UNDERSTANDING THE ROLE OF NEGATIVE COGNITIONS IN PTSD TREATMENT CHOICE

by

HANNAH ELLEN BERGMAN

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Master’s Advisor: Dr. Norah C. Feeny

Department of Psychological Sciences
CASE WESTERN RESERVE UNIVERSITY

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SCHOOL OF GRADUATE STUDIES

We hereby approve the thesis of

Hannah Ellen Bergman

Candidate for the Master of Arts degree*.

(Signed) Norah Feeny, Ph.D.

(Chair of the committee)

James Overholser, Ph.D.

Julie Exline, Ph.D.

(Date) May 13, 2013

*We also certify that written approval has been obtained for any proprietary materials contained therein.
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Understanding the Role of Negative Cognitions in PTSD Treatment Choice

Abstract

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Although psychotherapy and pharmacotherapy are empirically supported PTSD treatments, they are not selected equally, as most prefer therapy over medication. Given that individuals appear to have clear treatment preferences, it is important to understand what pre-existing factors influence these preferences. One potentially important factor in treatment choice are negative cognitions, as evidence has found that negative cognitions play a central role in PTSD. We explored the relationship between negative cognitions and PTSD treatment choice. Two hundred three trauma-exposed community members completed measures regarding the decision-making process surrounding PTSD treatment. Results indicated that negative cognitions are indirectly related to PTSD treatment choice. Greater negative cognitions predicted more severe psychopathology which predicted the selection of a medication treatment. Understanding the factors that influence treatment preference is vital because it may dictate how we talk to potential treatment seekers, how to describe the treatment options, and how to best personalize treatment options.
Understanding the Role of Negative Cognitions in PTSD Treatment Choice

Posttraumatic stress disorder (PTSD) is an anxiety disorder that can develop after an individual experiences a traumatic event, such as physical assault, sexual assault, accident, or military combat (American Psychiatric Association [APA], 2000). Exposure to trauma is common in the United States, as most people have experienced or will experience a potentially traumatic event during their lifetime. Lifetime prevalence of trauma exposure ranges from 55.7% (Kessler, Somnega, Bromet, Hughes, & Nelson, 1995) to 89.6% (Breslau et al., 1998). In order to meet diagnostic criteria for PTSD, an individual must endorse specific criteria as defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000), which includes experiencing a Criterion A traumatic event and endorsing symptoms from three different symptom clusters (reexperiencing, avoidance and emotional numbing, and hyperarousal). Although most individuals who experience a trauma recover naturally, a significant minority develops PTSD. Lifetime prevalence of PTSD ranges between 7 to 12% (Breslau et al., 1998; Kessler et al., 1995; Kessler et al., 2005; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Due to the high prevalence of PTSD development after a trauma, it is important to have adequate treatments available to best serve treatment seekers. Even with viable PTSD treatment options, getting individuals to enter and stay in treatment can be difficult, as individuals with PTSD may not seek immediate treatment and may even delay treatment contact for a number of years (Wang et al., 2005). Thus it is vital to understand the factors that go into this treatment decision process, such as demographics, psychopathology, and treatment beliefs.

Research regarding PTSD treatment choice and negative cognitions represent two
critical aspects of the PTSD literature that can help us to better understand this mental health problem. Understanding the PTSD treatment decision process is important because evidence supports the use of both psychotherapy and pharmacotherapy as viable treatment options (Foa, Keane, Friedman, & Cohen, 2009; Institute of Medicine [IOM], 2008). However, these treatments are not chosen equally as most prefer therapy over medication (Barlow, 2004). Since individuals appear to have clear treatment preferences, researchers have started to identify specific factors influence these preferences (Angelo, Miller, Zoellner, & Feeny, 2008; Chen, Keller, Zoellner, & Feeny, 2011; Cochran, Pruitt, Fukuda, Zoellner, & Feeny, 2008; Feeny, Zoellner, & Kahana, 2009; Feeny, Zoellner, Mavissakalian et al., 2009; Zoellner, Feeny, Cochran, & Pruitt, 2003; Zoellner, Feeny, & Bittinger, 2009). Research has identified specific pre-existing factors that influence PTSD treatment choice, such as treatment beliefs (e.g., Zoellner et al., 2009) and previous treatment history (e.g., Pruitt, Zoellner, Feeny, Caldwell, & Hanson, 2012).

Negative cognitions refer to dysfunctional thoughts and beliefs individuals may have about themselves and the world. Many theoretical models (e.g., Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Janoff-Bulman, 1989) support the view that negative cognitions play a central role in the development, maintenance, and persistence of PTSD. Because of the centrality of negative cognitions to PTSD, negative cognitions may affect an individual’s treatment choice since these beliefs may impact how an individual views different PTSD treatments. Although research has examined PTSD treatment choice and negative cognitions extensively, it has focused on each aspect separately. No research, to our knowledge, has specifically focused on the possible association between these two important aspects.
Thus the current study focused on the potential relationship between negative cognitions and PTSD treatment choice and aimed to clarify how other variables (e.g., psychopathology and treatment beliefs) may also influence the treatment decision process. To better understand the potential relationship between negative cognitions and PTSD treatment, each concept will be examined separately and then together. First, negative cognitions and PTSD will be discussed to show how negative cognitions relate to the development, maintenance, and persistence of PTSD. Next, treatment choice will be discussed in regard to PTSD treatment preference and the factors that have been identified to influence treatment choice. Finally, the potential relationship between negative cognitions and PTSD treatment choice will be discussed.

**Understanding Negative Cognitions and PTSD**

**Theoretical Models and Assessment**

Numerous theoretical models of PTSD highlight the centrality of negative cognitions (e.g., Brewin & Holmes, 2003; Ehlers & Clark, 2000; Foa & Cahill, 2001; Foa & Rothbaum, 1998; Janoff-Bulman, 1989). A number of theories have been particularly influential in understanding negative cognitions among traumatized individuals. The theory of shattered assumptions (Janoff-Bulman, 1989; 1992) explains that PTSD develops because basic assumptions and beliefs individuals have are “shattered” after they experience a trauma. According to the emotional processing theory (EPT; Foa & Riggs, 1993; Foa & Rothbaum, 1998), PTSD develops and is maintained when there is a failure of the natural recovery process. The natural recovery process requires the ability to process the memory and implement adaptive behavioral strategies through disconfirming negative cognitions by encountering corrective information in daily life.
Finally, the Ehlers and Clark (2000) cognitive model of PTSD describes how PTSD develops, is maintained, and persists over time. Although the trauma occurred in the past, individuals develop a sense of current threat via negative appraisals of the trauma and/or its sequelae and incorrect encoding of the traumatic memory. Each theory, over time, has added to our understanding of negative cognitions and its role in PTSD.

In addition to understanding theoretical models about PTSD that emphasize the role of negative cognitions, it is also important to examine how negative cognitions are assessed. Directly assessing negative cognitions determines not only what negative cognitions an individual may have after experiencing a trauma, but can also show change in negative cognitions through the course of treatment. Measures, such as World Assumptions Scale (WAS; Janoff-Bulman, 1989), the Personal Beliefs and Reactions Scale (PBRS; Resick, Schnicke, & Markway, 1991), and the Posttraumatic Cognitions Inventory (PTCI, Foa, Ehlers, Clark, Tolin, & Orsillo, 1999), are needed in order to empirically test theories such as, theory of shattered assumptions (Janoff-Bulman, 1989; 1992), EPT (Foa & Riggs, 1993; Foa & Rothbaum, 1998), and the cognitive model of PTSD (Ehlers & Clark, 2000).

Currently, the PTCI is the preferred measure among clinicians and researchers (e.g., Beck et al., 2004; Foa, Ehlers et al., 1999; Daie-Gabai, Aderka, Allon-Schindel, Foa, & Gilboa-Schechtman, 2011; Müller et al., 2010; Su & Chen, 2008; van Emmerik, Schoorl, Emmelkamp, & Kamphuis, 2006) because it assesses negative cognitions specifically related to PTSD (Foa, Ehlers et al., 1999) instead of cognitions related to a wide range of symptoms traumatized individuals may experience (e.g., WAS and PBRS; Janoff-Bulman, 1989; Resick et al., 1991). The PTCI assesses negative cognitions about
the world, self, and self-blame and is comprised of three subscales: Negative Cognitions About Self (SELF; e.g., “I can’t trust that I will do the right thing”), Negative Cognitions About the World (WORLD; e.g., “People can’t be trusted”), and Self-Blame (BLAME; e.g., “The event happened because of the way I acted”). More detailed description of the PTCI’s psychometrics is in the Method section. The next section will highlight research that has used the PTCI in samples of traumatized individuals with and without PTSD.

**Examination of the Relationship between Negative Cognitions and PTSD**

Although the theoretical models highlighting the role of negative cognitions in PTSD may differ, there is one general commonality: negative cognitions play a fundamental role in the development, maintenance, and persistence of PTSD. Additionally, PTCI is currently the preferred measure for capturing the various aspects of negative cognitions that are specifically related to PTSD. Although the major aim of the current study is to examine the relationship between negative cognitions and PTSD treatment choice, this relationship does not occur in isolation. Thus the goal of this next section is to highlight the research that has not only studied the general relationship between negative cognitions (as assessed by the PTCI) and PTSD, but also specifically examined other factors that may affect this relationship.

**Gender.** Although males are more likely to experience a trauma, females are twice as likely to develop PTSD (Kessler et al., 1995). While few studies have specifically addressed the relationship between negative cognitions and gender, it appears that females have more negative cognitions than males following a traumatic event (Cromer & Smyth, 2010; Daie-Gabai et al., 2011). However, there are inconsistencies pertaining to what type of negative cognitions (world, self, or self-blame) account for the
gender difference. In a sample of undergraduates, males and females were only significantly different on negative cognitions about the world (Cromer & Smyth, 2010). However, in an Israeli sample (Daie-Gabai et al., 2011), females had more severe negative cognitions about the self compared to males. The current study seeks to extend these findings in a larger, more diverse sample to better understand the relationship between gender and negative cognitions, which may help to better explain the gender discrepancy in PTSD diagnosis.

Trauma type. Understanding the association between trauma type (e.g., sexual assault) and negative cognitions is important because not everyone who experiences a trauma develops the same negative cognitions. Research consistently shows that negative cognitions differ based on the trauma experienced; individuals who experience an interpersonal trauma have more severe negative cognitions than individuals who experience a non-interpersonal trauma (Cromer & Smyth, 2010; Foa, Ehlers et al., 1999; Müller et al., 2010; Startup, Makgekgenene, & Webster, 2007; Su & Chen, 2008). As negative cognitions are affected by trauma type, it is important to understand so that we know which negative cognitions may be of particular focus during treatment. The current study seeks to replicate the overall findings of trauma type and negative cognitions.

PTSD diagnosis. Research has clearly defined the relationship between PTSD and negative cognitions: individuals diagnosed with PTSD have more severe negative cognitions than individuals who do not have PTSD (Agar, Kennedy, & King, 2006; Beck et al., 2004; Daie-Gabai et al., 2011; Foa, Ehlers et al., 1999; Matthews, Harris, & Cumming, 2009; Müller et al., 2010; Karl, Rabe, Zöllner, Maercker, & Stopa, 2009; Pérez Benítez, Zlotnick, Gomez, Rendón, & Swanson, 2013; Startup et al., 2007; Su &
Chen, 2008; van Emmerik et al., 2006). Even when comparing individuals with differing PTSD diagnostic criteria (e.g., without PTSD, subthreshold, or with PTSD), individuals with PTSD had the most severe negative cognitions and there was no significant difference between the other diagnostic groups (Beck et al., 2004; Foa, Ehlers et al., 1999; Karl et al., 2009; van Emmerik et al., 2006). However, the relationship between negative cognitions regarding self-blame and PTSD diagnosis is unclear. For example, some studies found an association in samples of assault victims (Foa, Ehlers et al., 1999) and victims of accidents and natural disasters (Sun & Chen, 2008), while other studies did not find in this association in samples of MVA victims (Beck et al., 2004) and victims of accidents (Matthews et al., 2009). There is a strong relationship between negative cognitions and PTSD diagnosis and thus the current study seeks to replicate and extend these findings in a larger and diagnostically diverse sample.

