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Providing a treatment rationale for PTSD: Does what we say matter?

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Abstract

Little is understood about the factors that influence a woman's preference for a particular type of treatment after an assault. Furthermore, it remains unclear the extent to which providing detailed information such as the mechanism underlying a treatment or its side effects can affect a client's treatment preference for psychotherapy or pharmacotherapy. The current study of 324 women with varying degrees of trauma exposure and posttraumatic stress symptoms experimentally manipulated the content of treatment rationales for two common PTSD treatments: sertraline (SER) and prolonged exposure (PE). Specifically, both information regarding the hypothesized mechanism of the treatment and treatment side effects were manipulated. In general, personal reactions were more positive and credibility was stronger for psychotherapy than pharmacotherapy. This preference for the psychotherapy persisted regardless of specific information presented in the treatment rationale. For those reporting heightened hyperarousal and those of minority status, there was an increased likelihood of more positive reactions to sertraline. The results highlight assessment of treatment-related beliefs and preferences early on in the therapeutic process. Ultimately, understanding the factors that shape treatment preferences may contribute to the development of personalized treatment strategies that integrate preferences and attitudes about treatment as a way of bolstering adherence and outcome.

Keywords

Treatment choice; Treatment rationales; Cognitive behavioral therapy; Pharmacotherapy; Posttraumatic stress disorder

In the United States, approximately 33% of women will be sexually or physically assaulted at least once during their lifetime (e.g., Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Women of college age are at a period of particular risk: close to half of first sexual assaults occur before the age of 18 and women of this age are at continued risk for experiencing assault, with an additional 29.4% of all first sexual assaults occurring between 18 and 24 (Tjaden & Thoennes, 1998). The National College Women Sexual Victimization study estimates about 20–25% of college women are victims of sexual assault or attempted assault during their college years (Fisher, Cullen, & Turner, 2000). Thus, for college-aged women, the possibility of sexual assault is real, and many of these women have thought about what it would be like and what they would do if they were sexually assaulted (e.g., Fisher, Daigle, Cullen, & Turner, 2006).

Following such traumatic experiences, one of the most common psychological difficulties is posttraumatic stress disorder (PTSD), characterized by reexperiencing the event, avoidance of trauma-reminders, and hyperarousal (American Psychiatric Association, 1994). Among female sexual and physical assault survivors, lifetime prevalence of PTSD reported in the National Comorbidity Survey is 45.9% and 21.3%, respectively (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Further, women are at particular risk for PTSD, with two to four times as many women as men developing the disorder (e.g., Kessler et al., 1995).

Despite high levels of trauma exposure and resultant PTSD, only a small minority of those affected seek treatment. Information from the National Comorbidity Survey Replication (NCS-R; Kessler et al., 2005) underscores how long people typically wait to seek care: Only 7.1% of individuals with PTSD reported making treatment contact within the first year following trauma exposure, with the median time to seek treatment being an astounding twelve years after onset (Wang et al., 2005). When looking at assault survivors in particular, the picture is similar. It has been reported that only a fifth of sexually assaulted women seek any mental health services in the first year post-assault (Kimerling & Calhoun, 1994; Solomon & Davidson, 1997) and fewer than 30% of sexual assault survivors eventually seek services for assault-related psychopathology (George, Winfield, & Blazer, 1992; Golding, Stein, Siegel, Burnam, & Sorenson, 1988).

We may be better able to understand treatment seeking in this population by knowing more about women's opinions of, and reactions to, various treatment options. Fortunately, there are various efficacious psychotherapeutic and pharmacological treatments for individuals with chronic PTSD. A growing body of randomized controlled trials highlight the efficacy of selective serotonin reuptake inhibitors (SSRIs; e.g., Brady et al., 2000; Davidson, Rothbaum, van der Kolk, Sikes, & Farfel, 2001; Marshall, Beebe, Oldham, & Zaninelli, 2001), with both sertraline and paroxetine receiving FDA approval. In addition, cognitive behavioral therapies (CBT) have been found to be effective in randomized, controlled trials (Bradley, Green, Russ, Dutra, & Westen, 2005). Specifically, prolonged exposure (PE) has undergone some of the most rigorous evaluation for women with assault-related PTSD (Foa, Rothbaum, Riggs, & Murdock, 1991; Foa et al., 1999, 2005; Resick, Nishith, Weaver, Astin, & Feuer, 2002; Schnurr et al., 2007). Notably, exposure therapy and SSRIs are very different types of treatments; exposure therapy requires repeatedly approaching feared situations and memories, while pharmacotherapy does not. Thus, patients may have distinct preferences for one of these divergent approaches.

In recent years, studies examining patient preferences for particular mental health treatments, specifically psychotherapy and/or pharmacotherapies, have begun to emerge. Across a wide variety of disorders and studies, when given a choice, there is a general preference for psychological interventions over pharmacological ones (Barlow, 2004). Yet, this aggregated review focused across many mental disorders, and it remains unclear if there are differences between treatment preference for specific disorders such as PTSD.

