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RESEARCH ARTICLE

Paraprofessional delivery of online narrative exposure therapy for firefighters

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Abstract

Firefighters are at increased risk for developing posttraumatic stress disorder (PTSD) and face numerous barriers to accessing mental health care. Innovative ways to increase access to evidence-based interventions are needed. This study was a case series testing the acceptability, feasibility, and preliminary effectiveness of a paraprofessional-delivered, virtual narrative exposure therapy (eNET) intervention for PTSD. Participants were 21 firefighters who met the criteria for clinical or subclinical probable PTSD and completed 10–12 sessions of eNET via videoconference. Participants completed self-report measures pre- and postintervention and at 2- and 6-month follow-ups as well as a postintervention qualitative interview. Paired samples *t* tests evidenced statistically significant decreases in PTSD, anxiety, and depressive symptom severity and functional impairment from pre- to postintervention, *d*s = 1.08–1.33, and in PTSD and anxiety symptom severity and functional impairment from preintervention to 6-month follow-up, *d*s = 0.69–1.10. The average PTSD symptom severity score

fell from above to below the clinical cutoff for probable PTSD at postintervention and follow-ups. Qualitative interviews indicated that paraprofessionals were considered central to participants' success and experience with the intervention. No adverse events or safety concerns were raised. This study is an important step in demonstrating that appropriately trained and supervised paraprofessionals can effectively deliver eNET to firefighters with PTSD.

Repeated exposure to traumatic events is an unavoidable part of firefighting (Jahnke et al., 2016). More exposure to such events (Ozer et al., 2003) increases the risk of posttraumatic stress disorder (PTSD) and decreases spontaneous remission (Kolassa et al., 2010). In one study, 13.5% of Canadian firefighters screened positive for PTSD (Carleton et al., 2017) versus 8% of the general population (Statistics Canada, 2022). Individuals with PTSD have a significantly higher risk of comorbid psychopathology and substance abuse (Goldstein et al., 2016), insomnia (Pigeon et al., 2013), relationship problems (Waddell et al., 2020), and suicidality (Panagioti et al., 2012). Up to 40% of people with PTSD continue to exhibit significant symptoms 10 years after onset (Kessler et al., 1995), and in the long term, PTSD can decrease quality of life (Monson et al., 2017).

Clinical practice guidelines recommend the use of trauma-focused cognitive behavioral therapies, including exposure therapy, in PTSD treatment (American Psychological Association [APA], 2017; Katzman et al., 2014; National Institute for Health and Care Excellence [NICE], 2018). Narrative exposure therapy (NET; Schauer et al., 2011) is an exposure-based therapy approach for PTSD that has been used for repeated and protracted exposure to traumatic events (Neuner et al., 2018). NET was developed to be pragmatic and culturally adaptable (Schauer et al., 2011). Meta-analyses support the use of NET for PTSD (Lely et al., 2019; Siehl et al., 2021), with large effects. Clinical practice guidelines conditionally recommend (APA, 2017) or recommend (NICE, 2018) NET for PTSD.

Despite the existence of evidence-based interventions for PTSD, firefighters, like the general population, face barriers to care, including a shortage of trained clinicians, long waitlists, scheduling challenges, and prohibitive incidental costs of care (Collins et al., 2004). Firefighters also face unique, potent barriers to care, including fears about confidentiality and negative career impact, and a culture of self-reliance and mental health stigma (Gulliver et al., 2019; Haugen et al., 2017; Hom et al., 2018; Jones et al., 2020). Virtual care can minimize barriers and increase access to care by reducing travel needs and fears about confidentiality and stigma (Lingley-Pottie et al., 2013). The findings from systematic reviews indicate that virtual interventions can effectively reduce PTSD symptoms (Olthuis et al., 2016). There is an appetite for internet-delivered interventions, and their inherent privacy, among public safety personnel (McCall et al., 2021). Having paraprofessionals (i.e., unlicensed but trained staff) deliver interventions may also help address clinician shortages (Kakuma et al., 2011). In their systematic review, den Boer et al. (2005) found that paraprofessionals may achieve outcomes similar to professionals when delivering mental health interventions, but heterogeneity in interventions and small studies with methodological problems limited definite conclusions. Although paraprofessionals can be trained in effective NET delivery (Neuner et al., 2008), online NET (eNET) and paraprofessional-delivered NET have not been investigated among public safety personnel.