**PTSD symptom severity.** Evidence has found a robust positive relationship between negative cognitions and PTSD severity in cross-sectional studies (Blain, Galovski, Elwood, & Meriac, 2012; Buodo, Novara, Ghisi, & Palomba, 2012; Carek, Norman, & Barton, 2010; Constans et al., 2012; Daie-Gabai et al., 2011; Foa, Ehlers et al., 1999; Karl et al., 2009; Su & Chen, 2008; van Emmerik et al., 2006). Among traumatized individuals, the level of PTSD severity is mostly influenced by how severe their negative cognitions are about themselves (not including self-blame) and the world (Agar et al., 2006; Beck et al., 2004; Bryant & Guthrie, 2005; Bryant & Guthrie, 2007; Buodo et al., 2012; Cromer & Smyth, 2010; Field et al., 2008; Moser, Hajcak, Simons, & Foa, 2007; Müller et al., 2010; Startup et al., 2007). In addition, the severity of negative cognitions about the self is the best predictor of PTSD severity over and above other
variables such as gender, depression, and other negative cognitions (Blain et al., 2012; Bryant & Guthrie, 2005; Bryant & Guthrie, 2007; Field et al., 2008; Moser et al., 2007; Startup et al., 2007). However, the relationship between negative cognitions regarding self-blame, trauma type, and PTSD severity is unclear. Among individuals with non-interpersonal traumas, there is a weak or non-significant relationship between self-blame negative cognitions and PTSD severity (Beck et al., 2004; Field et al., 2008). Yet, this relationship exists in interpersonal trauma samples (Foa, Ehlers et al., 1999; Müller et al., 2010; Startup et al., 2007).

Recent longitudinal research has also found a significant relationship between negative cognitions and PTSD severity in samples of firefighters (Bryant & Guthrie, 2005; Bryant & Guthrie, 2007), injury survivors (O’Donnell, Elliot, Wolfgang, & Creamer, 2007), and mixed trauma survivors (Shahar, Noyman, Schnidel-Allon, & Gilboa-Schechtman, 2013). In particular, negative cognitions about the self are the best determinants of PTSD severity over time. In sum, there appears to be a clear relationship between negative cognitions and PTSD severity. However, further testing of this relationship is warranted to better understand and improve our knowledge about how negative cognitions impact PTSD severity over time.

**Depression.** It is important to understand the relationship between depression and negative cognitions because of the high co-occurrence between PTSD and depression (e.g., Kessler et al., 1995; Rytwinski, Scur, Feeney, & Youngstrom, in press) and associated symptom severity and impairment (Post, Zoellner, Youngstrom, & Feeney, 2011). Although negative cognitions and depression are related (e.g., Müller et al., 2010), negative cognitions still make an independent contribution to PTSD; studies have found
that negative cognitions are still significant contributors to PTSD severity even after controlling for depression (Beck et al., 2004; Daie-Gabai et al., 2011; Karl et al., 2009; Su & Chen, 2008; van Emmerik et al., 2006). Thus it is important to understand the unique contributions of both negative cognitions and depression to PTSD.

Although research has found a consistent overall relationship between negative cognitions and depression (Beck et al., 2004; Daie-Gabai et al., 2011; Karl et al., 2009; Müller et al., 2010; Su & Chen, 2008; van Emmerik et al., 2006), there are some discrepancies about which types of negative cognitions (i.e., self, world, or self-blame) have the strongest relationship with depression. For example, some of the studies found that negative cognitions about the self, world, and about self-blame all have positive correlations with depression (Daie-Gabai et al., 2011; Su & Chen, 2008; van Emmerik et al., 2006). However, other studies have only found positive correlations between negative cognitions about the self and world with depression (Beck et al., 2004; Buodo et al., 2012; Müller et al., 2010) or only a positive correlation between negative cognitions about the self with depression (Karl et al., 2009).

Research supports the view that both negative cognitions and depression make unique contributions PTSD (e.g., Beck et al., 2004; Daie-Gabai et al., 2011). However, since many individuals who seek treatment suffer from both PTSD and depressive symptoms, it is vital to understand how negative cognitions fit within this complex relationship, as it may affect the type of treatment these individuals want.

**Treatment history and treatment beliefs.** There is a paucity of research examining the relationships between treatment history and negative cognitions as well as treatment beliefs and negative cognitions as assessed by the PTCI. However,
understanding these relationships is important because treatment history (e.g., Pruitt et al., 2012) and treatment beliefs (e.g., Zoellner et al., 2009) are implicated in the PTSD treatment choice process. Since these variables appear to affect treatment choice, it is also important to understand how they may affect negative cognitions, so that there is a more complete picture of the overall relationship between negative cognitions and PTSD treatment choice. The current study will explore the potential influence of these variables on negative cognitions.

**PTSD Treatment and Treatment Choice**

Without appropriate treatment, PTSD can become a debilitating disorder (Kessler et al., 1995). Evidence supports the use of both psychotherapy and pharmacotherapy as effective PTSD treatments (Foa et al., 2009; IOM, 2008). Some of the strongest evidence validates the use of prolonged exposure (PE; IOM, 2008; Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010), a type of cognitive behavioral therapy, as the frontline treatment for PTSD. Meta-analytic findings suggest that individuals in PE had better treatment outcomes than 86% of individuals in the control groups (wait-list or psychological placebo) (Powers et al., 2010). Research also supports the efficacy of selective serotonin reuptake inhibitors (SSRIs), such as sertraline (SER; Brady et al., 2000; Davidson, Rothbaum, van der Kolk, Sikes, & Farfel, 2001; Stein, Ipser, & Seedat, 2006). Meta-analytic findings provide the most support for the efficacy of SSRIs as compared to monoamine oxidase inhibitors and tricyclic antidepressants (Stein et al., 2006).

Although both psychotherapy and pharmacotherapy are viable treatment options for PTSD, it is does not mean they are selected equally, as most individuals have a strong opinion about which treatment they prefer (Barlow, 2004). Generally, individuals prefer
therapy over medication for their trauma-related symptoms (Becker, Darius, & Schaumberg, 2007; Becker et al., 2009; Roy-Byrne, Berlinger, Russo, Zatzick, & Pitman, 2003; Tarrier, Liversidge, & Gregg, 2006). For PTSD specifically individuals prefer PE over SER (Angelo et al., 2008; Chen et al., 2011; Cochran et al., 2008; Feeny, Zoellner, & Kahana, 2009; Feeny, Zoellner, Mavissakalian et al., 2009; Reger et al., 2012; Zoellner et al., 2003; Zoellner et al., 2009).

Factors Influencing PTSD Treatment Choice

Although the research is clear that most individuals prefer PE over SER, only recently have studies addressed and examined factors that may influence individuals’ treatment choice (Becker et al., 2007; Becker et al., 2009; Feeny, Zoellner, & Kahana, 2009; Feeny, Zoellner, Mavissakalian et al., 2009; Pruitt et al., 2012; Reger et al., 2012; Roy-Byrne et al., 2003; Rytwinski, Rosoff, Feeny, & Zoellner, 2013; Tarrier et al., 2006; Zoellner et al., 2003; Zoellner et al., 2009). It is important to understand what influences an individual’s treatment choice decision, as recognizing these factors is crucial in identifying what type of treatment an individual wants. For example, research has found that beliefs (e.g., credibility and personal reactions) about PTSD treatment are good predictors of PTSD treatment choice (e.g., Zoellner et al., 2003; Zoellner et al., 2009).

The preference for PE has been found in college undergraduates (Cochran et al., 2008; Feeny, Zoellner & Khana, 2009; Zoellner et al., 2003), community members (Angelo et al., 2008; Chen et al., 2011; Feeny, Zoellner, Mavissakalian et al., 2009), and military personnel (Reger et al., 2012) that are making either a hypothetical (Angelo et al., 2008; Cochran et al. 2008; Feeny, Zoellner, & Khana, 2009; Feeny, Zoellner, Mavissakalian et al., 2009; Reger et al., 2012; Zoellner et al., 2003) or real PTSD
treatment decision (Chen et al., 2011; Feeny, Zoellner, Mavissakalian et al., 2009). In the hypothetical treatment studies, participants were asked to imagine that they had developed PTSD as a result of a trauma or think about their own traumatic experience. The majority in each of the samples selected PE over SER or no treatment. In the real treatment studies, participants were asked to select which treatment they wanted, as this would be the treatment they would actually receive. The majority in each of the samples selected PE. PE appears to be the preferred treatment regardless if the treatment choice is hypothetical or real, indicating that clients do have strong preferences for which treatment they want. The goal of this section is to highlight research that has studied variables that may influence PTSD treatment preference.

**Gender.** Although males are more likely to experience a trauma, females are more likely to develop PTSD as a result of a traumatic event (Kessler et al., 1995). While few studies have addressed the relationship between gender and treatment preference, the results have been mixed (Chen et al., 2011; Pruitt et al., 2012; Roy-Byrne et al., 2003). Roy-Byrne and colleagues (2003) found that female gender was associated with a preference for medication or for counseling. However, this relationship was not found in samples of treatment-seeking males and females with chronic PTSD (Chen et al., 2011), undergraduates, and community members (Pruitt et al., 2012). As there have been mixed findings, the current study seeks to clarify and further examine the potential relationship between gender and treatment choice.

**Treatment history.** Treatment history refers to past therapy and/or medication an individual has received. Understanding treatment history can help clinicians determine if past treatment experience may influence a current treatment decision. There have been
mixed findings on the association between treatment history and treatment choice with some evidence supporting no relationship in samples of treatment-seeking males and females with chronic PTSD (Chen et al., 2011; Feeny, Zoellner, Mavissakalian et al., 2009), trauma-exposed females (Angelo et al., 2008), and undergraduates (Rytwinski et al., 2012) and other evidence supporting this relationship in samples of undergraduates and community members (Pruitt et al., 2012; Rytwinski et al., 2012) and military personnel (Reger et al., 2012). Although the research is mixed in regards to treatment history and treatment choice, it is still important understand an individual’s treatment history as it may affect how and what they select as their preferred treatment. Thus the current study seeks to clarify and extend this relationship in a large sample with varying treatment histories.

**Trauma type.** Few studies have specifically explored the association between trauma type and treatment choice. Roy-Byrne and colleagues (2003) interviewed victims of physical and sexual assault in an ER of an urban hospital asking individuals if they were interested in seeking treatment and what type of treatment would they prefer, counseling or medication. Individuals who experienced a sexual assault were likely to select medication or therapy as their treatment choice as compared with individuals who experienced a physical assault. Treatment choice was also examined in a sample of trauma-exposed females and sample of females with assault-related chronic PTSD (Feeny, Zoellner, Mavissakalian et al., 2009). Because no association was found between trauma type and treatment choice in the first sample, this variable was not furthered examined. The current study, using a mixed trauma sample, will examine this relationship to better understand if the type of trauma experienced does influence which
treatment an individual prefers.

**PTSD diagnosis and symptom severity.** Prior studies have also examined the relationship between PTSD diagnosis and treatment choice. Research generally supports the finding that PTSD diagnosis does not drive treatment choice and this has been replicated in samples of trauma-exposed males and females (Angelo et al., 2008; Feeny, Zoellner, Mavissakalin et al., 2009; Pruitt et al., 2012), females with assault-related chronic PTSD (Feeny, Zoellner, Mavissakalin et al., 2009), and undergraduates (Pruitt et al., 2012; Zoellner et al., 2003). Although research does not suggest a relationship between PTSD diagnosis and treatment choice, evidence does suggest a relationship between PTSD symptom severity and treatment choice (Feeny, Zoellner, & Khana, 2009; Feeny, Zoellner, Mavissakalian et al., 2009; Zoellner et al., 2009). This relationship is important to understand because individuals with more severe PTSD prefer a specific treatment versus those with mild or moderate PTSD severity. In general, individuals who reported more severe PTSD were more likely to select SER as their treatment preference than individuals with less severe symptoms (Feeny, Zoellner, & Khana, 2009; Feeny, Zoellner, Mavissakalian et al., 2009; Zoellner et al., 2009). This finding has been upheld in samples of females with assault-related chronic PTSD (Feeny, Zoellner, Mavissakalian et al., 2009), undergraduate females (Feeny, Zoellner, & Khana, 2009; Zoellner et al., 2009), and trauma-exposed females (Zoellner et al., 2009).

Although there is a significant relationship between negative cognitions and PTSD diagnosis, PTSD diagnosis does not appear to influence treatment choice. Unlike PTSD diagnosis, PTSD severity appears to play a vital role in both PTSD treatment choice and negative cognitions. The present study aims to replicate and extend these
findings in a large sample of individuals with various PTSD diagnostic and severity levels.