To date, five studies have explored treatment preferences and factors that influence them, in relationship to trauma exposure and subsequent symptoms. In a study of emergency-room patients, Roy-Byrne, Berliner, Russo, Zatzick, and Pitman (2003) reported that more than 80% of assault survivors expressed interest in treatment, with more interested in counseling (76%) than medication (62%). Predictors of each treatment were examined separately, but partially overlapped: being female and having been sexually assaulted were predictive of both a preference for medication or counseling, whereas a history of psychiatric treatment, and perceived life threat from the trauma were also predictive of preference for counseling. In two analogue studies of preferences (Becker, Darius, & Schaumberg, 2007; Tarrier, Liversidge, & Gregg, 2006), undergraduate students were provided with descriptions of

various psychotherapies aimed at improving PTSD symptoms. Most respondents said they would seek psychological treatment (Tarrier et al., 2006), and exposure therapy was among the most preferred treatments (Becker et al., 2007; Tarrier et al., 2006). In a third analogue study, Zoellner, Feeny, Cochran, and Pruitt (2003) provided detailed rationales for both psychotherapy and a medication for the treatment of assault-related reactions; the majority of women preferred the psychotherapy to the medication option. Further, higher state anxiety was related to less positive personal reactions to the psychotherapy option. In another study using similar methods but with trauma-exposed women (Angelo, Miller, Zoellner, & Feeny, 2008), again, the majority of women preferred psychotherapy to medication. Moreover, higher education was associated with an increased likelihood to choose psychotherapy over pharmacotherapy. Overall, the emerging literature suggests a general preference for psychotherapy over pharmacotherapy, and that certain demographic (e.g., education) and psychopathology factors (e.g., PTSD severity, depression) may influence receptivity to treatment options. In particular, PTSD-specific symptom clusters such as hyperarousal (e.g., startle reactivity, sleep problems) and avoidance symptoms (e.g., avoidance of trauma-related reminders) may play a potentially important role in treatment-decision making.

Notably, the degree to which an individual believes a treatment is credible and has a positive personal reaction to it may serve as an important predictor of treatment choice. Indeed, there is mounting evidence that agreement with treatment rationales is associated with the perception that the treatment will be helpful and also results in better treatment outcomes. For example, individuals who agree with the nature of the rationales for cognitive behavioral treatment for depression improve more quickly and have better outcomes than those who do not (e.g., Addis & Carpenter, 1999; Addis & Jacobson, 2000; Ilardi & Craighead, 1994). Related to perceived credibility of a treatment is the perceived etiology of a psychological disorder and how the mechanism underlying a treatment corresponds to it. Indeed, using qualitative methods (Angelo et al., 2008; Cochran, Pruitt, Fukuda, Zoellner, & Feeny, 2008; Zoellner et al., 2003), variations of the perceived mechanism of a treatment were the most commonly cited reason for treatment choice and also emerged as one of strongest predictors of treatment choice. Research in the area of depression is consistent with this as well, suggesting that particular treatments for depression are considered more helpful when the etiological rationales for depression (i.e., biological, environmental, etc.) are congruent with the mechanisms underlying the treatment focus (i.e., both psychological or both physical; Iselin & Addis, 2003).

In addition to perceived etiology and treatment mechanisms as factors influencing treatment choice, another salient factor potentially influencing treatment preference may be the perceived benefits and costs, specifically health-related side effects of the implemented interventions. For example, side-effect concerns around pharmacotherapy, particularly selective serotonin reuptake inhibitors (SSRIs), may include sleepiness, nervousness, insomnia, dizziness, nausea, tremors, gastrointestinal issues, loss of appetite, weight loss and loss of sexual drive (Brady et al., 2000). For psychotherapy, particularly for trauma-focused CBT, possible concerns may focus on potential effects of dealing with feared memories, such as increasing anxiety, depression, and PTSD symptoms (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002); and indeed, individuals rating various treatment options report that exposure treatments have the potential for discomfort (Tarrier et al., 2006). Consistent with this, variations on the perceived health effects or side effects of a treatment, particularly for the SSRIs, are commonly mentioned regarding treatment options for PTSD (Angelo et al., 2008; Cochran et al., 2008). More generally, in a survey of US attitudes toward psychiatric medications, close to a quarter of adults indicated that psychiatric medications were harmful to the body and the majority (64.4%) were unwilling

to consider taking such medications if they were having trouble in their personal life (Croghan et al., 2003).

Important to note is that none of the previous work to date has focused on systematically examining if treatment-related beliefs or preferences could be systematically manipulated. Ultimately, it may be that the information a clinician presents, that is, the content of treatment rationales, particularly with regard to the etiology of symptoms, or mechanism of treatment, and potential health or side effects, dramatically affects treatment choice. However, we know little about how much what clinicians say about various treatment options really matters to potential patients. In order to begin to address this question, in the present study, female undergraduates were initially asked their overall impression of their perceived credibility and personal reactions to both pharmacotherapy and psychotherapy for the treatment of sexual assault-related PTSD symptoms. Next, participants received detailed treatment rationales for both sertraline (SER) and prolonged exposure (PE). These rationales were experimentally manipulated to provide varying degrees of information regarding potentially key factors influencing treatment preference: mechanism and side effects. After receiving each rationale, participants then gave ratings for their perceived credibility and personal reactions. Finally, participants were asked to make a final treatment preference. The primary goal of the present study was to examine shifts in treatment-related attitudes following the presentation of specific rationale content. We chose an experimental design, one that limits the influence of potentially confounding variables while simultaneously allowing for the necessary cell sizes for full counterbalancing, in order to manipulate treatment-related beliefs about etiology/mechanism of action and side effects. This type of experimental design helps to isolate potential causal links between the content of treatment rationales and treatment preference. Based on previous work (Angelo et al., 2008; Cochran et al., 2008; Zoellner et al., 2003), we hypothesized that additional information about treatment mechanism would improve perceptions of treatment credibility and personal reactions for both treatments and that expanded side-effect information would decrease such perceptions. A secondary goal was to examine individual differences in predicting credibility and personal reactions for each treatment option. Based on the extant literature, we explored demographic, PTSD symptom clusters (i.e., reexperiencing, avoidance, hyperarousal), and other psychopathology factors (e.g., depression, state and trait anxiety, and anxiety sensitivity) as potential predictors of treatment reactions. We examined specific PTSD symptom clusters, as they may have a differential association with personal treatment reactions (e.g., an individual high in trauma-related avoidance may have a more positive reaction to a medication compared to a psychotherapy where approaching trauma-reminders is critical; whereas, an individual high in trauma-related reexperiencing may have a more positive reaction to a psychotherapy where it is clear these symptoms will be directly addressed).