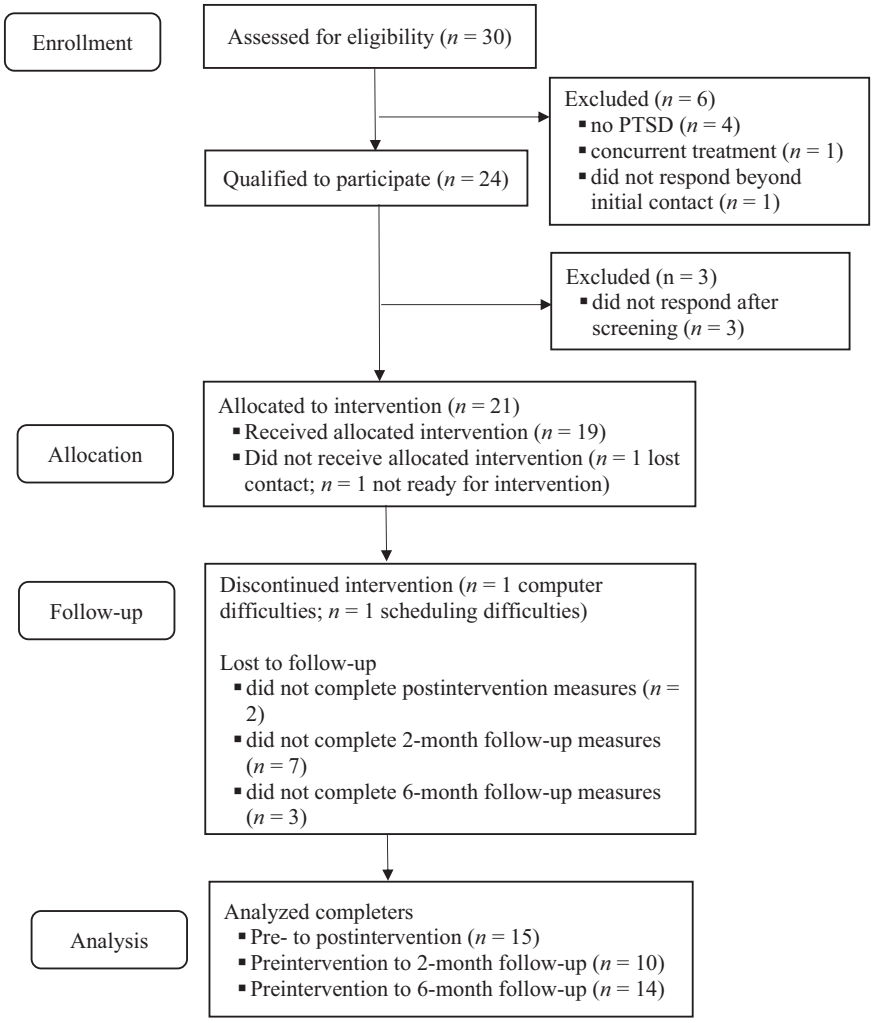
The current study tested the acceptability and feasibility of an innovative paraprofessional-delivered eNET intervention for firefighters with PTSD. We also tested the intervention's preliminary effectiveness in reducing the severity of PTSD, depressive, and anxiety symptoms and functional impairment at assessments administered postintervention and 2- and 6-month follow-ups. We hypothesized that the intervention would be feasible and acceptable to firefighters and would reduce PTSD, depressive, and anxiety symptom severity as well as functional impairment.

METHOD

Participants

Participants were current or past employees or volunteers of the Canadian fire service living in the Atlantic provinces or Ontario. To participate, firefighters had to be over 18 years of age, be able to speak and read English, and have access to a computer with internet. Firefighters also had to report experiencing at least one qualifying traumatic event, per the PTSD criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; *DSM-5*; APA, 2013), as endorsed on the Life Events Checklist for *DSM-5* (LEC-5; Weathers, Blake, et al., 2013) or a measure of firefighting-related trauma exposure (Beaton et al., 1998). Moreover, individuals had to meet at least the subclinical threshold for probable PTSD according to the PTSD

FIGURE 1 *CONSORT diagram*



Checklist for *DSM-5* (PCL-5; Weathers, Litz, et al., 2013). Individuals were excluded if they had a psychotropic medication change in the prior 3 weeks; had previously engaged in exposure therapy for PTSD; endorsed suicidal ideation with plan and intent, as assessed using an item from the Beck Depression Inventory–II (BDI-II; Beck et al., 1996); met the criteria for current mania or psychosis, as assessed on an ongoing basis by the paraprofessional and their supervisor; or experienced a high level of dissociation, as indicated by a score of 18.5 or higher on the Shutdown Dissociation Scale (Shut-D; Schalinski et al., 2015).