**Depression.** It is important to understand the relationship between depression and treatment choice because of the high comorbidity between PTSD and depression (e.g., Kessler et al., 1995). Additionally, individuals with comorbid PTSD and depression have worse symptomology compared to individuals with PTSD only (Blanchard, Buckley, Hickling, & Taylor, 1998). It appears that more severe psychopathology does influence treatment choice. Like PTSD symptom severity, individuals who report higher levels of depression are more likely to select SER or view it more positively than individuals who report lower levels of depression. This finding has been replicated in samples of females with assault-related chronic PTSD (Feeny, Zoellner, Mavissakalian et al., 2009), undergraduate females (Feeny, Zoellner, & Khana, 2009), and community members (Rytwinski et al., 2012). In a pathway model analysis study that examined treatment choice variables, higher depression was associated with a decreased chance of selecting PE in samples of female undergraduates and trauma-exposed females (Zoellner et al., 2009). Although most research supports the link between depression and treatment choice, two articles found no association (Angelo et al., 2008; Zoellner et al., 2003).

**Treatment beliefs.** Treatment beliefs refer to pre-existing reasons and beliefs that an individual may have about treatment. Pre-existing beliefs about treatment appear to be the best predictor of PTSD treatment choice. Examination of treatment beliefs include having participants list their top five reasons for treatment preference, complete the Credibility Scale (CS; Addis & Carpenter, 1999) and Personal Reactions Scale (PRS; Addis & Carpenter, 1999), or complete the Treatment Reactions Scale (Reger et al.,
A series of qualitative studies examined actual reasons given by participants to better understand pre-existing beliefs surrounding treatment choice in samples of undergraduate females (Cochran et al., 2008), trauma-exposed females (Angelo et al., 2008), and participants with chronic PTSD (Chen et al., 2011). After reading a hypothetical scenario about developing PTSD symptoms following a sexual assault (Cochran et al., 2008) or thinking about their own traumatic experience (Angelo et al., 2008; Chen et al., 2011), participants read about the treatments or watched treatment rationale videos, made their hypothetical (Angelo et al., 2008; Cochran et al., 2008) or real treatment (Chen et al., 2011) decision, and then listed their top five reasons.

Similar results were found in the reasons given for treatment preference (Angelo et al., 2008; Chen et al., 2011; Cochran et al., 2008). The majority of participants preferred PE over SER. Most of the reasons given were about PE and were positive in nature. The majority of most important reason cited centered on treatment effectiveness/efficacy or perceived treatment mechanism. The studies also found that certain reasons listed predicted treatment choice, such that participants who cited perceived treatment mechanism, treatment effectiveness, or positive feelings about talking were more likely to select PE (Angelo et al., 2008; Chen et al., 2011; Cochran et al., 2008) versus participants who cited perceived need for help, practical concerns, or treatment efficacy were more likely to select SER (Chen et al., 2011; Cochran et al., 2008). Of note, demographic and trauma-related characteristics did not predict treatment choice.

The CS (Addis & Carpenter, 1999) and Personal Reactions to Rationales (PRR;
Addis & Carpenter, 1999) are used to assess treatment credibility and personal reactions to the treatments’ rationales. Higher scores on each indicate more credibility about and more positive reactions to the treatment, respectively. Generally, individuals have more positive reactions to PE and find PE to be more credible than SER (Becker et al., 2007; Becker et al., 2009; Feeny, Zoellner, & Kahana, 2009; Pruitt et al., 2012; Rytwinski et al., 2012; Zoellner et al., 2003; Zoellner et al., 2009). Most importantly, it appears that these treatment-related beliefs are the best predictors of treatment choice (Zoellner et al., 2009). More specifically, this line of research found that the addition of tailored information and testimonials increases positive beliefs about PE (Feeny, Zoellner, & Kahana, 2009; Pruitt et al., 2012) and that treatment history and psychopathology does influence beliefs about PTSD treatments (Rytwinski et al., 2012).

Reger and colleagues (2012) used the Treatment Reactions Scale to assess stigma and treatment reactions to PE, virtual reality exposure (VRE), and medication in a deployed military sample. The study found that soldiers had more favorable reactions to the therapy options (PE and VRE) than medication. Specifically, the soldiers found therapy to be less embarrassing, debasing, and having less of a negative impact on their career as compared to medication. Additionally, the soldiers were more likely to recommend and be more confident in the efficacy of the therapy options as compared to the medication option. Given the strong empirical support linking treatment beliefs to treatment choice, the current study will examine the specific impact that these beliefs may have in the relationship between negative cognitions and treatment choice.

Negative Cognitions and PTSD Treatment Choice

The goal of the above literature reviews was to establish negative cognitions as
fundamental to the development, maintenance, and persistence of PTSD and there are specific pre-existing factors that influence PTSD treatment choice. To our knowledge, no study has examined the potential association between negative cognitions and PTSD treatment choice and more specifically the relationship between negative cognitions, treatment beliefs, and treatment choice. Exploring these relationships is crucial understanding its implications for both research and clinical practice. In regards to research, it is important that we not only continue to examine the construct of negative cognitions and how it fits within the models and theories of PTSD, but also understand how this construct influences other aspects of PTSD such as treatment choice and other treatment related behaviors. Clinically, since negative cognitions are central to PTSD, it is crucial to understand how negative cognitions may influence the PTSD treatment decision process in regard to both treatment selection and treatment itself. Thus the major aim of this current study is to link these two important aspects of PTSD, negative cognitions and PTSD treatment choice, together.

**Aims and Hypotheses**

The current study’s major aims are to examine how negative cognitions potentially influence PTSD treatment choice within a diverse sample of male and female community members with mixed trauma history and various levels of PTSD symptom severity. The aims include (1) examining the demographic and psychopathology characteristics of the current sample, and most importantly (2) exploring the potential relationship between negative cognitions and PTSD treatment choice and what variables possibly account for this relationship.

**Aim 1 Hypothesis**
In order to identify variables to include in the negative cognitions and PTSD treatment choice models, the sample’s demographic and psychopathology characteristics were analyzed. This was done to see which variables influenced negative cognitions and PTSD treatment choice separately and conjointly. Only variables that were significantly associated with both negative cognitions and treatment choice were controlled for in regression analyses and included in the models.

Aim 2 Hypothesis 1

The current study explored the relationship between negative cognitions and PTSD treatment choice. First, it is predicted that individuals with more severe negative cognitions will more likely select the medication option (SER or COMBO) or view it in a positive way. This prediction is supported by strong correlations between severe psychopathology and negative cognitions (e.g., Daie-Gabai et al., 2011; Su & Chen, 2008) and also that individuals with more severe psychopathology are more likely to select SER or view it in a positive way (e.g., Feeny, Zoellner, Mavissakalian et al., 2009; Zoellner et al., 2009).

Aim 2 Hypothesis 2

Structural equation modeling (SEM) was conducted using Mplus 7 to explore the variables that predict PE and medication PTSD treatment choices. Commonly used fit indices will be reported: chi-square goodness-of-fit statistic, Comparative Fit Index (CFI; Bentler, 1990), Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), and Root Mean Square Error of Approximation (RMSEA; Hu & Bentler, 1999). We attempted to identify sources for misfit if the models did not fit one or more of the model fit criteria. For
example, we examined the model modification indices to identify additional pathways to include.

The first model predicts PE as the preferred PTSD treatment choice (see Figure 1) and the second model predicts medication (SER or COMBO) as the preferred PTSD treatment choice (see Figure 2). Two latent constructs were included in each model: negative cognitions and psychopathology. The SELF, WORLD, and BLAME subscales (Foa, Ehlers et al., 1999) were used as indicators of the negative cognitions latent variable. The PDS (Foa et al., 1997) and QIDS-SR16 (Rush et al., 2003) were used as indicators of the psychopathology latent variable. The two observed variables included in each model are treatment beliefs and PTSD treatment choice. Composite scores for both PE and SER treatment beliefs (Zoellner et al., 2009) were calculated by combining the respective CS and PRS measures (Addis & Carpenter, 1999). This was done so that single scores represented PE treatment beliefs and SER treatment beliefs. When examining PE treatment choice, data were coded as 1 = PE and 0 = SER/COMBO/no treatment; when examining medication treatment choice, data were coded as 1 = SER/COMBO and 0 = PE/no treatment.

The same structural relations among negative cognitions, psychopathology, treatment beliefs, and PTSD treatment choice are predicted for both models and include the following hypotheses: (a) psychopathology and negative cognitions will be correlated with each other, (b) negative cognitions will have a direct effect on treatment beliefs and an indirect effect on PTSD treatment choice, (c) psychopathology will have a direct effect on treatment beliefs and an indirect effect on PTSD treatment choice, and (d) treatment beliefs will have a direct effect on PTSD treatment choice. Preliminary analyses will
determine what demographic variables are significantly associated with negative cognitions and PTSD treatment choice and should be included in the models as covariates.

The hypothesized structural relationships were based on previous research that found strong associations between psychopathology (PTSD severity and depression) and negative cognitions (e.g., Beck et al., 2004; Daie-Gabai et al., 2011; Su & Chen, 2008; van Emmerik et al., 2006); strong association between psychopathology and treatment beliefs (e.g., Feeny, Zoellner, Mavissakalian et al., 2009; Zoellner et al., 2009); robust relationships between negative cognitions and PTSD (e.g., Beck et al., 2004; Foa, Ehlers et al., 1999; Startup et al., 2007) and between treatment beliefs and PTSD treatment choice (e.g., Zoellner et al., 2009); and treatment beliefs are good predictors of PTSD treatment choice (e.g., Zoellner et al., 2009).

Method

Participants

Participants were 203 trauma-exposed community members from two metropolitan areas who were recruited via flyers, newspaper, radio advertisements, and mental health agencies. Participants were 57.9% female with a mean age of 38.92 (SD = 12.5; range = 18 to 65). The sample was 55.5% African-American, 35.0% Caucasian, 5.5% Hispanic, 1.0% Asian or Asian-American, and 3.0% Other. The sample averaged 13.3 years of education.

Eligibility for the study included being 18 to 65 years old, experiencing a traumatic event, fluent in English, and completion of a phone screening conducted by a trained research assistant. Those who were ineligible were provided with reasons for
exclusion and their information was immediately shredded. Missing data analyses revealed no significant differences between those individuals with complete versus missing data on demographic variables and psychopathology.

Within this sample, 96.5% \((n = 196)\) reported experiencing one or more traumatic events on the Posttraumatic Stress Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). Following adherence to the DSM-IV-TR (APA, 2000) Criterion A event on the PDS, 68.5% \((n = 139)\) of the participants had qualifying traumatic events. Criterion A is defined as experiencing an event or events that involves an actual or perceived threat of death or serious injury to an individual or to others and also that the individual responds to the event with intense fear, helplessness, or horror. For the worst trauma experienced, 1.5% reported a natural disaster, 5.2% reported a life threatening illness, 10.4% reported a serious accident, 26.6% reported a non-sexual assault, 33.3% reported a sexual assault, and 23.0% reported another traumatic event. As for prior mental health treatment, 65.0% had been in psychotherapy and 55.7% had received pharmacotherapy.

**Materials**

Treatment rationales for SER and PE were written so that wording was matched between them as often as possible. Each rationale was divided into three sections: background information, treatment procedures, and treatment side effects. The overall PE and SER rationales did not differ in terms of sentence structure, grade level, and reading ease. Measures were generated by the Microsoft Word word-processing package. Rationales were randomized to include either male or female narrators, whether a positive treatment testimonial would be provided, and whether the rationale was augmented to include information about depression. Variants of these treatment
rationales have been used and validated in prior studies (e.g., Pruitt et al., 2012; Rytwinski et al., 2012; Zoellner et al., 2003).

**Measures**

To assess general psychopathology, participants completed a battery of commonly used self-report questionnaires. The current study examined a selection of these questionnaires: Demographic Questionnaire, Treatment History Questionnaire, Posttraumatic Diagnostic Scale, Quick Inventory Depressive Symptomatology: Self-Report, Posttraumatic Cognitions Inventory, Credibility Scale, and Personal Reactions Scale.

