-5; Self, World, Blame = Posttraumatic Cognitions Inventory (PTCI) subscales.

Table 3.

Multilevel Models Predicting Posttraumatic Symptomology

Predictors	Model 1 (Depressive symptoms)	Model 2 (PTS symptoms)
	Coefficient <i>b</i> (SE)	Coefficient <i>b</i> (SE)
Intercept (baseline symptom level)	18.55 (0.84) ***	22.32 (1.07) ***
Age	−0.51 (0.26) *	0.24 (0.31)
Race	−0.05 (0.66)	−0.21 (0.79)
Hispanic	−6.23 (4.32)	4.01 (5.24)
Childhood trauma	0.07 (0.07)	0.05 (0.08)
Lifetime stalking victimization	0.03 (0.05)	0.28 (0.05) ***
Depressive symptoms mean		0.39 (0.13) **
PTS symptoms mean	0.27 (0.09) **	
Negative self mean	4.21 (1.58) **	8.71 (1.67) ***
Negative world mean	0.88 (0.74)	−2.56 (0.84) **
Self-blame mean	−0.49 (0.89)	−2.05 (1.05)
Slope (linear change over follow-up)		
Time	−0.20 (0.40)	−1.51 (0.49) **
Depressive symptoms		0.34 (0.12) **
PTS symptoms	0.17 (0.06) **	
Negative self	3.94 (0.98) ***	1.35 (1.47)
Negative world	1.12 (0.56) *	2.38 (0.79) **
Self-blame	−1.13 (0.68)	1.10 (0.99)

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Note. PTS = posttraumatic stress.