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The Effects of Positive Patient Testimonials on PTSD Treatment Choice

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Abstract

Despite the existence of effective treatment options for PTSD, these treatments are failing to reach those that stand to benefit from PTSD treatment. Understanding the processes underlying an individual's treatment seeking behavior holds the potential for reducing treatment-seeking barriers. The current study investigates the effects that positive treatment testimonials have on decisions regarding PTSD treatment. An undergraduate ($N = 439$) and a trauma-exposed community ($N = 203$) sample were provided with videotaped treatment rationales for prolonged exposure (PE) and sertraline treatments of PTSD. Half of each sample also viewed testimonials, detailing a fictional patient's treatment experience. All participants then chose among treatment options and rated the credibility of- and personal reactions toward- those options. Among treatment naïve undergraduates, testimonials increased the proportion choosing PE alone; and among treatment naïve members of the trauma-exposed community sample, testimonials increased the proportion choosing a combined PE plus sertraline treatment. These effects were not observed for those with prior history of either psychotherapeutic or pharmacological treatment. Major barriers exist that prevent individuals with PTSD from seeking treatment. For a critical unreachable treatment sample, those who are treatment naïve, positive patient testimonials offer a mechanism in which to make effective treatments more appealing and accessible.

Keywords

Treatment Choice; PTSD; Anxiety; Prolonged Exposure; Sertraline; Testimonial

Posttraumatic stress disorder (PTSD) reflects the persistence of an acute reaction over time following exposure to potentially traumatic events such as rape, combat, natural and man-made disasters (e.g., Davis & Lang, 2003). PTSD is characterized by intrusive and uncontrollable memories of the traumatic event, avoidance of trauma cues and reminders, and chronic hyperarousal (American Psychiatric Association, 2000). Estimates suggest that nearly 7% of the civilian population in the United States (Kessler et al., 1995; 2005) and as many as 20–30% of America's active and veteran military service members (Ramchand et al., 2010; Magruder & Yeager, 2009; Stecker et al., 2007; Kulka et al., 1990) meet

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diagnostic criteria for PTSD. Accordingly, PTSD represents a major mental health concern (Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2004).

Effective, empirically-supported treatments exist for chronic PTSD (see Foa, Keane, & Friedman, 2009) including cognitive, exposure-based, and general cognitive-behavioral interventions such as prolonged exposure, cognitive processing therapy, stress inoculation training, and eye-movement desensitization and reprocessing (Bradley et al., 2005). Most notably, prolonged exposure (PE; Foa, Hembree, & Rothbaum, 2007; Foa & Rothbaum, 1998) has a wealth of empirical support and is consistently more effective than wait-list and active treatment control conditions (McLean & Foa, 2011; Powers et al., 2010). Similarly, the selective serotonin reuptake inhibitor sertraline has demonstrable superiority to placebo treatment and is a safe and well-tolerated pharmacological treatment of PTSD (Brady et al., 2000; Davidson et al., 2001).

Despite known effective treatments, epidemiological data by Kessler and colleagues (2005) suggests that only 7.1% of individuals seek treatment in the first year after meeting PTSD criteria. Even more startling is that only 65.3% of individuals with PTSD will ever seek treatment; and for those that do, the median time before presenting for treatment is 12.1 years (Wang et al., 2005). Further, only 34.4% of individuals meeting PTSD criteria are seen by a mental health specialist, while 31.3% are seen by a general medical provider (Wang et al., 2005). This resonates with previous work suggesting that chronically anxious individuals generally present to their primary care physicians, though less than a third receive minimally adequate treatment (Hazlett-Stevens et al., 2002; Shear & Schulberg, 1995). Taken together, the majority of individuals with PTSD are not getting adequate treatment despite the existence of effective treatment options.

With the impetus for treatment seeking lying primarily upon the individual that is suffering, it is important to understand the perspectives, beliefs, and decision-making processes of individuals contemplating whether to initiate treatment. Barlow (2004) noted that consumers of mental health treatment often have clear preferences, frequently favoring psychosocial interventions to pharmacotherapy. Indeed, in a study of treatment preferences for the symptoms of PTSD, 87.4% chose prolonged exposure, while only 6.9% opted for sertraline, and 5.7% elected a no-treatment option (Zoellner et al., 2003). A similar preference pattern was replicated across trauma-exposed and treatment-seeking individuals with chronic PTSD (Feeny et al., 2009; Roy-Byrne, et al., 2003). Research into the reasons that underlie an individual's PTSD treatment preferences suggests that the key issues influencing treatment choice are highly ideographic (Swift & Callahan, 2010). The reasons cited for specific treatment preferences include factors that increase the appeal of the preferred treatment (e.g., conceptualization of the problem as cognitive/behavioral vs. biological), as well as factors associated with the non-preferred treatment that individuals wish to avoid (e.g., side effects; practical considerations; Cochran et al., 2008; Jaeger et al., 2010).