**Treatment History Questionnaire.** The treatment history questionnaire assesses whether participants have had previous psychotherapy and/or pharmacotherapy mental health treatment for PTSD and other problems (e.g., depression). For analysis purposes, when examining treatment history, data was coded as 0 = no treatment history or 1 = yes treatment history. The “yes” category includes receiving previous psychotherapy and/or pharmacotherapy treatment for PTSD and/or other problems.

**Posttraumatic Diagnostic Scale (PDS; Foa et al., 1997).** The PDS is a four part self-report measure that assesses the DSM-IV-TR (APA, 2000) criteria for PTSD. Respondents first check off all traumatic events that they have experienced and/or witnessed. Next, if they indicated more than one traumatic event, they then identified the traumatic event that bothers them the most. Participants then completed a 17-item measure that assesses for severity and frequency of symptoms experienced within the past month related to the worst traumatic event identified. Each item is rated on a 4-point scale from 0 (not at all or only one time) to 3 (5 or more times a week/almost always),
with higher scores indicating more severity and frequency of symptoms. Finally, respondents completed a measure of functional impairment they may have experienced within the past month. The PDS has good psychometric properties including strong internal consistency \((\alpha = .92)\) and good test-retest reliability \((r = .87)\) for the 17-item symptom checklist (Foa et al., 1997). In the current study, internal consistency was strong for the 17-item symptom severity and frequency checklist \((\alpha = .94)\).

**Quick Inventory Depressive Symptomatology: Self-Report (QIDS-SR16; Rush et al., 2003).** The QIDS-SR16 is a 16-item self-report measure that assesses depressive symptom severity and frequency within the past week. Higher scores indicate more symptom severity and frequency. The measure includes items about sleep quality, appetite, concentration/decision making, view of self, thoughts of death or suicide, general interest, energy level, and psychomotor agitation and retardation. Rush and colleagues (2003) reported high internal reliability \((\alpha = .86)\) and increasing internal reliability over time \((\alpha = .73-.92; \text{from baseline to week 12})\). In the current study, internal consistency was strong \((\alpha = .85)\).

**Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers et al., 1999).** The PTCI is a 36-item measure that assesses trauma-related beliefs and thoughts. Each item is rated on a 7-point scale from 1 \((totally disagree)\) to 7 \((totally agree)\), with higher scores indicating more severe negative cognitions. The PTCI is comprised of three subscales: Negative Cognitions About Self (SELF; 21 items), Negative Cognitions About the World (WORLD; 7 items), and Self-Blame (BLAME; 5 items). The PTCI has demonstrated good psychometric properties in diverse and international samples and across various trauma types. Prior research has consistently found high internal reliability for both the
overall score ($\alpha = .93-.97$) and for the three subscales: SELF ($\alpha = .91-.97$), WORLD ($\alpha = .83-.90$), and BLAME ($\alpha = .78-.86$) (Beck et al., 2004; Foa, Ehlers et al., 1999; Daie-Gabai et al., 2011; Müller et al., 2010; Su & Chen, 2008; van Emmerik et al., 2006). Evidence supports the PTCI’s three-factor structure and its use in languages, besides English, including Chinese, Dutch, German, and Hebrew. In the current study, internal consistency was strong for the overall measure ($\alpha = .96$) and for the three subscales: SELF ($\alpha = .95$), WORLD ($\alpha = .90$), and BLAME ($\alpha = .82$).

Credibility Scale (CS; Addis & Carpenter, 1999) and Personal Reactions Scale (PRS; Addis & Carpenter, 1999). To assess perceptions of treatment credibility and personal attitudes concerning the treatment descriptions, both CS and PRS self-report measures were used. The CS contains 7 items (e.g., “How logical does this therapy seem to you?”) rated on a 7-point scale from 1 (not at all) to 7 (extremely). The items were reverse scored so that higher scores indicate lower credibility. Reverse scoring was done to have similarity among the other measures (PTCI, PDS, and QIDS) in regard to what a high score meant (e.g., more negative or severe). The credibility scale assesses how much generally the participant perceives the treatment to be logical, scientifically based, and effective. In the current sample, internal consistency for the CS was strong: PE ($\alpha = .94$) and SER ($\alpha = .92$).

The Personal Reactions to the Rationales (PRR) contains 5 items (e.g., “If you had PTSD and went for treatment, how helpful do you think this therapy would be for you?”) rated on a 7-point scale from 1 (not at all) to 7 (extremely). The items were reverse scored so that higher scores indicate more negative personal reactions. Reverse scoring was done to have similarity among the other measures (PTCI, PDS, and QIDS) in
regard to what a high score meant. Overall, the PRR scale assesses how much the participant perceives the treatment will help them personally by improving their symptoms and increasing their ability to understand and cope with their symptoms. In the current sample, internal consistency for the PRS was strong: PE (α = .96) and SER (α = .96).

Composite scores for both PE and SER treatment beliefs was calculated by combining the respective CS and PRS measures (Zoellner et al., 2009). This was done so that single scores represented PE treatment beliefs and SER treatment beliefs. Internal consistency for the composite scores was strong: PE (α = .97) and SER (α = .97).

**Treatment Choice.** To examine treatment choice, a single question was utilized counterbalancing the order of presentation in the question regarding psychotherapy (PE), medication (SER), combination of both PE and SER (COMBO), and no treatment: “If you had a choice between psychotherapy, medication, both treatments, or no treatment at all to help you with trauma related symptoms which would you choose?”

For conducting regression and SEM analyses, when examining PE treatment choice, data were coded as 1 = PE and 0 = SER/COMBO/no treatment; when examining medication treatment choice, data were coded as 1 = SER/COMBO and 0 = PE/no treatment. The treatment choice coding procedure was adopted from a previous study that examined predictors of PTSD treatment preference (Zoellner et al., 2009).

**Procedure**

Data came from a study that examined the decision-making process surrounding PTSD treatment. After informed consent procedures, participants completed the demographic questionnaire, treatment history questionnaire, PDS (Foa et al., 1997),
QIDS-SR$_{16}$ (Rush et al., 2003) and PTCI (Foa, Ehlers et al., 1999). Next, participants thought their own trauma and were then presented with counterbalanced PE or SER treatment rationale videos. This procedure was repeated so that after viewing both videos, participants completed the CS and PRS (Addis & Carpenter, 1999) for each treatment. Finally, participants were asked to select their hypothetical treatment preference: PE, SER, COMBO, or no treatment. The participants were debriefed about the study’s procedures and were compensated for their time.

Results

Power and Preliminary Analyses

A priori, we determined moderate effect sizes ($\eta^2 = .06$ or above) to be potentially clinically meaningful. The effect size statistic eta squared was used because it represents the proportion of variance in the dependent variable that is explained by the independent variable (Cohen, 1988). The eta squared moderate effect size (.06 or above) is equivalent to Cohen’s $d$ large effect size (.50 or above). G-Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007) determined the level of power using Cohen’s $d$. Given the sample size ($N = 203$) and number of variables, we were well powered (.95 and above) to detect effect sizes for each study aim. Prior to regression analyses, data was screened using SPSS FREQUENCIES and REGRESSION for an evaluation of assumptions. A histogram of the residuals of each variable was plotted against the normal curve to determine normality. Data that is greater than 3 standard deviations above or below the mean was deleted from the data set.

Aim 1: Sample Demographic and Psychopathology Characteristics

Means, standard deviations, and ranges for each of the measures are listed in
Table 1. PTSD severity scores ranged from mild to severe with mean scores in the moderate to severe range for participants who endorsed a Criterion A trauma (68.5%; \( n = 139 \)). Of these participants, 57.6% were diagnosed with PTSD. For all participants, depression symptoms (QIDS) ranged from mild to severe with mean scores in the mild range. Agreement with overall negative cognitions (PTCI) ranged from total disagreement to very much agreement with mean scores in the slightly disagreement range. Treatment beliefs about PE and SER ranged from extremely positive to not at all positive with mean scores in the neutral to slightly positive range. Participants had more positive beliefs about PE (\( M = 6.59, SD = 3.18 \)) than about SER (\( M = 7.59, SD = 3.43 \)). In regard to PTSD treatment choice, 36.5% selected PE (\( n = 74 \)), 9.9% selected SER (\( n = 20 \)), 41.4% selected COMBO (\( n = 84 \)), and 12.3% selected no treatment (\( n = 25 \)).

In order to examine the relationships between the measures, zero-order correlations were examined (Table 2). Greater overall negative cognitions severity was related to higher levels of PTSD severity (\( r = .60, p < .001 \)) and depression (\( r = .75, p < .001 \)). There was no significant association between overall negative cognitions and treatment beliefs (PE and SER). Greater PTSD severity was related to higher levels of depression (\( r = .75, p < .001 \)). PTSD severity was associated with more positive beliefs about PE (\( r = -.17, p < .05 \)) and SER (\( r = -.24, p < .001 \)). Higher depression severity was associated with more positive beliefs about SER (\( r = -.16, p < .05 \)).

Prior to main analyses, age, gender, years of education, previous treatment history, trauma type, PTSD diagnosis, PTSD severity, depression, and treatment beliefs were examined to see if they influenced overall negative cognitions and PTSD treatment choice.
Negative cognitions. Zero-order correlations revealed that older age ($r = .16, p = .03$), greater PTSD severity ($r = .60, p < .001$), and greater depression ($r = .75, p < .001$) were associated with more severe overall negative cognitions (see Table 2). Years of education, PE beliefs, and SER beliefs were not significantly associated with overall negative cognitions.

Independent-samples t-tests revealed that overall negative cognitions differed by gender, previous treatment history, trauma type, and PTSD diagnosis (see Table 3). Cohen (1988) suggests the following guidelines for interpreting the strength of the effect size: $\eta^2 = .01$ (small), $\eta^2 = .06$ (moderate), and $\eta^2 = .14$ (large). Females had greater negative cognitions than males, $t(155.38) = 3.20, p = .002, \eta^2 = .05$. Participants with a previous treatment history had more severe negative cognitions than participants without a treatment history, $t(198) = 6.91, p < .001, \eta^2 = .19$. Participants who experienced an interpersonal trauma had greater negative cognitions than participants who experienced a non-interpersonal trauma, $t(179) = 3.41, p = .001, \eta^2 = .14$. Participants diagnosed with PTSD had greater negative cognitions than participants who were not diagnosed with PTSD, $t(176) = 5.33, p = .001, \eta^2 = .14$.

PTSD treatment choice. Chi-square tests for independence revealed that having a previous treatment history ($\chi^2(2, n = 203) = 29.09, p < .001, phi = .379$) and experiencing an interpersonal trauma ($\chi^2(2, n = 183) = 7.85, p = .020, phi = .207$) were associated with selecting the medication treatment option. Treatment preference did not significantly differ by gender and PTSD diagnosis. One-way between-groups analyses of variance (ANOVAs) with post-hoc tests revealed that PTSD treatment preference differed by age, PTSD severity, depression severity, PE beliefs, and SER beliefs (see
Table 4). Post-hoc Tukey HSD tests showed that participants who selected the medication option over PE and no treatment options were more likely to be older in age ($F(2, 195) = 8.67, p < .001, \eta^2 = .08$), have greater PTSD severity ($F(2, 184) = 11.47, p < .001, \eta^2 = .11$), suffer from greater depression ($F(2, 199) = 15.87, p < .001, \eta^2 = .14$), have more negative PE beliefs ($F(2, 194) = 29.74, p < .001, \eta^2 = .23$), and have more positive SER beliefs ($F(2, 196) = 6.08, p = .003, \eta^2 = .06$). Treatment preference did not differ by the number of years of education obtained by the participants ($F(2, 198) = 2.50, p = .085$).

In the following analyses, we controlled for age, previous treatment history, and trauma type because these demographic variables influenced overall negative cognitions and PTSD treatment choice.

**Aim 2: Negative Cognitions and PTSD Treatment Choice**

*Are negative cognitions associated with treatment beliefs?* In order to examine the relationships between negative cognitions and treatment beliefs, zero-order correlations between negative cognitions (PTCI) and treatment beliefs (PE beliefs and SER beliefs) were examined. Contrary to our hypothesis, only negative cognitions about the world were significantly associated with PE beliefs (see Table 2).