Recruitment and adherence

Participants were recruited via advertisements in Canadian Association of Fire Chiefs newsletters, posters sent to firefighting organizations, advertisements on firefighting-related social media pages, and notices in an online health and wellness community for firefighters. In total, 30 respondents expressed interest in participating (Figure 1). After screening, 21 firefighters qualified to participate and provided consent (Table 1). The study recruitment period extended over 1 year, during which only 30 individuals expressed interest in participating despite varied recruitment efforts. Most participants (81.0%) completed the intervention (Figure 1). Two participants dropped out before Session 1 (i.e., one stopped responding to contact attempts, and one reported not being ready for the intervention). Two participants dropped out after two sessions: One reported scheduling difficulties, and the second reported computer difficulties.

Procedure

Study design

This study was a case series. The eNET intervention was delivered to a series of participants whose symptoms were evaluated and experiences explored, but there was no control condition. Potential participants were given information about the study via telephone conversations. Individuals provided verbal consent, then completed an online questionnaire, hosted by Qualtrics (Provo, Utah, USA), to assess the eligibility criteria and outcome measures. For

TABLE 1 Participant demographic characteristics

Variable	*M*	*SD*	%
Age (years)	41.81	9.61	
Gender			
Men			71.4
Women			28.6
Marital status			
Married/common law			85.7
In a relationship > 6 months			14.3
Race			
White			90.5
Indigenous			4.8
Mixed			4.8
Province of residence			
Nova Scotia			47.6
Newfoundland			19.0
Ontario			19.0
Prince Edward Island			9.5
New Brunswick			4.8
Type of firefighter			
Volunteer			57.1
Career			42.9
Years of service as a firefighter	16.81	11.41	

Note: Response options not selected by participants are not listed.

qualifying participants, completed questionnaires served as preintervention data. Participants were then assigned to a paraprofessional and completed the intervention. Following the intervention, participants completed the questionnaire again and were invited to complete an interview via videoconference with a trained research assistant to assess their intervention satisfaction. Interviews were audio-recorded. Participants were contacted via email 2 and 6 months later and asked to complete the questionnaire again. Participants were compensated $25 (CDN) in gift cards for completing assessment measures at each time point, for a total of $100. Procedures were approved by Research Ethics Boards at the University of New Brunswick and the IWK Health Centre.

Intervention

Participants received eNET (Kaltenbach et al., 2021; Schauer et al., 2011), an established exposure-based intervention for PTSD. NET is based on the theory that traumatic experiences are incorrectly integrated into one's autobiographical memory (Schauer et al., 2011). This theory suggests that declarative (i.e., voluntary contextual information such as when and where an event took place) and nondeclarative (i.e., involuntary sensory perceptions, cognitions, emotions, and physiological reactions) aspects of memory are not integrated correctly during traumatic experiences (Elbert & Schauer, 2002). Instead, they are coded separately. The elements of nondeclarative memory create a fear network that can easily be reactivated when one aspect of the network is triggered. When that occurs, individuals struggle to connect the activated nondeclarative fear network with the declarative aspects of their memory of the event, resulting in negative consequences (e.g., flashbacks, heightened emotional response). NET aims to connect the elements of declarative and nondeclarative memory and, thus, improve processing and coping, via a narrative approach that activates these aspects of memory simultaneously.

For the present study, NET was adapted to be relevant to firefighters (i.e., by ensuring content reflected firefighter experiences and having a firefighter provide training in firefighter culture to paraprofessionals). The intervention included 10–12 weekly 90-min sessions delivered via secure videoconferencing. Fewer or additional sessions were provided as appropriate; among completers, participants completed 8–15 sessions total (M = 12 sessions). The first session covered psychoeducation on PTSD. In Session 2, participants constructed a lifeline, displayed virtually on a shared screen, by briefly describing important events in their life, including traumatic, positive, and sorrowful events and events in which they caused harm to others. Sessions 3–11 involved chronological exposure to the most distressing events on the lifeline, with a focus on reprocessing, meaning-making, and integrating challenging memories into a coherent narrative. Session 12 was spent revisiting the lifeline, reviewing gains, and looking toward the future.