However, the client's perception of the treatment mechanism may be one of the strongest predictors of treatment preference and offers insight into how to reduce treatment-seeking barriers that delay or prevent treatment seeking behavior (Angelo, Miller, Zoellner, & Feeny, 2008). Discussions of mechanism, however, typically occur after initial treatment seeking is completed and the individual has already started treatment, thus failing to address the barriers facing treatment seekers that hold a stigmatized view of therapy, who are ambivalent about seeking treatment, or who are unsure of how, where, and whether to seek treatment. These barriers argue for the use of marketing strategies that give a treatment-seeking individual information that can be utilized when making decisions about pursuing treatment.

Information, communicated by a peer who has had a positive experience with a specific treatment, is one such strategy that may alter patient preferences by relaying actual experience in the form of a positive patient testimonial (Braverman, 2008). Testimonials have been successfully used to convey health information (Braverman, 2008; Buller et al., 2007) and have a demonstrated ability to influence consumer decision-making (e.g., Shimp et al., 2007; Slater, 2002). The use of patient testimonials provides an individual that is weighing treatment options with the opportunity to inform their decision, dispel potential treatment myths, and provide hope and successful treatment expectancy (Almasi et al., 2006).

Patient testimonials are commonly utilized in the advertisements of psychotropic medications (Macias, Stavchansky, & Baek, 2010; Sokol et al., 2010) but are not commonly used in disseminating psychosocial interventions. We are unaware of any prior research that has experimentally explored the role of patient testimonials in altering patient preferences for particular treatments for chronic PTSD. In one of the few direct investigations of testimonials for a psychosocial intervention, Morawska, Nitschke, and Burrows (2011) reported that video testimonials provided to parents of children with behavioral problems did not significantly increase the favorability of particular interventions; however, testimonials did increase parents' confidence in the effectiveness of a selected treatment option. This effect occurred regardless of whether the testimonial was generated by a peer or an expert.

The present study directly manipulated the presence or the absence of videotaped patient testimonials for two commonly utilized PTSD treatments, prolonged exposure and sertraline, in the treatment of chronic PTSD. All participants received detailed videotaped treatment rationales for both sertraline and prolonged exposure by medical providers. Presence or absence of positive patient testimonials was directly manipulated by providing participants with video of actors portraying actual comments made by real patients with a history of PTSD that had been treated with either sertraline or prolonged exposure. To maximize the generalizability of the findings, both a large undergraduate sample and a trauma-exposed community sample were examined. Specifically, we investigated the impact of patient testimonials on treatment preference, confidence in preference, and credibility and personal reactions to sertraline, prolonged exposure, a combination treatment of prolonged exposure with sertraline, and no treatment. We hypothesized that individuals who are provided with positive patient testimonials will be more likely to prefer an active treatment compared to the no-treatment option. Given low rates of preference for psychotropic treatments in past research (e.g., Zoellner et al., 2003), we hypothesized that providing testimonials will have a greater effect on the preference of sertraline alone and sertraline with prolonged exposure, compared to prolonged exposure alone. We also hypothesized that individuals who were provided testimonials, regardless of treatment type, would have higher confidence ratings, greater credibility, and more positive personal reactions ratings than individuals who were not provided with testimonials.

Method

Participants: Undergraduate Sample

Four hundred and thirty-nine individuals ($N = 439$) were recruited via undergraduate psychology subject pools at two large metropolitan university campuses. Inclusion criteria included being between the ages of 18 and 65 years old and fluent in English. Demographic information can be seen in Table 1. Within this sample, 51.9% ($n = 228$) reported experiencing at least one or more potentially traumatic events on the Posttraumatic Stress Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). Of these, allowing for multiple events to be experienced by single individuals, 30.3% reported a life-threatening

illness, 46.9% reported a serious accident, 36.8% a natural disaster, 33.8% a non-sexual assault, 23.2% a sexual assault, 7.8% combat, torture, or imprisonment, and 21.1% reported other traumatic events. Using DSM-IV Criterion A event criteria, 36.5% ($n = 159$) experienced a Criterion A event. Of those Criterion A events, 18.7% reported a life-threatening illness, 28.4% reported a serious accident, 5.2% a natural disaster, 21.9% a non-sexual assault, 5.1% a sexual assault, 0.6% combat, torture, or imprisonment, and 20.0% reported other traumatic events (e.g., accidental discovery of a dead body, aftermath of a family member's suicide). In regard to prior treatment, 20.5% reported prior psychotherapy and 9.7% reported receiving psychotropic medications.