*Do negative cognitions differ by PTSD treatment choice?* Independent-samples t-tests were conducted to determine whether negative cognitions differed by PTSD treatment choice. Consistent with the hypothesis that negative cognitions do influence PTSD treatment choice, there was a significant difference in negative cognitions by selecting PE versus medication (SER or COMBO) or no treatment, $t(198) = 3.60, p < .001, \eta^2 = .07$. Individuals who selected PE ($M = 98.46, SD = 38.83$) had significantly
less severe negative cognitions than individuals who selected medication or no treatment ($M = 119.70, SD = 41.15$). There was also a significant difference in negative cognitions by selecting medication versus PE or no treatment, $t (198) = 3.99, p < .001, \eta^2 = .07$.

Individuals who selected a medication treatment had significantly more severe negative cognitions ($M = 122.79, SD = 41.32$) than individuals who selected PE or no treatment ($M = 100.22, SD = 38.62$).

**What variables best predict PTSD treatment choice?** Two direct binary logistic regressions were conducted to assess the impact of age, previous treatment history, trauma type, and treatment beliefs on PE and medication treatment choices. The full model for PE treatment choice containing all predictors was not statistically significant, $\chi^2 (4, n = 176) = 8.41, p = .08$, indicating that the model was not able to distinguish between participants who selected PE versus medication or no treatment. The model as a whole explained between 4.7% (Cox and Snell R square) and 6.3% (Nagelkerke R square) of the variance in PTSD treatment choice, and correctly classified 67.0% of cases.

The full model for medication treatment choice containing all predictors was statistically significant, $\chi^2 (4, n = 175) = 82.35, p < .001$, indicating that the model was able to distinguish between participants who selected medication versus PE or no treatment. The model as a whole explained between 37.5% (Cox and Snell R square) and 50.1% (Nagelkerke R square) of the variance in PTSD treatment choice, and correctly classified 80.6% of cases. As shown in Table 5, treatment history, trauma type, SER beliefs, and age were significant predictors of the mediation treatment choice. Participants with a treatment history were 4.22 times more likely to select the medication
treatment choice, \( p < .001 \). Participants who experience an interpersonal trauma were 3.33 times more likely to select the medication, \( p = .01 \). Participants with more positive beliefs about SER were 1.49 times more likely to select medication, \( p < .001 \). Finally, older participants were 1.04 times more likely to choose medication, \( p = .01 \).

**What is the relationship between negative cognitions, psychopathology, treatment beliefs, and PTSD treatment choice?** The original hypothesized models (Figures 1 and 2) produced poor fit statistics (\( \chi^2 \) \((27, N = 179) = 107.80, p < .001; \) CFI = .64; TLI = .43; RMSEA = .13; Medication: \( \chi^2 \) \((27, N = 179) = 95.38, p < .001; \) CFI = .73; TLI = .58; RMSEA = .12). Based on the preliminary results and on the modification indices of both models, the following changes were made to the original models. Because negative cognitions and treatment beliefs were not related, the direct effect between negative cognitions and treatment beliefs and indirect effect between negative cognitions and treatment choice through treatment beliefs were deleted from both models. Given that the indirect effect between negative cognitions and treatment choice was removed, we modified the pathway between negative cognitions and psychopathology. This reestablished the indirect relationship between negative cognitions and treatment choice through psychopathology. In addition, a direct effect between psychopathology and treatment choice was added. These modifications improved the fit statistics of both models, as described below. Age, treatment history, and trauma type were covariates.

**PE treatment choice model.** The indices of overall model fit for PE treatment choice indicated that the revised hypothesized model provided a good fit to the data, \( \chi^2 \) \((27, N = 179) = 37.47, p = .09; CFI = .95; TLI = .93; RMSEA = .05. The standardized
estimates of indicator loadings on corresponding latent factors are presented in Table 6 (range $\lambda$s = .43 to .95; all $p$s < .001). Standardized and unstandardized model coefficients are displayed in Figure 3.

After controlling for age and trauma type, there was still a direct effect of treatment history on negative cognitions (standardized coefficient = .40, $p < .001$). After controlling for age and treatment history, there was still a direct effect of trauma type on negative cognitions (standardized coefficient = .21, $p = .01$). After controlling for treatment history and trauma, the direct effect between age and negative cognitions was not significant (standardized coefficient = .11, $p = .13$). There was a direct effect of negative cognitions on psychopathology (standardized coefficient = .83, $p < .001$).

After controlling for age, treatment history, trauma type, and PE beliefs, there was still a negative direct effect of psychopathology on PE treatment choice (standardized coefficient = -.38, $p < .001$). There was no association between psychopathology and PE beliefs (standardized coefficient = -.09, $p = .30$). There was no association between PE beliefs and PE treatment choice (standardized coefficient = -.15, $p = .08$).

The indirect negative effect between negative cognitions and PE treatment choice through psychopathology was significant (standardized coefficient = -.31, $p < .001$). The indirect effect between psychopathology and PE treatment choice through PE treatment beliefs was not significant (standardized coefficient = .01, $p = .39$).

**Medication treatment choice model.** The indices of overall model fit for medication treatment choice indicated that the revised hypothesized model provided an adequate to good fit to the data, $\chi^2 (27, N = 179) = 41.98, p = .03$; CFI = .94; TLI = .91; RMSEA = .06. The standardized estimates of indicator loadings on corresponding latent
factors are presented in Table 6 (range $\lambda_s = .42$ to .98; all $p < .001$). Standardized and unstandardized model coefficients are displayed in Figure 4.

After controlling for age and trauma type, there was still a direct effect of treatment history on negative cognitions (standardized coefficient = .40, $p < .001$). After controlling for age and treatment history, there was still a direct effect of trauma type on negative cognitions (standardized coefficient = .21, $p = .01$). After controlling for treatment history and trauma, the direct effect between age and negative cognitions was not significant (standardized coefficient = .12, $p = .11$). There was a direct effect of negative cognitions on psychopathology (standardized coefficient = .79, $p < .001$).

After controlling for age, treatment history, trauma type, and SER beliefs, there was still a direct effect of psychopathology on medication treatment choice (standardized coefficient = .21, $p = .01$). After controlling for age, treatment history, trauma type, and psychopathology, there was still a negative direct effect of SER beliefs on medication treatment choice (standardized coefficient = -.49, $p < .001$). There was no association between psychopathology and SER beliefs (standardized coefficient = -.15, $p = .08$).

The indirect effect between negative cognitions and medication treatment choice through psychopathology was significant (standardized coefficient = .17, $p = .01$). The indirect effect between psychopathology and medication treatment choice through SER treatment beliefs was not significant (standardized coefficient = .07, $p = .08$).

**Discussion**

The current study examined the relationship between negative cognitions and PTSD treatment choice, and specifically examined how psychopathology, treatment beliefs, and related demographic variables influenced this overall relationship. This was
the first study to examine whether negative cognitions influence PTSD treatment choice. Overall, it was found that negative cognitions do influence PTSD treatment choice, though indirectly through psychopathology. Greater negative cognitions predicted more severe psychopathology which predicted the selection of a medication treatment option (SER or COMBO). These results highlight the importance of understanding pre-existing factors that influence PTSD treatment choice in order to better understand what treatment an individual may want. Although not the focus of the current study, this line of research, and further exploration, is necessary, to determine if PTSD treatment preference may potentially influence an individual’s decision about whether or not to seek treatment, remain in treatment, and how it may affect treatment outcome (Angelo et al., 2008; Cochran et al., 2008; Wagner et al., 2005; Zoellner et al., 2009).

Of the total sample (N = 203), 39.4% were diagnosed with PTSD. While these participants made a hypothetical treatment choice, they may decide to make a real treatment decision in the future to address their symptoms. However, this study was unable to address whether the hypothetical choice made would be the same choice made for a real treatment decision. Moreover, the majority of the sample selected either PE or both treatments (PE and SER) as their treatment preference. These results about treatment choice are consistent with prior research which found the most prefer PE over SER (e.g., Angelo et al., 2008; Feeny, Zoellner, & Kahana, 2009; Reger et al., 2012; Zoellner et al., 2003; Zoellner et al., 2009). However, the current study is one of the first in which a combination of PE and SER is a treatment choice (as opposed to PE, SER, or no treatment). Therefore, it is unknown what influenced the participants’ selection of both treatments, whether it was the addition of PE or SER or if they believe that both
treatments work equally well and wanted the maximum amount of treatment. However, given that the lowest percentage of the sample selected SER (9.9%), it appears that this sample is more inclined to wanting PE, whether by itself or in combination with SER.

Preliminary analyses were conducted in the current sample to determine whether age, gender, years of education, previous treatment history, trauma type, PTSD diagnosis, PTSD severity, depression, and treatment beliefs were related to overall negative cognitions and PTSD treatment choice. These analyses were necessary to show that the relationship between negative cognitions and PTSD treatment choice does not occur in isolation, but rather is influenced by other important variables. Consistent with previous evidence (e.g., Beck et al., 2004; Blain et al., 2012; Cromer & Smyth, 2010; Daie-Gabai et al., 2010; Startup et al., 2007), being female, experiencing an interpersonal trauma, having a PTSD diagnosis, and suffering from more severe PTSD and depression were all associated with more severe negative cognitions. We were able to replicate previous findings (e.g., Angelo et al., 2008; Rytwinski et al., 2012; Zoellner et al., 2003; Zoellner et al., 2009) that showed PTSD diagnosis was not associated to treatment preference, while having more severe PTSD and depression was associated with a preference for wanting medication. Additionally, participants with more positive PE beliefs were more likely to select PE, while participants with more positive SER beliefs were more likely to select the medication option.

This study was the first to examine the relationship between negative cognitions and treatment history and negative cognitions and treatment beliefs. Results indicate that individuals with a treatment history have more severe negative cognitions than individuals without a treatment history. One explanation for this finding is that
individuals with more severe psychopathology or distress are more likely to seek treatment (Angst et al., 2010). Another explanation is that the prior treatments received may not have been fully effective, as seen by the present level of negative cognitions. Contrary to our hypothesis, there was no relationship between overall negative cognitions and treatment beliefs. One explanation is that while both negative cognitions and treatment beliefs are important predictors of treatment choice, they may just represent two separate constructs of treatment preference.

Findings from the current study also sought to clarify the potential relationships between PTSD treatment choice and gender, treatment history, and trauma type. Of the three studies that have examined gender and treatment choice, one study found an association (Roy-Byrne et al., 2003) while the other two studies did not (Chen et al., 2011; Pruitt et al., 2012). As the current study found gender was not associated with treatment choice, this adds to the growing literature suggesting no strong relationship between these variables. Although the current study found that individuals with treatment history preferred the medication option, the findings still remain mixed. There is an even amount of prior evidence that supports no relationship (e.g., Angelo et al., 2008; Chen et al., 2011) and a relationship (e.g., Pruitt et al., 2012; Rytwinski et al., 2012) between treatment history and PTSD treatment choice. Thus more research is needed to determine whether, and under what circumstances, past treatment received influences current treatment options under consideration. Although the current study found that individuals who experience an interpersonal trauma are more likely to select the medication option, the findings in the literature are mixed. Of the two studies that examined trauma type and treatment choice, one found a relationship (Roy-Byrne et al., 2003) and the other study
found no relationship (Feeny, Zoellner, Mavissakalian et al., 2009). One potential explanation is that victims of interpersonal trauma may feel that their ability to establish and maintain interpersonal relationships has been damaged (McFarlane & Bookless, 2001; Zoellner, Foa, & Brigidi, 1999). Thus they may be less inclined to select a treatment that would require a relationship, specifically an alliance with the therapist. However, more research is needed to see if the type a trauma a person experiences may influence their treatment preference in how to treat their symptoms.

The goal of the second aim was to determine whether there is a relationship between negative cognitions and PTSD treatment choice. According to Tabachnick and Fidell (2013), it is advantageous to conduct SEM, as oppose to regression analyses, because it allows for a more thorough examination and concurrent tests of all the relationships. The SEMs conducted for PE and medication treatment options confirmed the respective logistic regression findings. For example, removing the direct effect between psychopathology and medication treatment choice revealed that age, treatment history, trauma type were all significantly related to medication choice, as demonstrated in the logistic regression. Thus the SEMs revealed new predictors and pathways that appear to be important in fully understanding treatment preference.

