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WHAT WOULD YOU CHOOSE? SERTRALINE OR PROLONGED EXPOSURE IN COMMUNITY AND PTSD TREATMENT SEEKING WOMEN

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Abstract

Background—Both sertraline (SER) and prolonged exposure (PE) are empirically supported treatments for chronic posttraumatic stress disorder (PTSD). While efficacious, these treatments are quite different in approach, and such differences may influence both treatment choice and treatment outcome. To date, we know very little about the relative efficacy of pharmacological and psychological treatments for chronic PTSD.

Method—In Study 1, we compared rates of treatment choice (SER or PE) in 74 trauma-exposed women. In Study 2, we extended this work to an open-choice treatment trial, in which 31 female assault survivors with chronic PTSD received their choice of SER or PE for ten weeks and were followed over time.

Results—In Study 1 (82%) and Study 2 (74.2%), the majority of women chose PE. In Study 2, both SER and PE evidenced moderate to large unadjusted effect sizes, with evidence of an advantage for PE in propensity adjusted analyses at posttreatment. Women with co-occurring major depressive disorder (MDD) were more likely to choose SER than those without MDD. However, among those with MDD, the advantage of PE was particularly evident.

Conclusions—Our results highlight the presence of clear treatment preferences for PTSD and their potential impact on outcome. This study underscores the importance of systematic study of patient preferences and encourages a rethinking of one-size fits all approaches to treatment for mental disorders.

Keywords

PTSD; sertraline; prolonged exposure; choice

Both cognitive-behavioral (CBT^[1]) and pharmacological interventions^[2,3] have been shown to be helpful for chronic posttraumatic stress disorder (PTSD). However, key questions regarding their efficacy and effectiveness remain unaddressed. Indeed, the recent Institute of Medicine^[4] report on PTSD treatment highlighted the need for additional study of PTSD interventions, and in particular, for trials directly comparing CBT and pharmacotherapy. To

date, only two trials^[5,6] have compared a psychotherapy to pharmacotherapy for PTSD. In the first, a small trial ($n = 16$) conducted outside the United States suggested a potential advantage of CBT over paroxetine on self-report, but not clinician ratings.^[5] In a larger randomized trial ($n = 88$), eye movement desensitization and reprocessing (EMDR) and fluoxetine did not differ at posttreatment; however, both were superior to placebo.^[6] At six-month follow-up though, EMDR was superior to fluoxetine for both PTSD and depression symptoms.^[6] In addition to the need to learn more about relative efficacy, there is growing recognition of the need to systematically explore factors such as patient preference that may influence the clinical utility of these treatments. For example, despite the established efficacy of exposure therapy for PTSD, some have questioned its acceptability;^[7,8] thus it is particularly important to understand how potential patients react to this treatment approach. This is further underscored given IOM's positive conclusion regarding exposure therapy and its usage with our returning veteran population. Indeed, the NIMH workshop report on greater public health relevance for intervention research^[9] has called for "...the study of patient attitudes, knowledge, and beliefs about treatment as they pertain to the decision to enter treatment, subsequent compliance, and satisfaction with care..." (p. 130). Accordingly, understanding what factors influence choice and how those factors impact treatment are crucial.

Clearly, psychotherapy and pharmacotherapy for PTSD are radically different in nature. In prolonged exposure (PE), for example, clients are encouraged to approach trauma memories and fears. With pharmacotherapy (e.g., sertraline, SER), this level of engagement is not necessary. Thus, the experience of these therapies may be quite different, and the clients who choose one or the other may also be different. To date, we know little regarding what factors influence women with chronic PTSD to seek either PE or pharmacotherapy. Within the trauma literature so far, while several studies have examined treatment preferences, no choice study^[10–13] has examined a sample in which the majority of participants meet criteria for PTSD. Indeed, all but one study^[11] in this small body of work has examined samples comprised of college students and used hypothetical traumas.^[10,12,13] Thus, we sought to explore trauma-exposed women's choices regarding psychosocial and pharmacological interventions for chronic PTSD. We were particularly interested in understanding preferences *between* a psychotherapy and a pharmacotherapy and factors underlying such preference differences. We chose to examine PE and FDA-approved SER specifically due to their relative equipoise, at the time of the study, with regard to efficacy data. In Study 1, a community sample of trauma-exposed women reported their choices between two treatment options: SER and PE. In Study 2, we extended this work to provide treatment and follow-up in a sample of assault survivors with PTSD. We had two aims: (1) to examine treatment preferences for chronic PTSD; and (2) to conduct a preliminary exploration of the comparative effectiveness of SER and PE among women who choose their treatment.