The intervention was administered by three paraprofessionals trained in eNET and supervised by both a clinical psychologist and an expert in NET. The paraprofessionals were not mental health professionals; however, two had a relevant undergraduate degree (i.e., psychology or social work) and 3–5 years of work experience. None had prior NET experience. The paraprofessionals received a detailed intervention manual and 3 weeks of training in crisis intervention; PTSD; NET; life in the fire service; substance use; anxiety; depression; the handling and storage of personal health information; equipment use; telehealth communication techniques and etiquette; and identifying, managing, and reporting risk and adverse events. Intervention sessions were recorded and reviewed by the supervisor. The first interventions were discussed session by session. When the supervisor judged that the paraprofessional showed consistently good performance according to a quality assurance checklist, monitoring was reduced to a random 10% of sessions or at the paraprofessional's request. Group supervision took place twice weekly, and individual supervision was

provided weekly in the first 6 months and continued biweekly.

Measures

Trauma exposure

The LEC-5 (Weathers, Blake, et al., 2013) and a measure of exposure to firefighting-related trauma (Beaton et al., 1998) were used to index participants' exposure to traumatic events. On the measure of firefighting-related trauma, participants indicated which of 32 listed events they had experienced. On the LEC-5, participants indicated which of 17 traumatic events happened to them personally, they witnessed, they learned about happening to a close family member or friend, or to which they were exposed as part of their job. The LEC-5 has demonstrated fair temporal stability of self-reported trauma exposure, with higher stability for directly experienced events (Pugach et al., 2021).

PTSD symptom severity

The PCL-5 (Weathers, Litz, et al., 2013) is a self-report measure of the severity of past-month PTSD symptoms. Items are scored on a 5-point Likert-type scale ranging from 0 (*not at all*) to 4 (*extremely*). Per PCL-5 guidelines, positive eligibility screens for subclinical and clinical PTSD were determined by considering symptom endorsement as a rating of 2 (*moderately*) or higher, then following *DSM-5* rules to confirm the diagnostic criteria were met, allowing for a diagnosis of subclinical PTSD if only one of Criterion B, C, D, or E were not met. Subsequently, PCL-5 scores were summed to be used as a continuous outcome measure, with scores of 32 or higher indicating a probable PTSD diagnosis (Weathers, Litz, et al., 2013). The PCL-5 has demonstrated good internal consistency, test–retest reliability, and convergent validity (Blevins et al., 2015). In the present sample, Cronbach's alpha was .94.

Depressive and anxiety symptoms

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) and Generalized Anxiety Disorder–7 (GAD-7; Spitzer et al., 2006) were used to assess symptoms of depression and anxiety, respectively. The self-report measures ask participants to report how often they have been bothered by symptoms of major depressive disorder and generalized anxiety disorder during the past 2 weeks. Responses on both are rated on a 4-point Likert-type scale, with higher scores indicating more severe symptoms. Both measures have demonstrated good internal consistency, reliability, and criterion and construct validity (Kroenke et al., 2001; Spitzer et al., 2006). In the present sample, Cronbach's alpha was .84 for the GAD-7 and .86 for the PHQ-9.

Functional disability

Disability was measured using the Sheehan Disability Scale (SDS; Leon et al., 1992), a 5-item measure that is used to assess past-week daily functioning. The first three questions ask participants to indicate the extent to which their symptoms have disrupted their work or school, social life, or family life and home responsibilities, with responses rated on an 11-point scale. The fourth and fifth questions ask participants to report the number of days in the last week their symptoms caused them to miss school or work or reduced their productivity if they still attended. The SDS has demonstrated high internal consistency and good construct and criterion validity (Leon et al., 1992). In the present sample, Cronbach's alpha was .69.

Therapeutic alliance

The 12-item Working Alliance Inventory–Short Form Revised (WAI-SR; Hatcher & Gillaspy, 2006) was used to assess participants' alliance with their intervention provider. Respondents are asked about their perception of agreement on the goals and tasks of the intervention and the paraprofessional–client bond, with responses rated on a 5-point Likert-type scale. Higher scores indicate a higher level of perceived alliance. The WAI-SR has demonstrated good internal consistency and convergent and discriminant validity (Hatcher & Gillaspy, 2006). Cronbach's alpha for the present study was .95.

Qualitative interview

We took a semistructured approach to the qualitative interview. Participants responded to predetermined questions, with follow-up inquiries and topics generated fluidly by the interviewer and interviewee. In addition to assessing participants' overall satisfaction with and their perceived impact of the intervention, the interview focused on participants' perceptions of the (a) content of the intervention (e.g., "What was most helpful about the intervention?"), (b) distance delivery modality (e.g., "Was this intervention convenient or inconvenient for you to engage in? Can you tell me why?"), and (3) paraprofessional's delivery (e.g., "Did you have any problems or concerns with your coach's level of training, experience, or expertise?"). The goal was to gain insight into the feasibility of using

paraprofessionals to deliver eNET and understand firefighters' overall intervention experience. To assess participants' overall satisfaction with the intervention, they were asked to indicate how satisfied they were with the intervention overall, on a scale of 0 (*not at all satisfied*) to 10 (*extremely satisfied*).