While there were similarities between the models in regard to significant direct and indirect effects, there was one significant difference. In the medication model, SER beliefs were related to medication treatment choice, while in the PE model, PE beliefs were not associated with PE treatment choice. These findings conflict with prior evidence that found that PE beliefs predicted PE choice and SER beliefs predicted SER choice (Zoellner et al., 2009). One potential reason for this discrepancy is that the models were
set up differently. For example, in our model, we had PTSD severity and depression measures loaded onto the same latent variable, psychopathology. In the model by Zoellner and colleagues (2009), PTSD severity and depression were distinct observed variables. However, it still remains unclear as to why PE beliefs were not related to PE treatment choice. Given that most people prefer therapy over medication (Barlow, 2004), it may be less about their beliefs regarding therapy and more about their attitudes and beliefs toward medication. Future research is needed to potentially replicate the current findings or the findings by Zoellner and colleagues (2009) to better understand the relationship between PE treatment beliefs and PE treatment choice.

The preliminary analyses and SEMs also found that negative cognitions and treatment beliefs are not strongly related each other. As such, it may be better to view negative cognitions and treatment beliefs as independent contributors to PTSD treatment choice. Treatment beliefs have been found to be a good and independent predictor of PTSD treatment choice in both the current study and in past research (Zoellner et al., 2009). Moreover, negative cognitions may be better viewed as fitting within the same domain as PTSD severity and depression rather than representing a separate construct of PTSD treatment choice. For example, PTSD severity, depression, and negative cognitions were all strongly and positively correlated with each other. Conceptually, these measures should be thought as tapping into different aspects of a construct related to severity experienced by the individual.

Given the centrality of negative cognitions in theories of PTSD (e.g., Ehlers & Clark, 2000), we wanted to see if they also played a fundamental role in our models of PTSD treatment choice. Our results indicate that while negative cognitions are highly
related to PTSD diagnosis and severity, they are not directly related to choice. This may mean that factors playing a key role in understanding a mental health disorder may not necessarily impact the treatment decision made for that disorder. For example, Jaeger and colleagues (2009) proposed an earlier model of PTSD treatment choice. They argued that treatment beliefs are the critical factors that determine treatment choice. This conclusion differs from our own conclusions, because we found mixed results in regard to treatment beliefs and how they related to treatment choice. Additionally, their model did not include negative cognitions.

Looking beyond PTSD, negative cognitions also play a prominent role in many theories of depression (Beck, 2002). However, in studies that address treatment preference for depression, they do not necessarily assess whether the factors that contribute to the models of depression also contribute to the models of depression treatment choice (e.g., Churchill et al., 2000; Cooper et al., 2003; Simon, Loh, Wills, & Härter, 2006). For example, Churchill and colleagues (2000) assessed whether age, gender, knowledge/attitudes about depression, treatment history, and depression severity influenced treatment preference (therapy or medication). They found that gender, treatment history, and negative beliefs about medication predicted individuals selecting therapy. While the current study did not find negative cognitions directly influenced treatment choice, it is important we continue to understand if and how central aspects of a disorder influences treatment choice for that disorder.

Although the current study helped to clarify what variables influence PTSD treatment choice at a conceptual and theoretical level, it may be more important to understand the clinical and practical implications of the treatment decision process. In
reviewing the broader treatment decision making literature, understanding treatment choice is important because it appears that people do care about what treatment they want to receive (Say, Murtagh, & Thomson, 2006; Swift, Callahan, & Vollmer, 2011). Say and colleagues (2006) found that patients want to be involved in the medical decision making process. Moreover, the patients’ preferences for treatment were influenced by variables such as demographic characteristics, their treatment history, diagnosis, attitudes toward their involvement, and their discussions and relationships with their healthcare provider. These findings highlight the importance of clinicians understanding the factors that may influence not only the patient’s treatment preference, but their attitude and level of involvement through the treatment decision process. Swift and colleagues (2011) conducted a meta-analysis of treatment studies that examined the impact of treatment preference. They found that individuals who were given their preferred treatment were less likely to drop out of treatment and had better treatment outcomes compared to those who did not get their preferred treatment. Additionally, personalizing treatment options is crucial because people are more likely to read it, remember it, and find it personally relevant (Skinner, Campbell, Rimer, Curry, & Prochaska, 1999). Individuals not only have specific preferences for treatment, but care about what treatment they receive, and appear to do better when given that treatment.

In sum, there are important take away points from the current study. First, the negative beliefs individuals have about themselves and the world does not appear to directly influence treatment choice. Instead, it may be important to understand their negative beliefs in the context of their overall psychopathology and other demographic variables. Second, the models reveal that there are specific factors that do influence
treatment choice. Psychopathology was significant in both models, and appears to be a play a bigger role in treatment preference than seen in other PTSD treatment choice models (Jaeger et al., 2009; Zoellner et al., 2009). Finally, both negative cognitions and PTSD treatment preference are shaped by critical variables, such as demographics, trauma experienced, and level of psychopathology. These variables should be kept in mind by both researchers and clinicians, as we continue to better understand PTSD and PTSD treatment choice.

Limitations and Future Directions

Although this study contributes to the existing knowledge about the factors that influence PTSD treatment choice, there are some limitations that should be noted. First, given that the study was cross-sectional, we cannot determine causality. To establish causal roles of negative cognitions, psychopathology, and treatment beliefs on PTSD treatment choice, it will be vital to conduct longitudinal research that investigates the effects of these factors on treatment preference. Nevertheless, the SEM is a useful start in investigating the relationships between negative cognitions, psychopathology, treatment beliefs, and PTSD treatment choice.

Another limitation of the current study is that participants made a hypothetical treatment decision, rather than a real treatment choice. Although previous research has found that individuals prefer PE regardless if the choice was hypothetical (e.g., Angelo et al., 2008) or real (e.g., Chen et al. 2011), no real treatment study has examined how negative cognitions may influence the treatment decision. Thus future research should examine the role of negative cognitions among those making real PTSD treatment decisions.
Despite the current study’s limitations, the findings have several implications for future research. Given that negative cognitions were indirectly related to PTSD treatment choice, it may be not necessary to specifically assess negative cognitions for the purpose of understanding treatment preference. Rather, it appears that the routine assessment of psychopathology (e.g., PTSD severity and depression) and treatment beliefs, which were directly related to treatment choice, may be more useful indicators for tailoring treatment options. Future studies should continue to examine not only the impact that negative cognitions have on the development of PTSD, but also to see if negative cognitions directly influence any part of the treatment decision process, from the decision to the end of treatment. Additionally, future research should examine whether adding tailored information regarding how treatment directly addresses negative cognitions may influence someone’s treatment decision.

To conclude, data presented from the current study indicate that there is an indirect relationship between negative cognitions and PTSD treatment choice. This type of research is needed to ensure that we continue to provide treatment that is tailored to the person’s specific needs. Additionally, it may help to answer the question regarding not only PTSD treatment, but treatment in general, which was posed by Paul (1967): “what treatment...is most effective for this individual with that specific problem, and under which set of circumstances?” (p. 111). Understanding the factors that influence treatment preference is vital because it may dictate how we talk to potential treatment seekers, how to describe the treatment options, and how to best personalize treatment options. These findings provide further evidence for the importance of understanding how pre-existing factors may influence the PTSD treatment decision process. Ultimately, it can hopefully
help clinicians, who work with individuals suffering from PTSD, in how to help that person decide on the best treatment option.
Table 1

*Mean, Standard Deviation, and Range of Psychopathology and Treatment Beliefs*

*Measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD Severity (PDS)</td>
<td>187</td>
<td>21.48</td>
<td>13.71</td>
<td>0-51</td>
</tr>
<tr>
<td>Depression (QIDS-SR16)</td>
<td>202</td>
<td>10.23</td>
<td>5.89</td>
<td>0-27</td>
</tr>
<tr>
<td>Negative Cognitions (PTCI Total)</td>
<td>200</td>
<td>111.84</td>
<td>41.50</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELF</td>
<td>202</td>
<td>3.08</td>
<td>1.38</td>
<td>1-7</td>
</tr>
<tr>
<td>WORLD</td>
<td>200</td>
<td>4.64</td>
<td>1.52</td>
<td>1-7</td>
</tr>
<tr>
<td>BLAME</td>
<td>202</td>
<td>2.94</td>
<td>1.58</td>
<td>1-7</td>
</tr>
<tr>
<td>PE Treatment Beliefs</td>
<td>199</td>
<td>6.59</td>
<td>3.18</td>
<td>2-14</td>
</tr>
<tr>
<td>Credibility-PE (CS)</td>
<td>200</td>
<td>23.36</td>
<td>10.70</td>
<td>7-49</td>
</tr>
<tr>
<td>Personal Reactions-PE (PRS)</td>
<td>199</td>
<td>16.33</td>
<td>8.71</td>
<td>5-35</td>
</tr>
<tr>
<td>SER Treatment Beliefs</td>
<td>197</td>
<td>7.59</td>
<td>3.43</td>
<td>2-14</td>
</tr>
<tr>
<td>Credibility-SER (CS)</td>
<td>199</td>
<td>25.17</td>
<td>11.31</td>
<td>7-49</td>
</tr>
<tr>
<td>Personal Reactions-SER (PRS)</td>
<td>197</td>
<td>20.04</td>
<td>9.79</td>
<td>5-35</td>
</tr>
</tbody>
</table>

*Note.* PDS = Posttraumatic Diagnostic Scale; QIDS = Quick Inventory of Depressive Symptomatology: Self Report; PTCI = Posttraumatic Cognitions Inventory; CS = Credibility Scale; PRS = Personal Reactions Scale; PE = Prolonged Exposure; SER = Sertraline.
Table 2

Zero-Order Correlations among Demographics, Psychopathology and Treatment Beliefs Measures

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Years of</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. PDS</td>
<td>.18*</td>
<td>- .08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. QIDS</td>
<td>.15*</td>
<td>- .08</td>
<td></td>
<td>.75**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. PTCI Total</td>
<td>.16*</td>
<td>- .02</td>
<td>.60**</td>
<td>.75**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SELF</td>
<td>.16*</td>
<td>- .03</td>
<td>.60**</td>
<td>.76**</td>
<td>.97**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. WORLD</td>
<td>.09</td>
<td>- .03</td>
<td>.49**</td>
<td>.54**</td>
<td>.77**</td>
<td>.64**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. BLAME</td>
<td>.14*</td>
<td>.05</td>
<td>.23**</td>
<td>.37**</td>
<td>.64**</td>
<td>.52**</td>
<td>.34**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. PE Beliefs</td>
<td>- .14*</td>
<td>.08</td>
<td>- .17*</td>
<td>- .10</td>
<td>- .09</td>
<td>- .04</td>
<td>- .17*</td>
<td>- .09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. SER Beliefs</td>
<td>- .21**</td>
<td>.20**</td>
<td>- .24**</td>
<td>- .16*</td>
<td>- .08</td>
<td>- .09</td>
<td>- .10</td>
<td>.04</td>
<td>.36**</td>
<td></td>
</tr>
</tbody>
</table>

Note. ** p < .001; * p < .05; PDS = Posttraumatic Diagnostic Scale; QIDS = Quick Inventory of Depressive Symptomatology; PTCI = Posttraumatic Cognitions Inventory; CS = Credibility Scale; PRS = Personal Reactions Scale; PE = Prolonged Exposure; SER = Sertraline.
Table 3

Mean and Standard Deviation of Psychopathology and Treatment Beliefs Measures for Demographic and Psychopathology Characteristics

<table>
<thead>
<tr>
<th>Measure</th>
<th>Gender</th>
<th>Trauma Type&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Treatment History</th>
<th>PTSD Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (n = 83)</td>
<td>Female (n = 114)</td>
<td>Inter (n = 102)</td>
<td>Non-inter (n = 81)</td>
</tr>
<tr>
<td>PDS</td>
<td>18.09 (13.90)</td>
<td>24.04 (13.23)</td>
<td>23.39 (13.51)</td>
<td>19.26 (13.77)</td>
</tr>
<tr>
<td>QIDS</td>
<td>9.09 (6.14)</td>
<td>11.19 (5.54)</td>
<td>11.49 (5.72)</td>
<td>8.51 (5.45)</td>
</tr>
<tr>
<td>PTCI Total</td>
<td>101.11 (45.31)</td>
<td>120.57 (37.10)</td>
<td>119.86 (39.18)</td>
<td>99.66 (40.03)</td>
</tr>
<tr>
<td>SELF</td>
<td>2.75 (1.48)</td>
<td>3.36 (1.26)</td>
<td>3.32 (1.33)</td>
<td>2.72 (1.56)</td>
</tr>
<tr>
<td>WORLD</td>
<td>4.23 (1.71)</td>
<td>4.94 (1.33)</td>
<td>4.92 (1.45)</td>
<td>4.28 (1.50)</td>
</tr>
<tr>
<td>BLAME</td>
<td>2.75 (1.64)</td>
<td>3.11 (1.56)</td>
<td>3.10 (1.51)</td>
<td>2.60 (1.48)</td>
</tr>
<tr>
<td>PE Beliefs</td>
<td>6.89 (3.21)</td>
<td>6.38 (3.17)</td>
<td>6.77 (3.13)</td>
<td>6.24 (3.14)</td>
</tr>
<tr>
<td>SER Beliefs</td>
<td>7.82 (3.47)</td>
<td>7.45 (3.44)</td>
<td>7.66 (3.56)</td>
<td>7.55 (3.29)</td>
</tr>
</tbody>
</table>