STUDY 1 METHOD

PARTICIPANTS

Advertisements were used to recruit 74 trauma-exposed women in two large metropolitan areas. Individuals were included in the study if they had reported experiencing a traumatic event, were between the ages of 18 and 65, and were fluent in English. While all 74 women reported potentially traumatic experiences based on the Posttraumatic Stress Diagnostic Scale (PDS^[14]), using a strict interpretation of DSM-IV, Criterion A traumas¹ were reported by 78.4%. Fifty-three percent of all participants met current criteria for chronic PTSD.

¹When reporting the event that bothered them the most, 48.6% reported a sexual assault, 11% a childhood sexual assault, 8.4 % non-sexual assault, 14% a serious accident, a natural disaster, life threatening illness, or imprisonment/torture, and 18% other traumatic events (e.g., death of husband).

Among all participants, 76.1% reported prior psychotherapy, and 67.4%, prior psychotropic medications. See Table 1 for demographic information.

VIDEOTAPED TREATMENT DESCRIPTIONS

Rationales for SER and PE included: background, treatment procedures, and side effects. Rationales were derived from those published in Zoellner et al.^[13] and are in Appendix 1. Rationales were reviewed, revised, and approved by the authors and independent experts in both pharmacotherapy (Dr. R. Marshall) and psychotherapy experts (Dr. E. Foa). Rationales did not differ on sentence structure, grade level, or reading ease, and wording between rationales was matched whenever possible.^[13] The order of treatment rationales and treatment-related questions was counter-balanced. Treatment choices were made in private via computer, not directly to a research staff member.

MEASURES

For Studies 1 and 2, participants completed self-report symptom ratings prior to viewing treatment rationales and making treatment choices. Participants completed the following measures.

Posttraumatic stress diagnostic scale—The PDS^[15] includes a trauma screen, assessment of Criterion A status for the identified worst event, 17-items measure assessing the severity of DSM-IV PTSD symptoms during the past two weeks, and an assessment of functional impairment. Symptoms are rated on a 4-point scale from 0 (*not at all*) to 3 (*very much*). Foa et al.^[16] found high internal consistency ($\alpha = .92$) and test–retest reliability for total score ($r = .83$).

Beck depression inventory—The Beck depression inventory (BDI^[17]) is a 21-item measure assessing depression severity. Each item consists of four statements scored 0–3, with higher scores indicating greater severity. The BDI has moderately high correlations with clinician ratings of depression, ranging from .62 to .66.

State-trait anxiety inventory—State-trait anxiety inventory (STAI^[18]) is a 40-item inventory assessing state and trait anxiety. Test–retest reliability for trait anxiety is .81 and internal consistencies range from .83 to .92.

Forced choice—To examine treatment choice, a single question was used counterbalancing the order of presentation 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?”

STUDY 1 RESULTS

TREATMENT CHOICE

Overall, 81.7% of participants chose PE, 12.7% chose SER, and 5.6% chose no treatment, $\chi^2(2, N = 71) = 75.24, P < .05$. Choice was not related to prior therapy, or medication usage, nor did choice differ by trauma type or site. Rates of choice did not change substantially when examining only those who met PTSD diagnostic criteria on the PDS ($n = 39$): 78.9% chose PE, 13.2% SER, and 7.9% no treatment. Next, we compared those who chose SER and PE on demographics and psychopathology. As seen in Table 1, those who chose SER were more likely to be unemployed or working part-time than those who chose PE, $\chi^2(2, N = 67) = 4.30, P < .05$; and there was a nonsignificant trend toward those who chose SER being older than those who chose PE, $F(1, 65) = 3.75, P = .06$, Cohen's $d = .66$.