Data analysis

We examined trends in descriptive statistics at preintervention, postintervention, and the two follow-up assessments. The small sample size precluded most statistical significance testing; nevertheless, we conducted paired samples *t* tests comparing pre- to postintervention and 6-month follow-up scores on measures of PTSD, anxiety, and depressive symptoms and functional impairment. Given the small sample size, nonparametric tests (i.e., Wilcoxon signed-rank) were also calculated to corroborate *t*-test findings. In addition, we contextualized changes in participants' scores on outcome measures in relation to norms and cutoff scores. Finally, we calculated reliable change in PTSD symptom severity scores by dividing the difference between preintervention and postintervention or 6-month follow-up scores by the standard error of the difference between the scores (Jacobson & Truax, 1991). When the reliable change index (RCI) was |1.96| or greater, the participant was categorized as showing clinically significant improvement or deterioration depending on whether the postintervention score was more or less favorable, respectively. When the RCI was less than |1.96|, the participant was deemed unchanged.

The qualitative interviews were analyzed using directed content analysis following guidelines by Hsieh and Shannon (2005). Two authors reviewed and coded interview transcripts. All utterances were coded; given the goals of the study, references by even one participant were considered noteworthy. Subsequently, one author applied labels and definitions to these concepts to create codes and met with the second author for agreement. The two authors then reanalyzed the qualitative interviews line-by-line in accordance with these codes, compared their analyses for agreement, adjusted existing codes, and agreed on new codes as needed. Codes were then grouped according to the study aims.

RESULTS

Sample characteristics

Preintervention, participants reported exposure to an average of 9.38 (SD = 3.26, range: 2–14) types of traumatic events on the LEC-5 and 15.38 (SD = 6.38, range: 2–27) types of traumatic events on the firefighting-related trauma measure. The most common events endorsed on the LEC-5 were transportation accidents (95.2%), sudden accidental death (90.5%), and fire or explosion (85.7%). On the measure of firefighting-related trauma, participants most commonly reported experiencing a head injury (95.2%), performing CPR on a patient in cardiac arrest (90.5%), responding to an adult dead-on-arrival of natural causes call (85.7%), and the death of a patient after a long resuscitation attempt (85.7%). According to the recommended PCL-5 cutoff (Weathers, Litz, et al., 2013), 76.2% of participants met the criteria for a probable PTSD diagnosis. Preintervention mean depressive and anxiety symptom scores were moderate (Table 2). On average, participants reported missing work or being unable to carry out normal responsibilities on 1.30 days (SD = 2.34) in the last week and reported feeling impaired by symptoms such that productivity was reduced even when working 3.65 days (SD = 2.54) in the prior week.

Paraprofessional feasibility

No adverse events occurred during the study period. No safety concerns were raised by participants, paraprofessionals, or supervisors. The mean postintervention therapeutic alliance score was 23.40 (SD = 10.40). Mean subscale scores were 7.87 (SD = 3.66) for the Goal subscale, 6.67 (SD = 3.39) for the Bond subscale, and 8.87 (SD = 4.29) for the Task subscale.

In the qualitative interviews, all participants reported that having someone to help them navigate the intervention was important. When asked what was helpful about the paraprofessional who delivered the intervention, responses centered on two themes: therapeutic characteristics (n = 13) and therapeutic skill (n = 7). Paraprofessionals were described as open-minded, empathetic, kind, friendly, genuine, wonderful, understanding, patient, and sincere, which made participants feel comfortable, connected, and cared for. Participants who highlighted therapeutic skills described the paraprofessional's ability to guide them through the intervention and ask probing questions as helpful in prompting memory recall and uncovering the underlying problem. For example, one participant (male, aged 61 years) noted:

> She was persistent in trying to get to the underlying problems for some of these things.…I would be talking about an event at the fire department, for instance going on a bad call, [and] she would ask a question and I would answer, and she would come at it from

TABLE 2 Outcomes at preintervention, postintervention, 2-month follow-up, and 6-month follow-up