Method

Participants

Three-hundred and eighty-eight women were initially recruited via undergraduate psychology subject pools at two large metropolitan universities. The final sample consisted of 324 (83.5%) who had complete data with respect to treatment rationale ratings (at both pre- and post-manipulation) and final treatment choice. Missing data analyses revealed no significant differences between those individuals with complete versus missing data on demographic variables and psychopathology.

Demographic information can be seen in Table 1. Within this sample, approximately 45% ($n = 145$) reported experiencing a DSM-IV Criterion A event on the Posttraumatic Stress Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). Of these, 17.9% reported a

life-threatening illness, 16.2% reported a serious accident, 13.3% a natural disaster, 15% a non-sexual assault, 7.5% a sexual assault, and 30.1% reported other traumatic events, including death of a loved one, witnessing violence, and witnessing accidents. Overall, the presence of psychopathology was generally low to moderate in the sample, however, a majority of individuals reported high trait anxiety and anxiety sensitivity. There were no differences at baseline between randomized conditions on either history of sexual assault or PTSD severity, nor were either associated at baseline with initial ratings of credibility and personal reactions to either psychotherapy or pharmacotherapy. Thus, we did not control for these variables in subsequent analyses.

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 generated by the Microsoft Word word-processing package (Microsoft Inc., 2000). Rationales included either augmented or limited content with respect to mechanism/etiology and possible side effects. Sixteen counterbalanced rationales were developed, containing variations with either augmented or no information on etiology/mechanism (augmented for PE only, augmented for SER only, augmented for both, or limited for both) and side effects (augmented for PE only, augmented for SER only, augmented for both, or limited for both). See Appendix A for rationales.

Measures

Self-report psychopathology measures—To assess general psychopathology, the following commonly used self-report measures were utilized: Posttraumatic Stress Diagnostic Scale (PDS; Foa et al., 1997); Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961); State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983); and the Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986). Means, standard deviations, and ranges for these measures are presented in Table 1.

Treatment credibility and personal reactions—To assess perceptions of treatment credibility and personal attitudes concerning the treatment descriptions, both the Credibility Scale (CS; Addis & Carpenter, 1999) and Personal Reactions Scale (PRS; Addis & Carpenter, 1999) 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) with higher scores indicating higher credibility. Overall, the credibility scale assesses how much generally the participant perceives the treatment to be logical, scientifically based, and effective. 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) with higher scores indicating more positive personal reactions. 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 these measures was strong (CS: .93 PE, .91 SER; PRS: .95 PE, .92 SER).

Forced choice—To examine treatment choice, a single question was utilized counterbalancing the order of presentation in the question regarding the individual therapy, medication, and no treatment: “If you had a choice between individual therapy, medication,

or no treatment to help you with trauma-related symptoms (e.g., nightmares, upsetting thoughts, fear) which would you choose?"

Procedure

After informed consent procedures, participants completed self-report psychopathology measures. Participants then read the following "if this happened to you, what would you do" scenario, based on an "imagine self" perspective as this form of perception taking is associated with self-related cognitions (Davis et al., 2004):

Please imagine that you are 25 years old. You are seeking treatment because you are experiencing symptoms related to a rape that occurred six years earlier during college. You are currently having recurrent thoughts about the rape and intense emotional reactions when reminded of it, persistent avoidance of situations, thoughts, and feelings related to the rape, difficulty sleeping and concentrating, and are feeling on edge. These symptoms are causing you problems at work and in your relationships.

You are considering seeking help. Upon further consideration, you have narrowed your choices to two forms of treatment: Prolonged Exposure, an individual therapy, or Zoloft, a medication [counterbalanced]. In addition, you may still choose not to seek treatment. Please answer the questions following as if you were deciding on treatment for yourself.

Prior to reading the treatment rationales, participants completed pre-rationale ratings of the credibility of and their personal reactions to each treatment. Participants were then presented with counterbalanced SER or PE detailed treatment rationales. After reading the rationales, participants again rated the credibility of and their personal reactions to each treatment. Finally, participants chose among PE, SER, or no treatment. Participants were debriefed and received course credit for their participation.

Results

Initial credibility and personal reactions to treatment options

At initial baseline, without any detailed explanation of either PE or SER treatment presented, individuals reported more positive personal reactions to psychotherapy ($M = 24.56$, $SD = 5.46$) than medication ($M = 15.46$, $SD = 6.35$), $t(323) = 19.6$, $p < .001$, Cohen's $d = 1.09$. Similarly, individuals reported greater treatment credibility for psychotherapy ($M = 33.53$, $SD = 6.45$) than medication ($M = 26.33$, $SD = 7.80$), $t(323) = 13.90$, $p < .001$, Cohen's $d = .77$. Thus, in initial ratings, without any information other than the presence of an individual therapy and a medication, individuals showed a general preference for psychotherapy for the treatment of trauma-related symptoms.

Presentation of rationales: changes in credibility and personal reactions to treatment options

In order to examine the effects of the actual treatment rationales on personal reactions and credibility, change scores from pre- to post-rationale presentation on the personal reactions (PRR) and treatment credibility (CS) were computed. Overall, collapsing across manipulated rationales, for personal reactions, ratings of the psychotherapy increased when given specific information about PE ($M = 2.10$, $SD = 5.47$); whereas ratings of the pharmacotherapy decreased when given specific information about SER ($M = -1.62$, $SD = 5.72$), resulting in a difference between the two treatment options $t(323) = 8.00$, $p < .001$, Cohen's $d = .45$. For treatment credibility, a similar pattern emerged, with a general increase in the psychotherapy ratings when given specific information about PE ($M = 2.43$, $SD =$

6.71) and a general decrease in the pharmacotherapy ratings when given specific information about SER ($M = -2.22$, $SD = 7.23$), again resulting in a difference between the two treatment options, $t(323) = 8.32$, $p < .001$, Cohen's $d = .46$. Thus, in general, more specific information slightly increased personal reactions and credibility for PE but decreased personal reactions and credibility for SER.