Participants: Trauma-exposed Community Sample

Two hundred and three ($N = 203$) trauma-exposed individuals were recruited via online classifieds, local postings, and study referrals from local agencies in the same two large metropolitan areas. Demographic information is presented in Table 1. Within this sample, 96.6% ($n = 196$) reported experiencing at least one potentially traumatic event on the PDS. Of those, and allowing single individuals to have experienced multiple traumatic events, 25.5% of the sample reported a life-threatening illness, 40.3% reported a serious accident, 14.3% a natural disaster, 58.1% a non-sexual assault, 57.1% a sexual assault, 35.2% combat, imprisonment, or torture, and 33.7% reported other traumatic events. Using DSM-IV Criterion A event criteria, 72.4% ($n = 139$) had Criterion A events. These events included life-threatening illness (5.2%), serious accident (10.4%), natural disaster (1.5%), non-sexual assault (26.0%), sexual assault (33.3%), combat, torture, or imprisonment (8.2%), and other traumatic events (15.6%). A majority of participants reported treatment histories, with 65% reported past psychotherapy and 55.7% past psychotropic medications.

Materials

Treatment Rationales—Using a standardized script, male or female medical professionals provided video treatment rationales for both sertraline and PE. Sertraline and PE rationales contained parallel but tailored wording regarding background information and established efficacy, hypothesized treatment mechanism, treatment procedures, and potential side effects. Rationales were similar in terms of word count, sentence count, grade level, and reading ease. Rationales were presented in a counterbalanced order, both in terms of which rationale was provided first (PE versus sertraline) and for the gender of the person providing the rationale. Treatment rationales are available upon request.

Patient Testimonials—Testimonials were constructed from statements made by, and with the consent of, patients who had actually completed PE or sertraline as part of a large PTSD treatment clinical trial. Both PE and sertraline testimonials were designed to be similar in length and structure. Each testimonial included information about an individual's personal history with PTSD, their perceptions about the nature of treatment, their personal reactions to the treatment process, and their perception of treatment outcome, including behavioral changes that have occurred as a result of treatment. Actors portrayed the patients, and testimonials were counterbalanced for content order (PE or sertraline) and gender. Wording for patient testimonials is provided in Appendix A.

Measures

Self-report psychopathology measures—To assess trauma exposure, PTSD, and depression the Posttraumatic Stress Diagnostic Scale (PDS; Foa et al., 1997) and the Quick Inventory Depressive Symptomatology: Self-Report (QIDS-SR16; Rush et al., 2003) were utilized. Means, standard deviations, and ranges for these measures are presented in Table 1.

The PDS is a well-validated measure of PTSD severity, with high internal consistency ($\alpha = .92$) and good test-retest reliability ($\kappa = .74$) over a three week period (Foa et al., 1997). Further, in terms of diagnostic sensitivity, the PDS has good agreement (82%) with the Structured Clinical Interview for DSM Axis I Disorders (First, Gibbon, Spitzer, and Williams, 1997; Foa et al., 1997).

The QIDS-SR16 also has high internal consistency ($\alpha = .86$), and correlates strongly with other well established measures of depression including the Inventory of Depressive Symptomatology ($r = .96$) and Hamilton Rating Scale for Depression ($r = .86$), suggesting high concurrent validity (Rush et al., 2003).

Treatment credibility and personal reactions—To assess perceptions of treatment credibility and personal reactions to the sertraline and PE rationales, both the Credibility Scale (CS; Addis & Carpenter, 1999) and Personal Reactions Scale (PRS; Addis & Carpenter, 1999) were utilized. The CS contains 7 items (e.g., “How logical does this therapy seem to you?”) related to how logical, scientifically based and effective a treatment is perceived rated on a Likert-type scale from 1 (*not at all*) to 7 (*extremely*), with higher scores indicating higher credibility. The PRS contains 5 items (e.g., “How helpful do you think this therapy would be for you?”) related to how the treatment will help the participant understand, cope, and improve symptoms rated on a Likert-type scale from 1 (*not at all*) to 7 (*extremely*), with higher scores indicating more positive personal reactions. Sertraline and PE were rated separately. In the current samples, internal consistency was strong (Undergraduate Sample: CS: PE $\alpha = .90$, SER $\alpha = .87$; PRS: PE $\alpha = .93$, SER $\alpha = .88$); Community Trauma-exposed Sample: CS: PE $\alpha = .94$, SER $\alpha = .92$; PRS: PE $\alpha = .96$, SER $\alpha = .96$).

Forced choice: To examine treatment preference a single question was presented asking, “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?” The wording and response options to this question were counterbalanced to control for order effects. Participants were then asked to rate their confidence in that choice on a Likert-type scale from 1 (*not at all*) to 7 (*extremely*).

Procedure

After informed consent was obtained, participants were asked to complete demographic information, including questions about prior treatment experience, and self-report measures trauma exposure, PTSD, and depression.