STUDY 2 METHOD

PARTICIPANTS

Thirty-one women with assault-related chronic PTSD were recruited via advertisements in two metropolitan areas. Time since assault was 9.9 years ($SD = 10.5$). In addition to the target trauma, participants reported 3.57 ($SD = 2.57$) other Criterion A events. Sixty-four percent reported previous psychotherapy, and 72% previous psychotropic medications. See Table 1 for demographics and baseline severity scores.

Participants were recruited through a wide range of sources, including clinical referrals and community advertising, such as flyers and media advertisements. Inclusion criteria were purposely broad to recruit a clinically representative sample: participants had to meet DSM-IV criteria for a primary diagnosis of chronic PTSD and be between the ages of 18 and 65. Exclusion criteria were designed to be minimal and informed by appropriate clinical care (e.g., an actively suicidal patient should be stabilized prior to initiation of exposure therapy). Diagnostic co-occurrence was not an exclusion as long as PTSD was determined to be primary. Participants were excluded if they were assaulted by an intimate partner with whom they had an ongoing intimate relationship, had a current diagnosis of schizophrenia, delusional disorder, or organic mental disorder, or had a current diagnosis of unstable (nonmedicated) bipolar disorder, current unstable depression with psychotic features, current unstable depression severe enough to require immediate psychiatric treatment, imminent suicidal intent or plan, or current substance dependence.

MEASURES

PTSD symptom scale-interview (PSS-I^[16]) was used as the primary outcome measure. In this study, over 10% of the cases were rerated for diagnostic reliability; reliability was high for overall PTSD severity scores ($ICC = .98$). The Structured Clinical Interview for DSM-IV (SCID-IV^[19]) was used to ascertain chronic PTSD as the primary diagnosis and major depression co-occurrence (MDD). In addition, the PDS (the 17 DSM severity items), BDI, and STAI were administered to further examine factors associated with choice and to help ascertain good end-state functioning status.

PROCEDURE

Pre-treatment assessment—After consent, independent evaluators (IE) conducted diagnostic interviews and self-report measures were completed. Eligible participants were shown videotaped rationales (see Study 1) and asked to choose SER or PE. Fifty-three intakes were conducted, 31 were given treatment preference. Reasons for nonentry: 3 no PTSD; 13 PTSD not primary; 5 suicidal or ongoing danger; and 1 was eligible but not interested.

Sertraline—Participants who chose SER underwent a physical exam, urine drug screen, and a pregnancy test. A psychiatrist met for 10 weekly, up to 30 min sessions, with the first lasting 45 min, based on a treatment manual.^[20] Neither exposure nor antiexposure instructions were given. Dosage started at 25 mg/day, with the goal of 200 mg/day, if tolerated. Final dosage ranged from 12.5 to 250 mg/day, with an average final dosage in the intent to treat (ITT) sample of 105 mg/day ($SD = 86$) and 125 mg/day ($SD = 89$) for completers. No participants in the SER condition were pulled from the trial or stopped their medication due to side effects.

Prolonged exposure—PE consisted of 10 weekly, 90–120 min sessions. Procedures included education, breathing retraining, exposure to trauma memories, in vivo exposure, and discussion of thoughts/feelings related to exposure exercises.^[21]

Treatment integrity—Ratings were based on Foa et al.^[21] and Marshall et al.^[20] Trained raters reviewed 10% of videotapes, assessing essential treatment components and protocol violations. For essential components, PE providers completed 94%, and SER providers completed 91%. No protocol violations were observed.