Does manipulation of treatment rationales affect treatment perception?

ANOVAs were utilized to examine the effects of the manipulation of treatment rationale etiology (PE, SER, both, limited) and side effects (PE, SER, both, limited) on participants' personal reactions and credibility change scores. Means and standard deviations for change scores for both etiology and side-effect manipulations can be seen in Table 2.

Etiology/mechanism manipulation—For personal reactions to PE, there was a significant overall effect of augmentation of etiology ($F(3, 320) = 3.39$, $p < .05$), with personal reactions being slightly more positive for individuals who received the augmented PE rationale than those who received no augmentation at all for either PE or SER rationales (limited condition; mean difference $= 2.36$, $p < .05$, Cohen's $d = .45$). For credibility of PE, there were no augmentation effects. For SER ratings, augmentation of etiology information did not shift personal reactions or credibility of this treatment option. Thus, augmenting information regarding etiology/mechanism only increased positive personal reactions to PE and did not affect the credibility of that treatment option. Further, providing augmented etiology/mechanism information did not shift personal reactions or credibility of SER.

Side-effect manipulation—As can be seen in Table 2, there were no effects of augmented side-effect treatment rationales on personal reactions or credibility ratings. Thus, providing more or less information regarding potential treatment side effects did not substantially shift personal reactions to or the credibility of either PE or SER treatment options.

Does manipulation of treatment rationales affect treatment choice?

Next, treatment preference following rationale manipulation was examined. Overall, the PE, SER, and no treatment conditions were not chosen equally ($\chi^2(2, N = 324) = 378.69$, $p < .001$). The majority of participants chose PE (84.3%, $n = 273$) as compared to sertraline (9.6%, $n = 31$) or no treatment (6.2%, $n = 20$).

Etiology/mechanism manipulation—We next examined the association between treatment choice and mechanism/etiology information. Due to the low number of individuals who chose either SER or no treatment, for subsequent choice analyses, choice of PE (0 = SER or No Treatment, 1 = PE) and choice of SER (0 = PE or No Treatment, 1 = SER) were examined separately. For the choice of PE, there was no overall relationship between augmented etiology and treatment choice ($\chi^2(3, N = 324) = 5.23$, ns). However, for SER, there was an effect of augmented etiology and treatment choice ($\chi^2(3, N = 324) = 11.49$, $p < .01$). Although augmented wording did not affect choice of PE/no treatment ($\chi^2(3, N = 293) = .47$, ns), augmented etiological wording did affect choice of SER ($\chi^2(3, N = 31) = 14.81$, $p < .01$). Specifically, of those who chose SER, 54.5% were in the no augmented rationale condition; whereas, 12.9% augmented PE rationale, 16.1% augmented SER rationale, and 16.1% both augmented rationales chose SER, suggesting that the detailed discussion of PE and SER related etiology/mechanisms reduced the likelihood of choosing SER. Thus, presenting any augmented etiology/mechanism information either for PE or SER reduced the likelihood of choosing SER.

Side-effect manipulation—We next examined the association between treatment choice and side-effect information. For the choice of PE or SER, there was no overall relationship between augmented side-effect wording and treatment choice (respectively, $\chi^2(3, N = 324) = .17$, ns, $\chi^2(3, N = 324) = 3.61$, ns). Thus, consistent with the above findings regarding changes in personal reactions and credibility, side-effect information did not reliably shift ultimate preference for PE or SER.

Prediction of personal reactions and credibility

To examine the association of demographic, PTSD clusters, and other psychopathology factors with personal reactions and credibility for each treatment option, a series of stepwise regressions were conducted. To control for the varying information presented in the rationales, in Step 1, whether or not an individual received augmented information was included for etiology for both PE (0 = no augmented information, 1 = augmented information) and SER (0 = no augmented information, 1 = augmented information) and for side effects for both PE (0 = no augmented information, 1 = augmented information) and SER (0 = no augmented information, 1 = augmented information), resulting in four variables. In Step 2, demographic, PTSD clusters, or psychopathology variables were entered. The main dependent variables were personal reactions and credibility of PE and SER.

Demographic variables—To explore whether demographic factors were related to treatment personal reactions and credibility, age, years of education, ethnicity (*Caucasian* = 0, *non-Caucasian* = 1), and prior trauma history (*no DSM-IV Criteria A event* = 0, *Criteria A event* = 1) were included in Step 2 of the stepwise regressions. For personal reactions to PE, although Step 1 was not significant ($R = .14$, $R^2 = .02$, $F(4, 311) = 1.38$, ns), in Step 2, receiving augmented etiology for PE ($\beta = .13$) and lack of minority status ($\beta = -.15$) significantly predicted positive personal reactions to PE ($R = .24$, $\Delta R^2 = .04$, $F(8, 307) = 2.42$, $p < .05$). A similar pattern emerged for treatment credibility of PE. Although Step 1 was not significant ($R = .14$, $R^2 = .02$, $F(4, 311) = 1.55$, ns), in Step 2, there were significant effects for years of education ($\beta = .16$) and lack of minority status ($\beta = .14$) and a trend for receiving augmented etiology for PE ($\beta = .11$, $p = .07$) and SER ($\beta = .11$, $p = .06$) resulting in higher treatment credibility for PE ($R = .25$, $\Delta R^2 = .04$, $F(8, 307) = 2.64$, $p < .05$). Overall, minority status was associated with less positive reactions to and lower credibility of PE and augmented etiological information was associated weakly with more positive credibility of and reactions to PE.