For the undergraduate sample only, participants then read the following “if this happened to you, what would you do” scenario, based on an “imagine self” perspective. This form of perception taking has been shown to be associated with enhanced self-related cognitions (Davis et al., 2004). The hypothetical scenario was as follows:

Please imagine that you are 25 years old. You are seeking treatment because you are experiencing symptoms related to a physical assault (mugging) that occurred six years earlier during college. You are currently having recurrent thoughts about the assault and intense emotional reactions when reminded of it. You have been persistently avoiding situations, thoughts, and feelings related to the assault, and you are only sleeping a few hours per night. You have great difficulty concentrating and are feeling on edge most of the time.

You are considering seeking help. You have narrowed your choices to three treatment options: psychotherapy (prolonged exposure therapy), medication

(Zoloft), or a combined treatment of the two. In addition, you may still choose not to seek treatment.

Participants in the trauma-exposed sample were not presented with this hypothetical scenario. Participants were then presented with the detailed, counterbalanced SER and PE treatment rationales. After viewing a treatment rationale (PE or SER), a counterbalanced half of the participants viewed a patient testimonial for the treatment. Participants then rated the credibility of (CS) and their personal reactions (PRS) to the treatment. This procedure was repeated for the alternative treatment. After viewing and rating both PE and SER separately, participants were asked to choose among PE, SER, no treatment, or both treatments and to rate their confidence in their treatment choice. Finally, participants were debriefed and received course credit (undergraduate sample) or \$20/hour (trauma-exposed community sample) for their time.

Results

Demographic and Psychopathology Factors and Treatment Preference

Prior to main analyses, gender, experience of a Criterion A trauma, PTSD diagnostic status, and prior treatment were examined to see if they influenced treatment preference (PE, SER, PE+SER, No Treatment). No differences emerged for gender, Criterion A status, or PTSD diagnostic status. However, both history of prior psychotherapy (trauma-exposed community sample: $\chi^2(3, 209) = 23.39, p < .001$) and prior history of psychotropic medications (undergraduate sample: $\chi^2(3, 435) = 26.20, p < .001$; trauma-exposed community sample: $\chi^2(3, 209) = 41.10, p < .001$) influenced treatment preference (PE, SER, PE+SER, No Treatment). Accordingly, all analyses are presented using the presence and absence of prior psychotherapy and prior psychotropic medications in the analyses.

Choice of prolonged exposure alone—For the undergraduate sample, among those without prior psychotherapy experience, a greater proportion (57.7%) of participants who had received the testimonials chose PE alone, compared to those who did not receive the testimonials (42.3%; $\chi^2(1, 349) = 4.93, p = .03$). The proportion of participants choosing PE alone among those who did have prior psychotherapy experience was not affected by the presence of the testimonials, (45.0% testimonial, 55.0% no testimonial), $\chi^2(1, 90) = 0.08, ns$. See Figure 1a. Similarly, among those without a history of prior psychotropic medication, the proportion of individuals choosing PE alone was greater for those who had received the testimonials (56.0%), than for those who had not (44.0%; $\chi^2(1, 392) = 4.05, p = .04$). However, testimonials did not affect treatment preference among those in the undergraduate sample who reported prior pharmacotherapy, (33.3% testimonial, 66.7% no testimonial), $\chi^2(1, 42) = 0.15, ns$.

In the trauma-exposed community sample, regardless of prior psychotherapy experience, the presence of positive testimonials was not strongly related to the proportion of individuals that selected PE alone as their preferred treatment option (prior psychotherapy: $\chi^2(1, 70) = 0.47, ns$; no prior psychotherapy: $\chi^2(1, 132) = 0.05, ns$). Additionally, neither a history of pharmacotherapy ($\chi^2(1, 113) = 0.79, ns$), nor history of pharmacotherapy ($\chi^2(1, 89) = 0.00, ns$), affected treatment preferences for PE alone among participants in the trauma-exposed community sample.

Thus, for undergraduates who are treatment naïve, testimonials increased the proportion of individuals who select PE alone as their treatment of choice.

Choice of sertraline alone—In the undergraduate sample, the provision of positive testimonials did not affect the proportion of participants that selected SER alone, regardless

of a positive ($\chi^2(1, 90) = 0.16, ns$) or negative ($\chi^2(1, 349) = 0.00, ns$) history of psychotherapy. The presence ($\chi^2(1, 42) = 0.89, ns$) or absence ($\chi^2(1, 392) = 0.01, ns$) of past pharmacotherapy treatment experience was also unrelated.

For the trauma-exposed community sample, the effects of the testimonials were affected by prior psychotherapy experience. Among those without prior psychotherapy, all participants (100%) who chose SER alone as their preferred treatment option had not viewed the testimonials, whereas no participants (0%) who had received testimonials chose sertraline as their preferred option, Fisher's Exact Test = .01. Among those with a history of prior psychotherapy, the proportion of participants choosing SER alone was not affected by the presence of positive testimonials, $\chi^2(1, 132) = 0.42, ns$. See Figure 1b. In regard to history of pharmacotherapy, the presence of positive testimonials did not affect the choice of SER alone, regardless of the prior psychotropic medications ($\chi^2(1, 113) = 1.05, ns$) or not ($\chi^2(1, 89) = 0.30, ns$).