Posttreatment assessment and last available follow-up—Participants completed IE assessments (PSS-I) up to one year. At posttreatment, the alternate treatment was offered to individuals scoring above 15 on the PSS-I; all other individuals were offered either continued SER or booster PE sessions as needed up to one year. Last available follow-up was 4.77 months posttreatment (SD = 4.88, range 1–12 months), with no differences between SER ($M = 6.00$, $SD = 5.24$) and PE ($M = 4.35$, $SD = 4.79$).

STUDY 2 RESULTS

TREATMENT CHOICE

Overall, 74.2% of participants chose PE and 25.8% chose SER, $\chi^2(N = 31) = 7.26$, $P < .05$. Choice was not related to prior therapy, prior medication usage, or treatment site. Those with less education chose SER over PE, $\chi^2(N = 31) = 4.41$, $P < .05$, but no other demographic differences emerged. Those who chose SER indicated higher levels of psychopathology across self-reports: PTSD, $t(29) = 3.55$, $P < .05$, Cohen's $d = 1.64$, depression, $t(29) = 3.10$, $P < .05$, Cohen's $d = 1.41$, and trait anxiety $t(29) = 3.38$, $P < .05$, Cohen's $d = 1.51$. However, interviewer-assessed PTSD severity (PSS-I) did not differ between SER and PE. See Table 1.

ANALYTIC PLAN

As treatment assignment was not random, propensity scores were used to account for pre-treatment differences between those who chose PE and SER that might influence outcome.^[22] To create a predictive model of choice (PE or SER), we selected variables based on our previous preference work (Feeny et al., submitted; Zoellner et al., submitted),^[13,23,24] utilizing self-reported baseline psychopathology (PTSD, depression, and anxiety), education, and income, overall model: $\chi^2(N = 31) = 20.84$, $P < .05$; Classification: Overall: 90%; PE: 91%; SER: 87.5%. Propensity scores were used as a covariate in all primary analyses.

All analyses reported are ITT with missing values estimated using regression methods suggested by Tabachnick and Fidell.^[25] Based on the recommendations of Jaccard and Guilamo-Ramos,^[26,27] we focused on only one main outcome measure (PSS-I) and single degree of freedom contrasts. All contrasts were conducted utilizing means adjusted based on propensity scores. Given our small sample size, these contrasts were calculated with and without experimenter wise controls.^[25] Using Holm's step down method,^[28] all significant contrasts were considered statistically significant and unadjusted P values are presented.

DESCRIPTIVE ANALYSES

Seventy-one percent of participants completed all ten sessions (75%, $n = 6$, SER; 65.2% $n = 14$, PE). Completers and noncompleters did not differ on baseline characteristics. PE and SER did not differ significantly with regard to the number of treatment completers. Among completers, all but one SER patient continued on SER. This patient began PE. No PE patients began SER.

MAIN OUTCOME: PTSD SEVERITY (INTERVIEW)

As can be seen in Table 2, there was statistically significant change in PTSD severity (PSS-I) from pre- to posttreatment and from pre- to follow-up for PE, with generally large effect

sizes. These changes were not evident for SER. Further, at posttreatment only, the interaction contrast suggests that the mean reduction in PTSD severity exhibited by the PE group was statistically larger than the corresponding mean reduction for the SER group. This interaction did not approach significance at follow-up.²