For reactions to SER, in Step 1, lack of augmented etiology for PE ($\beta = -.21$) predicted more positive personal reactions to SER ($R = .26$, $R^2 = .07$, $F(4, 311) = 5.47$, $p < .001$). In Step 2, lack of augmented etiology for PE ($\beta = -.21$) and also minority status ($\beta = .19$) predicted more positive reactions to SER ($R = .33$, $\Delta R^2 = .04$, $F(8, 307) = 4.55$, $p < .001$). For treatment credibility of SER, similarly in Step 1, only lack of augmented etiology for PE ($\beta = -.22$) predicted more positive personal reactions to SER ($R = .27$, $R^2 = .07$, $F(4, 311) = 5.90$, $p < .001$). In Step 2, lack of augmented etiology for PE and also minority status ($\beta = .12$) predicted greater credibility of SER ($R = .30$, $\Delta R^2 = .02$, $F(8, 307) = 3.67$, $p < .001$). Overall, minority status was associated with more positive reactions to and greater credibility of sertraline. Also, more etiological information about PE predicted more negative reactions to and lower credibility of SER.

PTSD variables—For the subsample who reported Criterion A trauma exposure ($n = 145$), we first examined whether specific PTSD symptom clusters (reexperiencing, avoidance, arousal) were related to treatment personal reactions and credibility in Step 2 of the

regression equations. None of the symptom clusters predicted either more positive personal reactions or greater treatment credibility for PE.

For SER, however, a different pattern emerged. For personal reactions to SER, in Step 1, there was a trend toward augmented etiology for SER ($\beta = .17, p = .06$) predicting more positive personal reactions to SER ($R = .27, R^2 = .07, F(4, 140) = 2.67, p < .05$). In Step 2, augmented etiology for SER ($\beta = .17$) and more arousal symptoms ($\beta = .38$) predicted more positive reactions to SER ($R = .37, \Delta R^2 = .07, F(7, 137) = 3.18, p < .05$). A similar picture also emerged for treatment credibility of SER. Although Step 1 did not approach significance ($R = .24, R^2 = .06, F(4, 140) = 2.15, ns$), in Step 2, more arousal symptoms ($\beta = .35$) predicted greater SER treatment credibility ($R = .34, \Delta R^2 = .06, F(7, 137) = 2.53, p < .05$). Overall, more arousal symptoms were associated with more positive reactions to and credibility of SER; and augmented etiology information about SER predicted more positive reactions to SER but was not strongly associated with credibility of SER.

Other psychopathology variable—We then examined whether other aspects of psychopathology (depression, anxiety sensitivity, state anxiety, and trait anxiety) predicted treatment personal reactions and credibility in Step 2 of the regression equations. For prediction of personal reactions to PE, although Step 1 did not approach significance ($R = .13, R^2 = .02, F(4, 315) = 1.32, ns$), in Step 2, augmented etiology information for PE ($\beta = .13$), less depression ($\beta = -.16$), and greater trait anxiety ($\beta = .13, p = .05$) predicted more positive personal reactions to PE ($R = .24, \Delta R^2 = .04, F(8, 311) = 2.37, p < .05$). Again a similar picture emerged for PE credibility, although Step 1 did not approach significance ($R = .15, R^2 = .02, F(4, 315) = 1.68, ns$), in Step 2, lower depression ($\beta = -.16$), augmented etiology information for PE ($\beta = .12$), and trends for augmented etiology information for SER ($\beta = .11, p = .06$) and greater state anxiety ($\beta = .11, p = .08$) predicted greater PE treatment credibility ($R = .26, \Delta R^2 = .05, F(8, 311) = 2.89, p < .05$).

When examining psychopathology factors in the prediction of personal reactions to SER, at Step 1, the lack of augmentation of PE etiology ($\beta = -.20$) and the augmentation of side effects for PE ($\beta = .11$) predicted more positive personal reactions to SER ($R = .25, R^2 = .07, F(4, 315) = 5.44, p < .05$). In Step 2, only a trend toward greater depression ($\beta = .11, p = .09$) added to the prediction of more positive reactions to SER ($R = .31, \Delta R^2 = .02, F(8, 311) = 4.01, p < .05$). For SER treatment credibility, although both Step 1 ($R = .26, R^2 = .07, F(4, 311) = 5.69, p < .05$) and Step 2 ($R = .30, \Delta R^2 = .02, F(8, 311) = 3.84, p < .05$) were significant, only lack of augmentation of etiology information for PE (Step 1: $\beta = -.21$, Step 2: $\beta = -.22$) predicted greater treatment credibility in both models. That is, there were no psychopathology variables that added significant incremental predictive value for SER personal reactions and credibility.

Discussion

Despite believing that how clinicians describe treatment options may impact treatment-related attitudes and eventual treatment choices, the present study suggests that, for sexual assault-related symptoms, women appear to have fairly strongly engrained pre-existing positive biases toward treatment with psychotherapy over pharmacotherapy; and these beliefs appear to be relatively resistant to change based on information provided in treatment rationales. Indeed, current study findings suggest that providing more information about the underlying cause of these symptoms and treatment mechanisms only modestly increased positive personal reactions to prolonged exposure and, if anything, reduced the likelihood of choosing sertraline. Further, contrary to expectations regarding the importance of treatment side effects (Angelo et al., 2008; Cochran et al., 2008), the manipulation of this information

had little impact on influencing personal reactions, perception of treatment credibility, and eventual treatment preference.