Thus, in the trauma-exposed community sample without previous psychotherapy, testimonials decreased the proportion of individuals selecting sertraline alone as their preferred treatment option.

Choice of PE and sertraline combined—In the undergraduate sample, the provision of positive testimonials did not affect the proportion of participants that selected the combined treatment option, regardless of whether individuals had participated in previous psychotherapy ($\chi^2(1, 90) = 0.77, ns$) or not ($\chi^2(1, 349) = 2.09, ns$). The presence ($\chi^2(1, 42) = 0.03, ns$) or absence ($\chi^2(1, 392) = 2.81, ns$) of past pharmacotherapy treatment also did not affect selection of the combined treatment option.

However, for the trauma-exposed community sample, the effect of patient testimonials was influenced by one's psychotherapy treatment history. Among those without prior psychotherapy experience, a greater proportion (66.7%) of participants who had received the testimonials chose the combined treatment, compared to those who did not receive the testimonials (33.3%; $\chi^2(1, 70) = 4.92, p = .03$). The proportion of participants choosing the combined treatment among those who did have prior psychotherapy experience was not affected by the presence of the testimonials (48.5% testimonial, 51.5% no testimonial; $\chi^2(1, 132) = 1.09, ns$; See Figure 1b). Regarding prior pharmacotherapy treatment, positive testimonials did not affect the choice of the combination treatment, regardless of whether a previous history of pharmacotherapy was present ($\chi^2(1, 113) = 0.45, ns$) or absent ($\chi^2(1, 89) = 0.08, ns$).

Thus, for treatment naïve individuals in the trauma-exposed community sample, patient testimonials increased the proportion of individuals choosing combined treatment.

Choice of no treatment—In the undergraduate sample, the provision of positive testimonials did not affect the proportion of participants that selected the no-treatment option, regardless of whether individuals had a history of past psychotherapy ($\chi^2(1, 90) = 0.59, ns$) or not ($\chi^2(1, 349) = 1.45, ns$). Similarly, the presence ($\chi^2(1, 42) = 1.43, ns$) or absence ($\chi^2(1, 392) = 0.09, ns$) of past pharmacotherapy did not affect the choice of no treatment.

In the trauma-exposed community sample, the provision of positive testimonials did not affect the proportion of participants that selected the no-treatment option, regardless of whether they had engaged in previous psychotherapy ($\chi^2(1, 132) = 1.01, ns$) or negative ($\chi^2(1, 70) = 0.07, ns$) or not. The presence ($\chi^2(1, 113) = 1.52, ns$) or absence ($\chi^2(1, 89) =$

0.37, *ns*) of past pharmacotherapy treatment experience also did not affect participant's choice of the no-treatment option.

Thus, testimonials did not affect whether or not the no treatment option was chosen.

The Effects of Patient Testimonials on Confidence, Credibility, and Personal Reactions to PE and Sertraline

To better understand what aspects of treatment preference testimonials impact, ratings of one's confidence in their choice, treatment credibility (e.g., is the treatment logical) and personal reactions (e.g., would the participant recommend this treatment to a friend) to the treatment rationales were also examined. Raw means and standard deviations are provided in Table 2. The following analyses were completed using analysis of covariance to account for the effects of prior treatment history.

Confidence in Treatment Choice

In the undergraduate sample, the receipt of a positive treatment testimonial for PE and SER had no effect on the degree of confidence that participants endorsed for their treatment choice, $F(1, 426) = 1.95$, *ns*. Similarly, for the trauma-exposed community sample, confidence ratings were similar between those who did and did not view positive patient testimonials, $F(1, 198) = .004$, *ns*. Thus, the degree of certainty, or conversely, ambiguity that an individual experiences about selecting a specific treatment, was not affected by information that the testimonials provided.

Treatment Credibility

Interestingly, however, although testimonials did not affect confidence ratings, they did influence ratings of treatment credibility. For those in the undergraduate sample, participants that viewed testimonials had higher credibility ratings for PE (adjusted $M = 36.84$, $SE = 0.48$) than participants that did not view the testimonials (adjusted $M = 35.12$, $SE = 0.48$), $F(1, 419) = 6.26$, $p = .01$, $\eta^2 = .02$. This finding was replicated in the trauma-exposed community sample as well, $F(1, 195) = 7.61$, $p = .006$, $\eta^2 = .04$, with credibility ratings of PE higher among those who viewed the testimonials (adjusted $M = 34.71$, $SE = 1.07$) compared to those that did not (adjusted $M = 30.50$, $SE = 1.06$).