Note. Inter = interpersonal; Non-inter = non-interpersonal<sup>a</sup>= Numbers based on worst trauma listed on PDS, item 14 (n = 183); PDS = Posttraumatic Diagnostic Scale; QIDS = Quick Inventory of Depressive Symptomatology; PTCI = Posttraumatic Cognitions Inventory; PE = Prolonged Exposure; SER = Sertraline.
Table 4

Mean and Standard Deviation of Demographic Variables, Psychopathology, and Treatment Beliefs Measures between PTSD Treatment Choice Groups with Post-hoc Tukey HSD Tests

<table>
<thead>
<tr>
<th></th>
<th>No Treatment (n = 25)</th>
<th>PE (n = 74)</th>
<th>Medication (n = 104)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>31.96 (11.52)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>36.75 (13.74)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>42.09 (10.88)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Years of Education</td>
<td>13.29 (1.57)</td>
<td>13.64 (1.87)</td>
<td>13.07 (1.52)</td>
</tr>
<tr>
<td>PDS</td>
<td>15.70 (13.89)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>17.23 (13.61)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25.94 (12.33)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>QIDS</td>
<td>8.39 (6.00)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.86 (5.14)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12.34 (5.63)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>PTCI Total</td>
<td>105.85 (38.21)</td>
<td>98.46 (38.83)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>122.79 (41.32)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>SELF</td>
<td>2.88 (1.35)</td>
<td>2.59 (1.25)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.48 (1.37)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>WORLD</td>
<td>4.23 (1.57)</td>
<td>4.36 (1.47)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.93 (1.51)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>BLAME</td>
<td>3.11 (1.56)</td>
<td>2.72 (1.61)</td>
<td>3.07 (1.56)</td>
</tr>
<tr>
<td>PE Beliefs</td>
<td>8.64 (3.79)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.42 (3.03)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.22 (2.97)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>SER Beliefs</td>
<td>9.40 (3.40)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.31 (3.04)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.01 (2.91)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note. Within each row, superscripts <sup>a</sup> and <sup>b</sup> are significantly different (p < .05); PDS = Posttraumatic Diagnostic Scale; QIDS = Quick Inventory of Depressive Symptomatology: Self Report; PE = Prolonged Exposure; SER = Sertraline.
Table 5

*Logistic Regression Predicting the Likelihood of Selecting the Medication Treatment*

<table>
<thead>
<tr>
<th>Choice</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
<th>95% CI for Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Age</td>
<td>.04</td>
<td>.02</td>
<td>6.35</td>
<td>1</td>
<td>.01</td>
<td>1.04</td>
<td>1.01</td>
</tr>
<tr>
<td>Treatment History</td>
<td>1.44</td>
<td>.47</td>
<td>9.27</td>
<td>1</td>
<td>.00</td>
<td>4.22</td>
<td>1.44</td>
</tr>
<tr>
<td>Trauma Type</td>
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<td>1</td>
<td>.01</td>
<td>3.33</td>
<td>1.44</td>
</tr>
<tr>
<td>SER Beliefs</td>
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<td>.07</td>
<td>32.80</td>
<td>1</td>
<td>.00</td>
<td>.67</td>
<td>.59</td>
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<td>Constant</td>
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<td>.89</td>
<td>.10</td>
<td>1</td>
<td>.75</td>
<td>.76</td>
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</tr>
</tbody>
</table>

*Note. SER = Sertraline.*
Table 6

*Standardized Factor Loadings of Model Indicators*

<table>
<thead>
<tr>
<th>Latent factor and indicator</th>
<th>PE Model Factor Loadings</th>
<th>Medication Model Factor Loadings</th>
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</thead>
<tbody>
<tr>
<td>Negative Cognitions</td>
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<td></td>
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<tr>
<td>SELF</td>
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<td>.93**</td>
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<td>WORLD</td>
<td>.68**</td>
<td>.68**</td>
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<tr>
<td>BLAME</td>
<td>.43**</td>
<td>.42**</td>
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<tr>
<td>Psychopathology</td>
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<td>PDS</td>
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<td>.82**</td>
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<tr>
<td>QIDS</td>
<td>.95**</td>
<td>.98**</td>
</tr>
</tbody>
</table>

*Note.* **p < .001; PDS = Posttraumatic Diagnostic Scale; QIDS = Quick Inventory of Depressive Symptomatology: Self Report.*
Figure 1. Hypothesized model: Relations between negative cognitions and PE treatment choice. PE = Prolonged Exposure; PDS = Posttraumatic Stress Diagnostic Scale; QIDS-SR$_{16}$ = Quick Inventory Depressive Symptomatology: Self-Report.
Figure 2. Hypothesized model: Relations between negative cognitions and medication treatment choice. SER = Sertraline; PDS = Posttraumatic Stress Diagnostic Scale; QIDS-SR₁₆ = Quick Inventory Depressive Symptomatology: Self-Report.
**Figure 3.** **p < .001; * p < .05;** Revised hypothesized model: Relations among demographics, negative cognitions, psychopathology, PE beliefs, and PE treatment choice with standardized (and unstandardized) coefficients. PE = Prolonged Exposure; PDS = Posttraumatic Stress Diagnostic Scale; QIDS-SR16 = Quick Inventory Depressive Symptomatology: Self-Report.
Figure 4. ** $p < .001$; * $p < .05$; Revised hypothesized model: Relations among demographics, negative cognitions, psychopathology, SER beliefs, and medication treatment choice with standardized (and unstandardized) coefficients. SER = Sertraline; PDS = Posttraumatic Stress Diagnostic Scale; QIDS-SR$_{16}$ = Quick Inventory Depressive Symptomatology: Self-Report.
Appendix

Demographics

1. Age

2. Gender
   1 - Male  2 - Female

3. Race/Ethnic Identification
   1 - Black  4 - Asian-American
   2 - White  5 - Native American
   3 - Hispanic  6 - Other

4. What is your current religious identification?
   1 - Catholic
   2 - Protestant (which sect? ___________________________)
   3 - Jewish
   4 - Muslim
   5 - Other (which one? _____________________________)
   6 - None

4b. How important is this faith to you?

   1  2  3  4  5  6
   Not very important  Moderately important  Very important  Not Applicable

5. How many years of education have you completed? (completed HS = 12)

6. What is your relationship status?
   1 - single  4 - divorced or separated
   2 - married  5 - widowed
   3 - co-habitating  6 - other (specify) __________

7. What is your employment status now?
   0 - Not working / Unemployed
   1 - Working part-time
   2 - Working full-time (more than 30 hours per week)
   3 - On disability
   4 - Student
   5 - Retired

8. What is your current household income?
   1 - $ 5,000 and less  2 - $ 5,001 - 10,000
   3 - $10,001 - 15,000  4 - $15,001 - 20,000
   5 - $20,001 - 30,000  6 - $30,001 - 40,000
   7 - $40,001 - 50,000  8 - $50,000 and up
Treatment History

1a. Have you ever had psychotherapy specifically for posttraumatic symptoms (e.g., nightmares, avoidance of trauma reminders, irritability, trouble sleeping)?
   By psychotherapy we mean any type of individual or group talk therapy given by a trained mental health professional (e.g., psychologist, psychiatrist, social worker, pastoral counselor, etc.).
   0 – No                        1 – Yes

1b. Have you ever had psychotherapy for any reason other than posttraumatic symptoms?
   0 – No                        1 – Yes
   If you answered NO to both questions, please go on to question #2. If you answered YES to either question, please continue.

1c. What was the primary reason you were seeking treatment? Please circle all that apply.
   1. Posttraumatic stress disorder
   2. Depression
   3. Anxiety
   4. Other psychiatric symptoms: ______________________________________
   5. Relationship or family issues
   6. Other, please explain: ___________________________________________

1d. What type(s) of psychotherapy? Please circle all that apply.
   1. Individual cognitive or cognitive behavior therapy (e.g., cognitive processing therapy, prolonged exposure)
   2. Other individual therapy or counseling
   3. Family therapy/couple’s therapy
   4. Group therapy
   5. Other: Please describe __________________________________________

1e. How many months or years in total have you been in psychotherapy?
   0. less than 1 month
   1. 1 to 6 months
   2. 6 months to 1 year
   3. 1 to 3 years
   4. 3 to 6 years
   5. 6 or more years

1f. Across all the psychotherapy you have had up until now, how helpful has psychotherapy been for you? Please circle a number.
   0                                     1                                     2                                     3                                     4                                     5                                     6                                     Not at all helpful                      Extremely helpful

2a. Have you ever taken psychiatric medication specifically for posttraumatic symptoms (e.g., nightmares, avoidance of trauma reminders, irritability, trouble sleeping)?
   By psychiatric medication, we mean drugs that are prescribed by a doctor to specifically treat mental health problems.
   0 – No                        1 – Yes
2b. Have you ever taken a psychiatric medication for any reason other than posttraumatic symptoms?

0 – No 1 – Yes

If you answered NO to both questions, please go on to the next questionnaire. If you answered YES to either question, please continue.

2c. What was the primary reason you were seeking treatment? Please circle all that apply.

1. Posttraumatic stress disorder
2. Depression
3. Anxiety
4. Other psychiatric symptoms___________________________________________
5. Relationship or Family Issues
6. Other, please explain ____________________________________________

2d. What type(s) of psychiatric medication? Please circle all that apply.

1. Anti-anxiety (benzodiazepines); Examples: Valium, Xanax, Ativan, Klonopin
2. Prescription sleep medications; Examples: Ambien, Lunesta
3. Antidepressants; Examples: Prozac, Zoloft, Paxil, Celexa, Effexor, Wellbutrin
4. Mood stabilizers; Examples: Lithium, Depakote, Zyprexa
5. Neuroleptics; Examples: Risperidone, Seroquel, Geodone, trazodone
6. Herbals; Examples: St. John’s Wort, kava, valerian
7. Other: Please describe ____________________________________________

2e. How many months or years in total have you been on a psychiatric medication?

0. less than 1 month
1. 1 to 6 months
2. 6 months to 1 year
3. 1 to 3 years
4. 3 to 6 years
5. 6 or more years

2f. Across all of the psychiatric medications you have had up until now, how helpful have psychiatric medications been for you? Please circle a number.

0 1 2 3 4 5 6
Not at all helpful Extremely helpful
Part 1

Many people have lived through or witnessed a very stressful and traumatic event at some point in their lives. Below is a list of traumatic events. Put a checkmark in the box next to ALL of the events that have happened to you or that you have witnessed.

1. Serious accident, fire, or explosion (for example, an industrial, farm, car, plane, or boating accident)
2. Natural disaster (for example, tornado, hurricane, flood, or major earthquake)
3. Non-sexual assault by a family member or someone you know (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)
4. Non-sexual assault by a stranger (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)
5. Sexual assault by a family member or someone you know (for example, rape or attempted rape)
6. Sexual assault by a stranger (for example, rape or attempted rape)
7. Military combat or a war zone
8. Sexual contact when you were younger than 18 with someone who was 5 or more years older than you (for example, contact with genitals, breasts)
9. Imprisonment (for example, prison inmate, prisoner of war, hostage)
10. Torture
11. Life-threatening illness
12. Other traumatic event
13. If you marked item 12, specify the traumatic event here.

Part 2

If you marked more than one traumatic event in Part 1, put a checkmark in the box below next to the SINGLE event that bothers you the most. If you marked only one traumatic event in Part 1, mark the same one below.