Although the preference for psychotherapy has been seen in other studies examining trauma-related treatments (Roy-Byrne et al., 2003; Zoellner et al., 2003) and also in the broader anxiety disorder literature (Barlow, 2004; Deacon & Abramowitz, 2005), it is surprising given the potential importance of underlying mechanism in treatment preferences that we saw so little impact when we augmented discussion of these factors. For the choice of PE, there was no overall relationship between augmented etiology and treatment choice. Possibly, there was little room left for shifting choices of and reactions to PE; Consistent with other work (Zoellner et al., 2003), the vast majority of women in this study chose PE (84%). However, a ceiling effect does not fully explain these findings, as initial ratings on both credibility and personal reactions scales for psychotherapy prior to presenting detailed treatment rationales, were on average 4.8 on a 7-point scale, indicating only slightly positive initial attitudes. Alternatively, then, it may be that individuals have a pre-existing model for the development of chronic PTSD following sexual assault which is more consistent with a psychotherapeutic approach, potentially focuses on the importance of the need to talk about the event. Indeed, qualitative work thus far (Cochran et al., 2008; Zoellner et al., 2003) does suggest that women have a psychological model of their symptoms and of therapeutic change that is more consistent with psychotherapy than medication. (e.g., “I need to talk about the trauma to get past it successfully.”)

With respect to the lack of choice and lack of personal reaction shift around sertraline information, there are several possible explanations. Why does *more* information, including more information about an alternative treatment, actually hurt? One reason may be that there might be particular disconnect between attitude/reactions to medication and their future utilization; Croghan et al. (2003) found that though Americans generally endorse positive attitudes toward psychiatric medications, many people are unwilling to use them. As suggested above, it may be that, when thinking about sexual assault, many have an implicit “psychological model” of resulting symptoms. Conversely, a biological explanation of assault-related symptoms, emphasizing the notion of a “chemical imbalance” may not make intuitive sense to someone who is experiencing symptoms because she was raped as it would for someone who is experiencing, for example, symptoms of bipolar disorder. Indeed, it could be that such a biological model is perceived as pathologizing, suggesting that something is “wrong” with the trauma survivors. Yet, for the trauma-exposed subsample, augmented etiology information for SER, where the more biological information was exclusively presented, actually was associated with more positive personal reactions to SER, arguing against this hypothesis. It is also possible that no amount of information is going to shift that underlying model or belief. Indeed, in a descriptive study, Lafrance’s (2007) analysis of the accounts of female participants with depression revealed that while a medicalized, biological account offered some means of validation of their symptoms, ultimately it provided little legitimization of themselves and their experience of depression. This might point to an incongruity between the subjective experience of certain mental illnesses and the objective discipline of biomedicine. Alternatively, it is possible that the lack of change in beliefs following augmented etiology information regarding sertraline is related to the content of the rationale itself. Although the sertraline rationale attempted to emphasize the underlying biology of assault-related symptoms, the explanation itself may have been too technical and not as accessible as the PE rationale. The augmented etiology subsection condition for the sertraline rationale may just have been too difficult to understand. Thus, alternative SSRI rationales may yield different results; however, it is notable that *any* additional etiological information, not just the sertraline information, reduced the likelihood of choosing sertraline.

Side effects, in particular for the SSRIs, are often cited as related to treatment preferences (e.g., Angelo et al., 2008; Cochran et al., 2008). Yet, in the present study, the manipulation of information about potential treatment side effects did not strongly impact personal reactions or credibility ratings for *either* treatment nor was it associated with treatment choice. This finding is particularly striking as women are reporting that they prefer directly confronting painful traumatic memories in psychotherapy as compared to receiving medication; despite both options being specifically stated as an effective treatment options. Nevertheless, this is consistent with Tarrier et al.'s (2006) findings that, despite exposure treatment being rated as potentially distressing, it is also one of the most preferred treatments. It is of note that the risks associated with PE are temporary increases in *existing* PTSD symptoms and depression as opposed to *new* physical side effects. Perhaps, dealing with known symptoms is perceived as less difficult than the onset of new symptoms, or alternatively, that women are willing to deal with temporary discomfort given the hope of long-term relief of their symptoms. However, given that the manipulation of side-effect information did not have an impact for either treatment, perhaps the side effects described were not perceived as particularly serious.

Along these lines, it is possible that we may simply have been manipulating the wrong factors. For example, the role of personal testimonial has not been systematically explored in the psychiatric literature in influencing treatment attitudes, preferences, and outcomes. Indeed, initial research in the larger medical literature suggests that the inclusion of written patient testimonials significantly influences hypothetical treatment choices (Ubel, Jepson, & Baron, 2001). Patient testimonials can be more vivid than purely statistical information describing health outcomes of a choice and may evoke more powerful affective responses (Ubel et al., 2001). Consistent with this, in a variety of clinical PTSD trials examining PE (e.g., Foa et al., 1999, 2005), it is common to include a video of a woman talking about her experience of therapy in the initial sessions of treatment. Yet, this has not been applied to treatment rationales in our field. Perhaps also, the opportunity to ask questions about aspects of these rationales, as one would in a clinical setting, would enhance the impact of the content of the rationales. Use of strategies such as this may serve to more powerfully shift or sway impressions or patient decisions regarding treatment options than any content of therapist provided rationales.

Of note, while accounting for only a small percent of the overall variance, two individual difference factors did emerge as being associated with treatment preference: minority status and PTSD hyperarousal. Our results suggested that minority status, that is, being non-Caucasian, was associated with slightly less positive reactions and less credibility for PE and more positive reactions and higher credibility for sertraline. Although this is somewhat inconsistent with work suggesting that African-Americans are more likely to choose counseling among depressed primary care patients (Dwight-Johnson, Sherbourne, Liao, & Wells, 2000), to date, the literature has produced mixed findings on differences between ethnic groups and treatment preferences for mental health conditions (e.g., Hazlett-Stevens et al., 2002; Roy-Byrne et al., 2003; Wagner et al., 2005). These inconsistencies may be related to the measurement of ethnic/minority status. Clearly, a limitation in our study is that we aggregated African-Americans, Hispanic, and Asian-Americans into one minority-status group, which potentially confounds observed between-group differences.