Of note, testimonials only enhanced the credibility of PE, rather than both treatments, despite receiving testimonials for both treatments. For both the undergraduate sample, $F(1, 423) = .13$, *ns*, and the trauma-exposed community sample, $F(1, 194) = 0.20$, *ns*, testimonials did not affect credibility ratings of sertraline. This pattern of results suggests that there is some characteristic of PE that produce a differential response to testimonials, or conversely, some characteristic of sertraline that negates the credibility that testimonials may provide.

Personal Reactions to Treatment Rationales

In a pattern similar to treatment credibility, in the undergraduate sample, individuals receiving a positive testimonial reported higher positive personal reactions to PE (adjusted $M = 27.49$, $SE = 0.39$), albeit at a trend level, than those who did not (adjusted $M = 26.43$, $SE = 0.38$), $F(1, 419) = 3.72$, $p = .054$, $\eta^2 = .01$. Similarly, in the trauma-exposed sample, individuals receiving a positive testimonial reported higher positive personal reactions to PE (adjusted $M = 24.96$, $SE = 0.87$) than those who did not (adjusted $M = 22.28$, $SE = 0.87$), $F(1, 194) = 4.62$, $p = .03$, $\eta^2 = .02$. However, testimonials have no strong effect on an individual's reaction to the rationale for sertraline in either the undergraduate, $F(1, 423) = .75$, *ns*, or the trauma-exposed community sample, $F(1, 192) = .24$, *ns*.

Post-hoc Gender and PTSD Moderators of Observed Effects

Finally, we examined whether gender and PTSD diagnostic status of the participant moderated observed testimonial effects. In both the undergraduate and trauma-exposed community samples, using previous treatment history as a covariate, gender did not moderate the observed effects of testimonials on treatment choice or treatment confidence. Additionally, it did not moderate the observed effects of testimonials on ratings of credibility for PE or sertraline, or personal reactions to PE and sertraline.

We next examined whether PTSD diagnostic status, as determined by the PDS, moderated the effects of testimonials on treatment preferences, using treatment history as a covariate. For both samples, meeting PTSD diagnostic criteria did not moderate the effects of testimonials on treatment choice, ratings of treatment confidence, PE or sertraline credibility, or personal reactions to the PE or sertraline rationale.

Discussion

For treatment naïve individuals, the usage of positive patient testimonials altered rates of treatment choice and individual's reactions to treatment options. This was most apparent for prolonged exposure and prolonged exposure in combination with sertraline, and replicated across a large undergraduate and large trauma-exposed community sample. Notably, the presence of positive patient testimonials did not alter treatment choice or individual's reactions to treatment options for those who had prior personal experience with either psychotherapy or psychotropic medications, suggesting that prior experience trumps the perception of others. Understanding the effects that testimonials have in terms of treatment preferences is particularly important in chronic PTSD, given the broad and divergent nature of the treatment options that exist for this condition and the unprecedented number of individuals with PTSD that stand to benefit from effective treatment.

Specifically, the provision of positive patient testimonials increased the proportion of treatment naïve undergraduates who selected PE as their preferred treatment option and increased the proportion of treatment naïve trauma-exposed community members choosing the combination treatment, while dramatically decreasing the proportion of that sample who selected sertraline alone. Prior psychotherapy or pharmacotherapy negated this effect of testimonials; thus, the use of testimonials to promote specific treatment options for PTSD is likely to have the greatest effect among those for whom mental health treatment is novel. One possible explanation for this is that individuals give more weight to their own experience and may search for problems or discredit treatment information provided by peers (Munro & Stansbury, 2009).

For those without prior psychotherapy or psychotropic experience, this study provides a potential strategy to help address treatment-seeking barriers. Treatment naïve individuals may experience barriers related to misperception, internal stigma, or misinformation about available treatment options (Brown et al., 2010; Vogel, Wade, & Hackler, 2007), particularly about psychotherapy. Testimonials may have their biggest effects on this treatment naïve group, specifically because they lack the experience to base their beliefs about treatment. The information provided by a testimonial may serve as an anchoring point on which to base opinions about treatment, from someone they perceive as having had direct experience. For these individuals, providing positive patient testimonials provides access to realistic information about the effects and mechanism of therapy when making treatment-seeking decisions. Positive testimonials for PTSD treatment also provide evidence that recovery is possible, which may stand in contrast to commonly held, negative beliefs among trauma survivors (e.g., "I'll never get over this," "I'll fall apart if I talk about it"; Ali, Dunmore, Clark, & Ehlers, 2002; Ehlers & Clark, 2000). In addition, patient testimonials

may provide individuals with information about whether the likelihood of recovery (as evidenced by the testimonial) is worth the practical costs of initiating treatment (e.g., time off work, childcare expenses, travel, etc.). However, the exact mechanism of positive patient testimonials in this context was not explicitly examined.