GOOD END-STATE FUNCTIONING AND PTSD DIAGNOSTIC STATUS: COMPLETERS

Given that individuals with PTSD also report clinical levels of depression and anxiety, we utilized a composite good end-state functioning measure commonly used in the PTSD psychotherapy literature (e.g., Feeny et al., submitted^[29,30]) to provide an index of clinically-meaningful change across all indices. To be coded as having good end-state functioning, and individual must have scored at or below 23 on the PSS-I,^[16] 10 on the BDI^[17], and 45 on trait anxiety (STAI-T^[18]). Among completers, there was a trend toward better outcome for PE, with 60% in PE and 16.7% in SER achieving good end-state, $\chi^2(N = 21) = 3.22, P = .07$. PE and SER differed on PTSD diagnostic status, with 93% in PE and 33% in SER not meeting criteria at posttreatment, $\chi^2(N = 21) = 8.51, P = .004$. At follow-up, SER and PE did not differ on end-state but did differ on diagnosis. Among completers, 46.7% in PE and 16.7% in SER achieved good end-state functioning; and 100% in PE and 50% in SER did not meet diagnostic criteria, $\chi^2(N = 21) = 8.75, P = .003$.

POSTHOC ANALYSIS FOR CURRENT MAJOR DEPRESSION

Given how commonly PTSD and major depressive disorder (MDD) co-occur,^[31] we reexamined our results for those with current MDD (45.2%, $n = 14$) and without (54.8%, $n = 17$). The pattern of choice shifted dramatically. For those with MDD, 57.1% chose PE and 42.9% chose SER, *ns*; however, for those without MDD, the pattern was similar to Study 1 and Study 2, with 88.2% choosing PE and 11.8%, SER, $\chi^2(1, N = 17) = 9.42, P < .05$. We then reexamined pre-post effect sizes for both PE and SER. As only one individual without current MDD chose SER, effect sizes are only reported for the MDD+PTSD group. For individuals with MDD+PTSD who chose SER ($n = 6$), effect sizes remained similar (PSS-I: partial $\eta^2 = .12$); however, for individuals with MDD+PTSD who chose PE ($n = 8$), the effect sizes substantially increased (PSS-I: partial $\eta^2 = .73$).

DISCUSSION

Consistent with our previous work, there was a strong preference for PE in comparison to SER.^[13] In Study 1, a community sample of trauma-exposed women, 81% chose PE; similarly, in Study 2, an open treatment trial for women with chronic PTSD, 72% chose PE, highlighting a likely link between theoretical and actual treatment choices. Consistent with these results, previous work also highlights the preference for psychotherapy over medication in recent assault survivors.^[11] Our work has shown this general preference persists regardless of information presented (i.e., side effects and treatment mechanism) in the treatment description (Feeny et al., submitted). Further, this may not just reflect a general preference for psychotherapy, as even when other therapies for PTSD are described in detail, exposure-based therapies are ranked among the most preferred.^[12]

Consistent with other preference work,^[32] in Study 2, higher levels of psychopathology and comorbidity were associated with choosing pharmacotherapy. While this was not the case in Study 1, this may reflect a reduced range of psychopathology in this sample. Notably, women who chose pharmacotherapy also reported being less likely to be employed full time

²It should be noted that the propensity score adjusted means obscure being able to see changes, particularly for SER, over time. Without propensity score adjustment, the effect sizes are as follows: PE: pre- to posttreatment: partial $\eta^2 = .56$, pre- to follow-up: partial $\eta^2 = .54$; SER: pre- to posttreatment: partial $\eta^2 = .22$, pre- to follow-up: partial $\eta^2 = .39$.

(Study 1) or college educated (Study 2), suggesting a possible association between lower socioeconomic status and preference for pharmacotherapy. Indeed, these findings are also consistent with an association between higher education and the receipt of nonmedical treatment or psychotherapy (Feeny et al., submitted).

Both SER and PE yielded medium to large unadjusted effects on PTSD severity over time, with evidence of an advantage of PE in propensity-adjusted analyses at posttreatment. It should be noted that effect sizes reported on Table 2 are adjusted to account for differential preference rates for SER and PE and accordingly do not reflect overall improvement. Notably, the unadjusted effect sizes obtained in this nonrandomized trial are, from a benchmarking perspective, comparable to outcome seen in randomized trials (SER^[2,31] and PE^[21,32]). Continued improvement over time on SER is also consistent with the literature.^[3,33] Our treatment completion rates are similar to those seen in randomized trials as well (38% for PE;^[30] 30.9% for SER^[2]). Interestingly, those with co-occurring MDD and PTSD were more likely to choose SER than those without this co-occurrence; perhaps those with MDD do not have the energy or motivation to undergo an intense psychotherapy such as PE, or they believe that pharmacotherapy is more necessary for more severe symptoms. However, among those with MDD, PE was particularly effective, suggesting a further dissociation between treatment choice and efficacy.