The presence of PTSD hyperarousal symptom in those with prior trauma histories was one of the consistent, albeit at a moderate level, predictors of more positive personal reactions and greater credibility of sertraline. Perhaps, among individuals with heightened hyperarousal symptoms, the potentially "easier" relief from medication (relative to PE) may be particularly important. That is, for those with higher arousal, the idea of choosing to experience increased hyperarousal, by approaching trauma-related situations and memories,

might be particularly aversive. Indeed, Bryant and Harvey (2000) suggested that persons with heightened arousal might initially benefit from anxiety management or pharmacologic intervention, rather than exposure, to reduce hyperarousal symptoms more quickly.

Finally, it is noteworthy that despite its established effectiveness, pharmacotherapy for trauma-related symptoms is not consistently perceived as a strongly credible or positive treatment option for assault-related symptoms, even prior to presenting detailed treatment rationales. This may be partially explained by the growing public awareness of psychosocial interventions following trauma exposure. Following large-scale disasters and community violence for example, it is commonplace (though not recommended in clinical guidelines: NICE, 2005; ACPMH, 2007) to provide mental health counselors for those who have experienced the event. Simultaneously, these results suggest that many women have strong pre-existing beliefs that may reduce the likelihood of them seeking potentially beneficial pharmacotherapies following trauma exposure and that these beliefs are relatively resistant to change. This points to the need to better understand what factors lead to belief change, as has been studied in social psychology (Johnson, Lin, Symons, Campbell, & Ekstein, 1995; Petty, Wegener, & Fabrigar, 1997). Nevertheless, pharmacotherapy may appear more viable to those who are experiencing heightened hyperarousal and possibly also heightened depression, potentially arguing that as these symptoms increase, the willingness to utilize SSRIs may increase.

Results of this paper should be interpreted with several limitations in mind. First, the sample was comprised entirely of female undergraduates, a little less than half of whom experienced a Criterion A trauma, and even fewer who met criteria for PTSD (9.3%). Thus, it is unclear how the results will generalize to a treatment-seeking PTSD sample. Indeed, the finding that hyper-arousal symptoms predicted more positive personal reactions and greater credibility of sertraline could suggest that preference for psychotherapy would not be as strong in a PTSD treatment-seeking sample. However, it was not possible to conduct separate post hoc analysis of those with PTSD due to the small numbers of participants who met criteria for the disorder.

Second, as in Zoellner et al. (2003), women were asked to respond to a hypothetical, not actual, trauma scenario and to hypothetical symptoms. Their treatment choices were also hypothetical. Third, we examined preference for, and reactions to, only two forms of PTSD treatment, prolonged exposure and sertraline. Looking at a broader range of interventions (psychological and pharmacological) may help to shed light on other critical aspects of treatment rationales that could influence treatment preferences. Ultimately, the persistence of this preference for psychotherapy over pharmacotherapy, despite manipulation of key information, needs replication both in individuals with posttraumatic stress disorder and in other anxiety disorders.

Clinically, these results highlight the need to assess treatment attitudes and preferences early on among clients seeking help with trauma-related difficulties. These beliefs appear to be pre-existing and potentially resistant to modification. Quite speculatively, being attuned to these beliefs may improve therapeutic alliance and engagement in treatment. Similarly, others have suggested that, rather than making assumptions about expectations regarding particular treatment options, conducting an individual assessment of these beliefs and providing a more thorough orientation to treatment options are likely critical for increasing treatment adoption and adherence (Wagner et al., 2005). Further, additional qualitative analyses may shed light on “critical points” to address in rationales that help shift beliefs about effective treatments in order to not only increase access to effective care but also potentially enhance treatment compliance, retention, and ultimate effectiveness. Eventually, understanding patient preferences and the factors that shape them may lead to the

development of personalized treatment strategies that integrate patient preferences and attitudes about treatment as a way of improving adherence and outcome.

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Appendix A. Treatment rationales

Psychotherapy – prolonged exposure

Prolonged exposure is 10-session individual therapy that has been shown to be effective in the treatment of PTSD. Of the available psychotherapies used for PTSD, prolonged exposure has undergone some of the most rigorous scientific testing. Results of several controlled studies have shown that it significantly reduces PTSD symptoms. Prolonged exposure (or PE) is a type of cognitive behavioral treatment which is designed to specifically target a number of trauma-related difficulties. As some experts suggest, chronic posttraumatic stress disorder (PTSD) is a complex psychological disorder associated with, and perhaps caused by, a failure of the natural recovery processes that impact our ability to cope with and adapt to stressful events. [Specifically, researchers have argued that individuals with PTSD have difficulty emotionally processing the traumatic event and thus, continue to be very fearful of non-dangerous trauma-related stimuli (e.g., bedroom where assaulted) and have associated changes in thinking regarding the dangerousness of the world and the incompetence of the self. Indeed, it is thought that cognitive behavioral therapy (CBT) such as Prolonged Exposure (PE) may be particularly useful in treating chronic PTSD because it facilitates processing of the traumatic event through confrontation with feared memories, images, and situations.] Thus, because PTSD may be a disorder of failed emotional processing, CBT, particularly Prolonged Exposure, may be a particularly logical treatment option.

If you choose this treatment for PTSD, you will meet once a week with your therapist for 60–90 min. You will not receive medication for your PTSD symptoms. The procedures in this treatment include: education about common reactions to trauma, breathing retraining (which is a form of relaxation), prolonged (or repeated) exposure to trauma memories, and repeated in vivo (that is, in real life) exposure to situations that you are avoiding due to trauma-related fear. In other words, you will be encouraged to confront the memory of your trauma through repeatedly telling the story to your therapist and to confront things in your life that you are avoiding because they make you afraid (for example, things like driving a car, or like walking on the street at night). In this program, you will be assigned “homework” to encourage you to practice in life the things you learn in therapy. The risks associated with prolonged exposure are mild to moderate discomfort when exposed to anxiety-provoking images, situations, and places. [Generally, Prolonged Exposure is well tolerated overall, with only mild and transient side effects. In a study conducted by Foa et al. (2002), in comparing individuals at the onset of imaginal exposure versus those who had not begun imaginal exposure, participants reported an increase in PTSD symptoms (17.4% onset imaginal exposure versus 4% those who had not), depression (4.3% versus 0%), and general anxiety (17.4% versus 12%).]