The use of positive patient testimonials may also have additional, indirect benefits as well. The use of patient testimonials offers an opportunity for gold-standard treatments to reach out to individuals seeking treatment in a way that allows them to compete with other treatment options that are heavily promoted despite questionable empirical support (Yarvis & Spivey, 2003). In many cases, these treatments rely on cherry-picked testimonials, rather than rigorous scientific evidence, to demonstrate effectiveness and generate interest and participation. Although these types of personal testimonials flood the market of mental health consumers (e.g., Cook, Weingardt, Jaszka, & Wiesner, 2008), interventions with documented efficacy, training programs, and clear mechanisms of effect have been unable to reach those that would most benefit from their application because they cannot compete in terms of marketing (Cahill et al., 2006). Given that PE credibility and positive personal reactions to the PE treatment rationales were increased among those who viewed testimonials for treatment naïve individuals, another potential benefit is that one's willingness to participate in a given treatment option may also be affected. It is important to note that this "buy-in" to a treatment has been associated with better and faster treatment outcomes (Addis & Jacobson, 2000; Addis & Carpenter, 1999; Ilardi & Craighead, 1994; Fennel & Teasdale, 1987). However, this remains to be tested experimentally.

It is worth noting that positive testimonials did not increase the proportion of each sample choosing sertraline alone, nor did they affect the credibility or personal reactions of the pharmacotherapy option. Future work should address why testimonials may have a differential impact on type of treatment. One possibility is that although psychotherapeutic interventions, such as PE, are relatively unknown in popular culture, pharmacotherapeutic interventions have been the target of massive, testimonial-based marketing campaigns for a long while. These mass-marketing campaigns may be related to a "saturation" effect of testimonials among individuals who have been exposed to popular media outlets, effectively dampening the potential effects of the targeted testimonials.

Although the two samples involved in this study were not compared directly, it is interesting to consider why slightly different patterns emerged in terms of treatment choice. Testimonials had effects on the treatment naïve in both groups, for the undergraduates the choice of PE increased, and for the trauma-exposed community sample, the choice of the combined PE and sertraline treatment increased. The question here is what factor differentiates the effect of testimonials on these two samples. The obvious answer is the difference between a hypothetical choice in the undergraduate sample and a real-world choice in the trauma-exposed community sample. Notably, both samples provide valuable information about perceptions of treatment options, as altering beliefs before trauma exposure may also impact eventual treatment seeking, particularly for those who are at a high likelihood of being exposed to traumatic experiences. Future work should systematically examine timing of the provision of patient testimonials and focus on refining our understanding of what aspects of testimonials are most salient to particular populations at risk for trauma exposure (e.g., firefighters, police, active military) and those that may be resistant to treatment seeking (e.g., active military, veterans, older adults, etc.).

The present study only examined the role of positive patient testimonials. Future research in this area should also examine the role of negative testimonials. Negative information may have unique and powerful effects on how treatment related information is remembered and how perceptions are formed (Rydell & Durso, 2012; Touryan, Marian, & Shimamura, 2007).

An additional direction for future research is to understand how providing testimonial information for only one treatment option (a potentially common scenario in the real world) versus multiple treatment options affects treatment preferences. Finally, we only examined a small number of treatment options. This limited choice was necessary for counterbalancing in the experimental design and considered appropriate for a first investigation of the role of patient testimonials. However, accordingly, we cannot address whether the observed effects were specific to PE or psychotherapy in general, sertraline or a psychiatric medication in general, and their specific combination or combined treatment in general, or whether testimonials would have similar effects for other treatment options. Additionally, future investigations should assess the degree to which social desirability may affect one's reported beliefs about treatment, especially concerning willingness to select an active treatment option, compared to opting for no-treatment. Specifically, the goal of the present study was not to explore how PE or sertraline compares to other treatment options but rather to experimentally examine the role of patient testimonials. However, understanding the impact of patient testimonials across a variety of treatment options, and how other factors modulate underlying decision-making processes are critical next steps in understanding treatment seeking and decision-making behavior. Social modeling (Bandura, 1977) is particularly interesting as it raises questions about the testimonial provider and testimonial recipient dyad such as whether matching variables between the testimonial provider and the intended audience are important to a testimonial's believability (e.g. similarity in age, life experience, vocabulary, etc.) or the audience's attention to the message and motivation to model treatment seeking behavior.

Posttraumatic stress disorder is a major mental health concern facing our society, and one that is likely to continue to grow in the coming years (Toblin et al., 2012). Effective treatments exist for PTSD, yet those treatments are not permeating out to those in need. In part, this reflects a need for increased dissemination and training of treatment providers (van Minnen, Hendriks, & Olff, 2010), but it also requires communication that effective treatment options are available. To do this effectively, the barriers that often prevent individuals with PTSD from seeking treatment need to be mitigated. Particularly for treatment naïve individuals, being able to enhance the credibility, positive perception of, and choice for treatment via the use of patient testimonials offers an in-road into making effective treatments more accessible.