Several limitations should be noted. First, both Studies 1 and 2 used a forced-choice scenario, which does not reflect the full range of treatment options available and inappropriately implies disinterest in the other option.^[34] Thus, it is possible that the preference seen for PE as opposed to SER may reflect a preference for therapy over medication and not a preference for PE specifically. Similarly, the videotaped treatment descriptions do not capture the dynamic nature of a collaborative discussion between clinician and patient about possible treatment options. Second, the fact that our samples are limited to females who are primarily assault survivors may limit the generalizability of our findings. However, given that women are consistently found to be twice as likely as men to develop PTSD^[31] and that assault survivors are among the most likely group exposed to trauma to develop PTSD, we believe the focus on this group is quite warranted. Third, the end dosage of SER (105 mg/day) was lower than in some published trials (e.g., 133.3 mg/day^[2]). However, end dosage was not strongly associated with symptom improvement (PTSD: $r = -.13$; BDI: $r = .02$; STAI: $r = -.25$; *ns*). Fourth, we used an open choice design and thus could not directly address the impact of choice or treatment modality on outcome. While propensity scores were used, unmeasured factors cannot be accounted for. Finally, rates of choice (3:1, PE:SER) impacted our power, making treatment effect sizes potentially unstable. Accordingly, the present results should be interpreted with caution and await future studies utilizing randomization to “choice” vs. “no choice” and PE vs. SER.

This study is the first to examine treatment preferences and outcome in individuals with chronic PTSD, highlighting the presence of clear preferences and their potential impact on outcome. Notably, while those with MDD preferred SER, in this subsample, PE was particularly effective. While novel in PTSD, there is growing evidence in the treatment of depression that patient preferences may significantly impact outcome,^[35] compliance, and cost effectiveness.^[36] Taken together, these studies and this study underscore the importance of systematic study of patient preferences and encourage a rethinking of one-size fits all approaches to treatment for mental disorders.

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APPENDIX A: TREATMENT RATIONALES

PSYCHOTHERAPY—PROLONGED EXPOSURE

Let me tell you about prolonged exposure (or PE). PE is a 10-session individual therapy that has been shown to be effective in the treatment of posttraumatic stress disorder (or PTSD). Of the available psychotherapies used for PTSD, PE has undergone some of the most rigorous scientific testing. Results of several controlled studies have shown that it significantly reduces PTSD symptoms. 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 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 to adapt to stressful events. Specifically, researchers have argued that individuals with PTSD have difficulty emotionally processing the traumatic event and, thus, they continue to be very fearful of nondangerous trauma-related stimuli (for example, the bedroom where an assault occurred). And, they have associated changes in thinking regarding the dangerousness of the world and the incompetence of one's self. Indeed, it is thought that cognitive behavioral therapy such as PE might be particularly useful in treating chronic PTSD because it facilitates processing of the traumatic event through confrontation with feared memories, images, and situations. So, because PTSD may be a disorder of failed emotional processing, cognitive behavioral therapy, particularly PE, may be a particularly logical treatment option. Does that make sense?

Let me give you an example (or an analogy). Our memories are like complicated file cabinets. Past experiences are filed into proper drawers, and this is how we organize and make sense of them. But in what file drawer should you file an assault? How do you make sense of it? For people with PTSD, their traumatic experience has been incorrectly (or incompletely) filed. What PE seems to do is to help people to be able to organize the distressing fears and memories so that they can find a drawer for them and move on. In any case, PE can be helpful in reducing trauma-related difficulties.