- Accident
- Disaster
- Non-sexual assault/someone you know
- Non-sexual assault/stranger
- Sexual assault/someone you know
- Sexual assault/stranger
- Combat
- Sexual contact under 18 with someone 5 or more years older
- Imprisonment
- Torture
- Life-threatening illness
- Other

In the lines below, briefly describe the traumatic event you marked above.

________________________
________________________
________________________
________________________
________________________

Below are several questions about the traumatic event you just described above.

14. What was the date of the trauma described above?
15. What was the date of the trauma described above?

16. Y N Were you physically injured?
17. Y N Was someone else physically injured?
18. Y N Did you think that your life was in danger?
19. Y N Did you think that someone else’s life was in danger?
20. Y N Did you feel helpless?
21. Y N Did you feel terrified?

For the following questions, circle Y for Yes or N for No.

During this traumatic event:

16. Y N Were you physically injured?
17. Y N Was someone else physically injured?
18. Y N Did you think that your life was in danger?
19. Y N Did you think that someone else’s life was in danger?
20. Y N Did you feel helpless?
21. Y N Did you feel terrified?
Part 3
Below is a list of problems that people sometimes have after experiencing a traumatic event. Read each one carefully and circle the number (0-3) that best describes how often that problem has bothered you IN THE PAST MONTH. Rate each problem with respect to the traumatic event you described in Item 14.

0  Not at all or only one time
1  Once a week or less/once in a while
2  2 to 4 times a week/half the time
3  5 or more times a week/almost always

(22) 0 1 2 3 Having upsetting thoughts or images about the traumatic event that came into your head when you didn’t want them to

(23) 0 1 2 3 Having bad dreams or nightmares about the traumatic event

(24) 0 1 2 3 Reliving the traumatic event, acting or feeling as if it was happening again

(25) 0 1 2 3 Feeling emotionally upset when you were reminded of the traumatic event (for example, feeling scared, angry, sad, guilty, etc.)

(26) 0 1 2 3 Experiencing physical reactions when you were reminded of the traumatic event (for example, breaking out in a sweat, heart beating fast)

(27) 0 1 2 3 Trying not to think about, talk about, or have feelings about the traumatic event

(28) 0 1 2 3 Trying to avoid activities, people, or places that remind you of the traumatic event

(29) 0 1 2 3 Not being able to remember an important part of the traumatic event

(30) 0 1 2 3 Having much less interest or participating much less often in important activities

(31) 0 1 2 3 Feeling distant or cut off from people around you

(32) 0 1 2 3 Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings)

(33) 0 1 2 3 Feeling as if your future plans or hopes will not come true (for example, you will not have a career, marriage, children, or a long life)

(34) 0 1 2 3 Having trouble falling or staying asleep

(35) 0 1 2 3 Feeling irritable or having fits of anger

(36) 0 1 2 3 Having trouble concentrating (for example, drifting in and out of conversations, losing track of a story on television, forgetting what you read)

(37) 0 1 2 3 Being overly alert (for example, checking to see who is around you, being uncomfortable with your back to a door, etc.)

(38) 0 1 2 3 Being jumpy or easily startled (for example, when someone walks up behind you)

(39) How long have you been experiencing the problems that you reported above? (circle ONE)

1  Less than 1 month
2  1 to 3 months
3  More than 3 months
4  Not Applicable

(40) How long after the traumatic event did these problems begin? (circle ONE)

1  Less than 6 months
2  6 or more months
3  Not Applicable

Part 4
Indicate below if the problems you rated in Part 3 have interfered with any of the following areas of your life DURING THE PAST MONTH. Circle Y for Yes or N for No.

(41) Y N Work
(42) Y N Household chores and duties
(43) Y N Relationships with friends
(44) Y N Fun and leisure activities
(45) Y N Schoolwork
(46) Y N Relationships with your family
(47) Y N Sex life
(48) Y N General satisfaction with life
(49) Y N Overall level of functioning in all areas of your life
QIDS-SR16

Check the one response to each item that best describes you for the past seven days.

During the past seven days...

1. Falling Asleep:
   0  I never take longer than 30 minutes to fall asleep.
   1  I take at least 30 minutes to fall asleep, less than half the time.
   2  I take at least 30 minutes to fall asleep, more than half the time.
   3  I take more than 60 minutes to fall asleep, more than half the time.

2. Sleep During the Night
   0  I do not wake up at night.
   1  I wake up at least once a night, but I go back to sleep easily.
   2  I have a restless, light sleep with a few brief awakenings each night.
   3  I awaken more than once a night and stay awake for 20 minutes or more, more than half
      the time.

3. Waking Up Too Early:
   0  Most of the time, I awaken no more than 30 minutes before I need to get up.
   1  More than half the time, I awaken more than 30 minutes before I need to get up.
   2  I almost always awaken at least one hour or so before I need to, but I go back to sleep
      eventually.
   3  I awaken at least one hour before I need to, and can't go back to sleep.

4. Sleeping Too Much:
   0  I sleep no longer than 7-8 hours/night, without napping during the day.
   1  I sleep no longer than 10 hours in a 24-hour period including naps.
   2  I sleep no longer than 12 hours in a 24-hour period including naps.
   3  I sleep longer than 12 hours in a 24-hour period including naps.

5. Feeling Sad:
   0  I do not feel sad.
   1  I feel sad less than half the time.
   2  I feel sad more than half the time.
   3  I feel sad nearly all of the time.

6. Decreased Appetite:
   0  There is no change in my usual appetite.
   1  I eat somewhat less often or lesser amounts of food than usual.
   2  I eat much less than usual and only with personal effort.
   3  I rarely eat within a 24-hour period, and only with extreme personal effort or when others
      persuade me to eat.

7. Increased Appetite:
   0  There is no change from my usual appetite.
   1  I feel a need to eat more frequently than usual.
   2  I regularly eat more often and/or greater amounts of food than usual.
   3  I feel driven to overeat both at mealtime and between meals.

8. Decreased Weight (Within the Last Two Weeks):
   0  I have not had a change in my weight.
1. I feel as if I have had a slight weight loss.
2. I have lost 2 pounds or more.
3. I have lost 5 pounds or more.

9. Increased Weight (Within the Last Two Weeks):
   0. I have not had a change in my weight.
   1. I feel as if I have had a slight weight gain.
   2. I have gained 2 pounds or more.
   3. I have gained 5 pounds or more.

10. Concentration / Decision Making:
    0. There is no change in my usual capacity to concentrate or make decisions.
    1. I occasionally feel indecisive or find that my attention wanders.
    2. Most of the time, I struggle to focus my attention or to make decisions.
    3. I cannot concentrate well enough to read or cannot make even minor decisions.

11. View of Myself:
    0. I see myself as equally worthwhile and deserving as other people.
    1. I am more self-blaming than usual.
    2. I largely believe that I cause problems for others.
    3. I think almost constantly about major and minor defects in myself.

12. Thoughts of Death or Suicide:
    0. I do not think of suicide or death.
    1. I feel that life is empty or wonder if it's worth living.
    2. I think of suicide or death several times a week for several minutes.
    3. I think of suicide or death several times a day in some detail, or I have made specific
       plans for suicide or have actually tried to take my life.

13. General Interest
    0. There is no change from usual in how interested I am in other people or activities.
    1. I notice that I am less interested in people or activities.
    2. I find I have interest in only one or two of my formerly pursued activities.
    3. I have virtually no interest in formerly pursued activities.

14. Energy Level:
    0. There is no change in my usual level of energy.
    1. I get tired more easily than usual.
    2. I have to make a big effort to start or finish my usual daily activities (for example,
       shopping, homework, cooking, or going to work).
    3. I really cannot carry out most of my usual daily activities because I just don't have the
       energy.

15. Feeling Slowed Down:
    0. I think, speak, and move at my usual rate of speed.
    1. I find that my thinking is slowed down or my voice sounds dull or flat.
    2. It takes me several seconds to respond to most questions and I'm sure my thinking is
       slowed.
    3. I am often unable to respond to questions without extreme effort.

16. Feeling Restless:
    0. I do not feel restless.
    1. I'm often fidgety, wringing my hands, or need to shift how I am sitting.
    2. I have impulses to move about and am quite restless.
    3. At times, I am unable to stay seated and need to pace around.
Posttraumatic Cognitions Inventory (PTCI)

We are interested in the kind of thoughts which you may have had after a traumatic experience. Below are a number of statements that may or may not be representative of your thinking.

Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement. People react to traumatic events in many different ways. There are no right or wrong answers to these statements.

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<tr>
<td>1</td>
<td>The event happened because of the way I acted.</td>
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<td>2</td>
<td>I can't trust that I will do the right thing.</td>
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<td>3</td>
<td>I am a weak person.</td>
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<td>4</td>
<td>I will not be able to control my anger and will do something terrible.</td>
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<td>5</td>
<td>I can't deal with even the slightest upset.</td>
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<td>6</td>
<td>I used to be a happy person but now I am always miserable.</td>
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<td>7</td>
<td>People can't be trusted.</td>
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<td>8</td>
<td>I have to be on guard all the time.</td>
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<td>9</td>
<td>I feel dead inside.</td>
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<td>10</td>
<td>You can never know who will harm you.</td>
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<td>11</td>
<td>I have to be especially careful because you never know what can happen next.</td>
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<td>12</td>
<td>I am inadequate.</td>
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<td>13</td>
<td>I will not be able to control my emotions, and something terrible will happen.</td>
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<td>14</td>
<td>If I think about the event, I will not be able to handle it.</td>
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<td>15</td>
<td>The event happened to me because of the sort of person I am.</td>
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<td>16</td>
<td>My reactions since the event mean that I am going crazy.</td>
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<td>17</td>
<td>I will never be able to feel normal emotions again.</td>
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<td>18</td>
<td>The world is a dangerous place.</td>
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<td>19</td>
<td>Somebody else would have stopped the event from happening.</td>
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<td>20</td>
<td>I have permanently changed for the worse.</td>
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<td>21</td>
<td>I feel like an object, not like a person.</td>
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<td>22</td>
<td>Somebody else would not have gotten into this situation.</td>
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<td>23</td>
<td>I can't rely on other people.</td>
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<td>24</td>
<td>I feel isolated and set apart from others.</td>
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<td>25</td>
<td>I have no future.</td>
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<td>26</td>
<td>I can't stop bad things from happening to me.</td>
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<td>27</td>
<td>People are not what they seem.</td>
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<td>28</td>
<td>My life has been destroyed by the trauma.</td>
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<td>29</td>
<td>There is something wrong with me as a person.</td>
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<td>30</td>
<td>My reactions since the event show that I am a lousy coper.</td>
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<td>31</td>
<td>There is something about me that made the event happen.</td>
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<td>32</td>
<td>I will not be able to tolerate my thoughts about the event, and I will fall apart.</td>
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<td>33</td>
<td>I feel like I don't know myself anymore.</td>
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<td>34</td>
<td>You never know when something terrible will happen.</td>
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<td>35</td>
<td>I can't rely on myself.</td>
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<td>36</td>
<td>Nothing good can happen to me anymore.</td>
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**Credibility Scale**

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<th>Not at all</th>
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<tr>
<td>1. How logical does this therapy seem to you?</td>
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<td>2. How scientific does this therapy seem to you?</td>
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<td>3. How complete does this therapy seem to you? In other words, do you think this therapy covers all types of people that have symptoms following a trauma?</td>
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<td>4. To what extent would this therapy help an individual in other areas of life?</td>
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<td>5. How likely would you be to go into this therapy if you had PTSD?</td>
<td>1</td>
<td>2</td>
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<td>6</td>
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</tr>
<tr>
<td>6. How effective do you think this therapy would be for most people?</td>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>6</td>
<td>7</td>
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</tr>
<tr>
<td>7. If a close friend or relative had PTSD, would you recommend this therapy to them?</td>
<td>1</td>
<td>2</td>
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<td>6</td>
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</tbody>
</table>
### Personal Reactions

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If you had PTSD and went for treatment, how helpful do you think this therapy would be for you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>2. To what extent do you think this therapy would help you understand the causes of your PTSD?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>3. To what extent do you think that this therapy would help you learn effective ways to cope with the symptoms?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>7</td>
</tr>
<tr>
<td>4. If you were to seek therapy for PTSD, how likely would you be to choose this type of therapy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. If you were to try this therapy, how effective would it be in treating your PTSD?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
References


depression symptoms and depression-relevant treatment rationales on posttraumatic stress disorder treatment choice and treatment beliefs. Manuscript submitted for publication.