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Highlights

- Among treatment naïve undergraduates, testimonials increased the proportion choosing PE alone.
- Among treatment naïve members of the trauma-exposed community sample, testimonials increased the proportion choosing a combined PE plus sertraline treatment.
- These effects were not observed for those with histories of psychotherapeutic or pharmacological treatment.
- Testimonials also affected ratings of treatment credibility and personal reactions toward treatment options.
- Gender and PTSD diagnosis did not moderate these findings.

Figure 1. Treatment Choices in the Undergraduate (1a) and Trauma-exposed Community Sample (1b) with and without a history of prior psychotherapy.

Table 1

Mean, Standard Deviation, Percentages and Range on Demographic Variables and Psychopathology Measures

	Undergraduate Sample (<i>N</i> = 439) M (<i>SD</i>)/%	Community Sample (<i>N</i> = 203) M (<i>SD</i>)/%
Age (Range 18 – 65)	19.00 (<i>1.35</i>)	38.92 (<i>12.53</i>)
Education (Years)	12.80 (<i>1.12</i>)	13.30 (<i>1.18</i>)
Gender (% Female)	57.8	57.9
Ethnicity		
Caucasian	57.0	35
Asian or Asian American	27.9	1.0
African American	3.7	55.5
Hispanic	3.7	5.5
Other	7.7	3.0
Prior Psychotherapy	20.5	65.0
Prior Pharmacotherapy	9.7	55.7
PTSD Diagnosis (PDS)	14.7	45.7
PTSD Severity (PDS, Range 0–51)	6.69 (<i>8.22</i>)	21.48 (<i>13.71</i>)
Depression (QIDS; Range 0–27)	5.33 (<i>3.70</i>)	10.23 (<i>5.89</i>)

Note. PDS = Post-Traumatic Stress Disorder Diagnostic Scale, QIDS = Quick Inventory of Depressive Symptomatology

Table 2

Means and standard deviations for confidence in choice, personal reactions, and credibility.

	Undergraduate (N = 439)		Community Trauma (N = 203)	
	No Testimonial <i>M (SD)</i>	Testimonial <i>M (SD)</i>	No Testimonial <i>M (SD)</i>	Testimonial <i>M (SD)</i>
<u>No Prior Psychotherapy</u>				
Confidence	5.57 (0.99)	5.73 (0.97)	4.97 (1.78)	5.32 (1.85)
PE Personal Reactions	26.36 (5.50)	27.23 (5.72)	20.40 (9.28)	23.17 (9.56)
SER Personal Reactions	19.58 (6.40)	19.07 (7.06)	18.89 (9.46)	21.02 (8.85)
PE Credibility	34.98 (7.10)	36.52 (7.11)	28.96 (11.26)	32.19 (12.37)
SER Credibility	32.16 (6.99)	31.94 (8.07)	28.66 (12.74)	31.06 (11.36)
<u>Prior Psychotherapy</u>				
Confidence	5.84 (0.95)	5.82 (1.10)	5.82 (1.02)	5.69 (1.31)
PE Personal Reactions	26.52 (5.72)	28.52 (5.16)	23.03 (8.08)	26.14 (8.18)
SER Personal Reactions	19.40 (6.22)	18.74 (5.77)	20.22 (9.92)	10.38 (1.25)
PE Credibility	35.40 (6.75)	38.03 (6.57)	31.32 (9.58)	35.97 (9.94)
SER Credibility	32.11 (7.82)	34.26 (5.85)	30.61 (10.57)	31.98 (11.23)
<u>No Prior Pharmacotherapy</u>				
Confidence	5.60 (0.99)	5.75 (0.99)	5.16 (1.56)	5.41 (1.69)
PE Personal Reactions	26.42 (5.63)	27.54 (5.62)	20.78 (9.08)	23.40 (9.83)
SER Personal Reactions	19.36 (6.37)	18.89 (6.94)	16.71 (9.39)	17.92 (9.28)
PE Credibility	35.08 (7.13)	36.72 (7.04)	29.82 (10.56)	33.94 (12.61)
SER Credibility	31.96 (7.19)	31.95 (7.80)	27.35 (12.03)	28.75 (12.15)
<u>Prior Pharmacotherapy</u>				
Confidence	5.80 (0.96)	5.76 (1.03)	5.89 (1.12)	5.66 (1.40)
PE Personal Reactions	26.63 (4.73)	26.71 (6.06)	23.51 (7.85)	26.12 (7.99)
SER Personal Reactions	21.25 (5.16)	20.29 (5.46)	23.23 (8.97)	21.23 (10.12)
PE Credibility	35.71 (5.84)	37.78 (7.38)	31.13 (9.96)	35.21 (9.91)
SER Credibility	33.95 (6.37)	36.82 (6.12)	32.88 (9.98)	33.17 (10.51)

Note. PE = prolonged exposure; SER = sertraline; Personal Reactions: Personal Reactions Scale (PRS); Credibility: Credibility Scale (CS).