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 PE are mild to moderate discomfort when exposed to anxiety-provoking images, situations, and places. Generally, PE is well tolerated overall, with only mild and transient side effects.

MEDICATION—SERTRALINE

Let me tell you about Zoloft. 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 evaluations. Results of several controlled studies have shown that it significantly reduces PTSD symptoms. It is an FDA-approved medication for 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 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. Let me give you some examples: adrenergic hyperreactivity, 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 SSRIs such as Zoloft may be particularly useful in treating chronic PTSD because a number of PTSD symptoms may be mediated through serotonergic mechanisms. So, because PTSD may be a disorder of dysregulated psychobiological systems, SSRIs, particularly Zoloft, may be a particularly logical treatment option. Does that make sense?

Let me give you an example (or an analogy). Our brains have a complicated set of alarm systems that go off whenever we are in danger. Our heart speeds up, muscles tense, we feel anxious, more alert, and ready to fight, flee, or freeze. For people with PTSD, it is alarm system never turns off, it keeps on sounding, and then it takes on a life of its own. What Zoloft seems to do is to shut off or at least turn down this alarm system. In any case, Zoloft can be helpful in reducing trauma-related difficulties.

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, and headache. Generally, Zoloft is well tolerated overall, with only mild and transient side effects.

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TABLE 1

Study 1 and Study 2 comparisons between those choosing SER and PE

Variable	Study 1: community trauma					Study 2: PTSD treatment seeking				
	SER (n = 9)		PE (n = 58)		Total (n = 74)		SER (n = 8)		PE (n = 23)	
	M	SD	M	SD	M	SD	M	SD	M	SD
PTSD severity (PSS-1)	—	—	—	—	—	—	31.88	7.47	27.78	07.43
PTSD severity (PDS)	22.56	13.03	22.21	11.41	22.10	11.48	40.25 _a	3.99	30.70 _b	07.19
Depression (BDI)	14.56	7.18	13.37	10.04	13.51	9.86	34.50 _a	6.63	22.03 _b	10.59
Anxiety (STAI-Trait)	53.56	10.56	50.70	13.26	50.83	13.12	70.00 _a	7.21	56.35 _b	10.53
Age (years)	39.78	14.25	30.79	12.75	31.82	13.10	35.12	8.20	29.57	9.09
Sexual assault (%)	53.8		58.6		58.1		87.5		72.7	
Ethnicity (% African-American)	22.2		13.8		14.1		37.5		21.7	
Income (% <\$20,000)	53.8		37.9		39.2		75		50	
Employment (% full)	46.2 _a		69 _b		66.2		25		34.8	
Education (% college)	30.8		31		32.4		0 _a		39.1 _b	

Notes: Differing subscripts reflect differences at $P < .05$. For Study 1, the *ns* for PE and SER do not add to 74 because several participants chose “no treatment” and three did not make any treatment choice.

TABLE 2
Single degree of freedom contrasts for intent-to-treat analyses for PTSD severity (PSS-I)

	Parameter value	SE	95% lower CI	95% upper CI	t	P	Partial η^2
1. Pre-post for SER	1.64	4.46	-7.51	10.80	0.37	.72	.01
2. Pre-post for PE	15.96	2.69	10.44	21.48	5.93	<.001	.57
3. Pre-FU for SER	7.20	5.19	-3.44	17.85	1.39	.18	.07
4. Pre-FU for PE	17.02	3.13	10.61	23.44	5.44	<.001	.52
5. IC1: Pre, Post by SER, PE	-14.32	5.21	-25.01	-3.63	2.75	.01	.22
6. IC2: Pre, FU by SER, PE	-9.82	6.06	-22.25	2.61	1.62	.12	.09

Note: Pre, pretreatment; post, immediate post-treatment; FU, last available follow-up; SER, sertraline; PE, prolonged exposure; CI, confidence interval; IC, interaction contrast. All analyses are based on adjusted means using propensity scores and do not reflect raw mean changes.