Note. Augmentation of etiology/mechanism and side effects shown in brackets.

Medication – sertraline

Zoloft (or sertraline) is an antidepressant that has been shown to be effective in the treatment of PTSD. Of the available medications used for PTSD, Zoloft has undergone some of the most rigorous scientific evaluation. Results of several controlled studies have shown that it significantly reduces PTSD symptoms. It is an FDA approved medication in the treatment of PTSD. Zoloft is a type of antidepressant called an SSRI, or selective serotonin reuptake inhibitor, which is designed to have fewer side effects than older antidepressants like the MAOIs or tricyclics. As some experts suggest, chronic posttraumatic stress disorder (or PTSD) is a complex psychiatric disorder associated with, and perhaps caused by, profound alterations in many of the psychobiological systems that impact our ability to cope with and adapt to stressful events. [Specifically, researchers have argued that individuals with PTSD have psychobiological abnormalities in terms of several things. Like me give you some examples: adrenergic hyperactivity, hypothalamic–pituitary–adrenocortical enhanced negative feedback, opioid dysregulation, sensitization or kindling elevated corticotropin releasing factor, glutamatergic dysregulation, serotonergic dysregulation, and increased thyroid activity. Indeed, it is thought that selective serotonin reuptake inhibitors (or SSRIs) such as Zoloft may be particularly useful in treating chronic PTSD because a number of PTSD symptoms may be mediated through serotonergic mechanisms.] Thus, because PTSD may be a disorder of dysregulated psychobiological systems, SSRIs, particularly Zoloft, may be a particularly logical treatment option.

If you choose this treatment for PTSD, you will take up to 200 mg of Zoloft daily for 10 weeks. In this treatment you will not talk extensively about your traumatic experience or be encouraged to confront situations or places that you are avoiding. You will be seen weekly by a psychiatrist who will offer general encouragement and support, monitor your response to medication, and record any side effects you are experiencing. Your medication will be adjusted according to a dosing schedule or as clinically indicated. At the end of 10 weeks, the medication will be tapered (or reduced) gradually to minimize the chance of withdrawal symptoms with medication discontinuation. The risks associated with Zoloft are mild to moderate side effects or withdrawal symptoms. Possible side effects include loose stools, sweating, nausea, headache, fatigue, anorexia, weight loss or gain, sexual impairment, increased anxiety, restlessness, and insomnia. [Generally, Zoloft is well tolerated overall,

with only mild and transient side effects. In a study conducted by Brady et al. (2000), in comparing individuals on Zoloft versus placebo, participants reported headaches (20.2% Zoloft versus 28.3% placebo), diarrhea (23.4% versus 19.6%), malaise (17% versus 15.2%); nausea (16% versus 12%); insomnia (16% versus 4.3%); drowsiness (12.8% versus 9.8%); and dry mouth (11.7% versus 4.3%).]

Note. Augmentation of etiology/mechanism and side effects shown in brackets.

Table 1

Mean, standard deviation, percentages and range on demographic variables and psychopathology measures.

Demographic and psychopathology	<i>M (SD)</i>
Age (<i>M, SD</i>)	19.57 (4.20)
Ethnicity	
Caucasian	65.4%
Asian–American	25.9%
African–American	2.5%
Hispanic	2.8%
Criteria A trauma (PDS)	44.75%
PTSD diagnosis (PDS)	9.3%
PTSD severity (PDS) ^a , range 0–44	4.69 (8.26)
Depression (BDI), range 0–41	7.61 (6.58)
BDI 10 or greater	31.8%
Trait anxiety (STAI-Trait), range 33–67	46.99 (4.91)
STAI-T 45 or greater	70.8%
Anxiety sensitivity (ASI), range 16–69	35.62 (9.83)
ASI 30 or greater	69.5%

^a Note. PTSD total symptoms are calculated for those reporting a Criterion A event ($n = 173$). PDS = Posttraumatic Stress Disorder Diagnostic Scale, BDI = Beck Depression Inventory, ASI = Anxiety Sensitivity Inventory, STAI = State-Trait Anxiety Inventory. Cutoff scores of greater than 10 for BDI, 45 for STAI-T, and 30 for ASI reflect the percentage of individuals who fall within a clinically significant range.

Table 2

Pre- to post-rationale change scores on credibility and personal reactions.

	<u>Augmented PE</u>	<u>Augmented SER</u>	<u>Both augmented</u>	<u>No augmentation</u>
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
<i>Etiology augmentation</i>				
PE personal reactions	3.48 (5.33) _a	1.38 (4.27)	2.69 (6.64)	1.12 (5.10) _b
SER personal reactions	-1.97 (5.25)	-.42 (5.09)	-2.49 (5.21)	-1.58 (6.80)
PE credibility	3.67 (6.08)	1.88 (6.44)	2.79 (7.65)	1.58 (6.45)
SER credibility	-1.97 (5.25)	-.42 (5.09)	-2.49 (5.21)	-1.58 (6.80)
<i>Side-effect augmentation</i>				
PE personal reactions	1.57 (5.20)	2.91 (5.47)	2.13 (5.85)	1.85 (5.39)
SER personal reactions	-1.75 (5.83)	-1.35 (5.53)	-1.04 (5.05)	-2.30 (6.38)
PE credibility	1.34 (6.37)	3.36 (6.64)	2.84 (6.47)	2.30 (7.28)
SER credibility	-2.67 (7.41)	-1.25 (7.16)	-1.77 (6.21)	-3.14 (7.95)

Note. Differing subscripts indicate differences at $p < .05$.