	Pre		Post		2-month		6-month		Pre vs. post			Pre vs. 6-month follow-up		
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*(14)	*d*	Wilcoxon*Z*	*t*(13)	*d*	Wilcoxon*Z*
PCL-5	43.57	17.00	19.33	12.16	19.80	13.52	25.29	14.59	5.14***	1.33	−3.18**	4.12**	1.10	−2.94**
PHQ-9	13.86	5.69	6.00	4.72	7.60	5.23	9.00	7.09	4.19***	1.08	−3.18**	1.77	0.47	−1.79
GAD-7	12.76	4.23	6.93	4.33	8.20	6.09	8.79	6.69	4.90***	1.26	−3.16**	2.57*	0.69	−2.10*
SDS[a]	19.45	5.21	9.92	6.72	10.67	6.82	12.54	8.30	4.09**	1.18	−2.80**	2.95*	0.85	−2.68**

Note: Pre = preintervention; post = postintervention; GAD-7 = Generalized Anxiety Disorder–7-item scale; PHQ-9 = nine-item Patient Health Questionnaire; PCL-5 = PTSD Checklist for D*SM-5*; SDS = Sheehan Disability Scale; Wilcoxon = Wilcoxon signed-rank test.

[a]Degrees of freedom are 11 for both *t* tests with the SDS.

*$p < .05$. **$p < .01$. ***$p < .001$.

> several different directions to get to what was bothering me about it.

When prompted, participants stated that there was nothing unhelpful about the paraprofessional's actions except one participant, who reported that the paraprofessional was too bound by the study protocols and could not always help with issues peripherally related to the intervention's aims. All participants reported having no concerns with the paraprofessional's level of training, experience, or expertise. Many participants ($n = 11$) reported that their experience working with the paraprofessional was better than expected (e.g., the paraprofessional was more skilled than expected and/or made the intervention more structured and in-depth than anticipated). One participant (male, aged 31 years) noted:

> I expected there to be some, like, you know, 19-year-old kid that just graduated or 20-year-old kid that just graduated and, you know, this was their first kick at the can of any type of stuff like that. And I didn't get that. I got a very professional mentor and, you know, someone with experience.

Intervention outcomes

Mean PTSD symptom severity scores decreased significantly from preintervention to postintervention, $t(14) = 5.14$, $p < .001$, $d = 1.33$, and from preintervention to 6-month follow-up, $t(13) = 4.12$, $p = .001$, $d = 1.10$ (Table 2). According to the RCI, at posttreatment 60.0% of participants showed clinically significant improvement, and 40.0% were unchanged. Of note, half of the participants who were unchanged had probable subclinical PTSD at preintervention, leaving less room for improvement. All but one participant classified as unchanged had a postintervention score below the recommended cutoff for probable clinical PTSD. Indeed, at postintervention, the mean PTSD symptom severity score fell from above to below the recommended cutoff for probable PTSD (Figure 2). At 6-month follow-up, 35.7% of participants showed clinically significant improvement, and 64.3% were unchanged. Among participants classified as unchanged, 55.6% had a PTSD symptom severity score below the recommended cutoff for probable PTSD. Mean depressive, $t(14) = 4.19$, $p < .001$, $d = 1.08$, and anxiety symptom scores, $t(14) = 4.90$, $p < .001$, $d = 1.26$, decreased significantly pre- to postintervention (Table 1), falling from the moderate range to the mild range. At 6-month follow-up, anxiety symptoms were significantly lower than at preintervention, $t(13) = 2.57$, $p = .023$, $d = 0.69$, but depressive symptoms were no longer significantly different from preintervention, $t(13) = 1.77$, $p = .100$, $d = 0.47$. Functional impairment was significantly reduced from preintervention to postintervention, $t(11) = 4.09$, $p = .002$, $d = 1.18$, and from preintervention to 6-month follow-up, $t(11) = 2.95$, $p = .013$, $d = 0.85$.

Participant perspectives

Intervention outcomes

In the qualitative interview, some participants ($n = 7$) highlighted mental health benefits they experienced from the intervention, including reduced anxiety and improved sleep. One participant (male, aged 49 years) reported:

> I was in a dark place [at the start] and it was the nightmares, that was the real problem for me, and lack of sleep. Now I'm. . . I explained to [the paraprofessional], I went from all I could remember in my first couple of sessions was it being dark. It was dark outside, everything was dark. And now it's like, oh it's bright and sunny, and I can see brightness everywhere, and I can sleep through the night. My wife's noticed a massive change in me. Which I think is a big testament there, when your spouse says [there's a] big change!

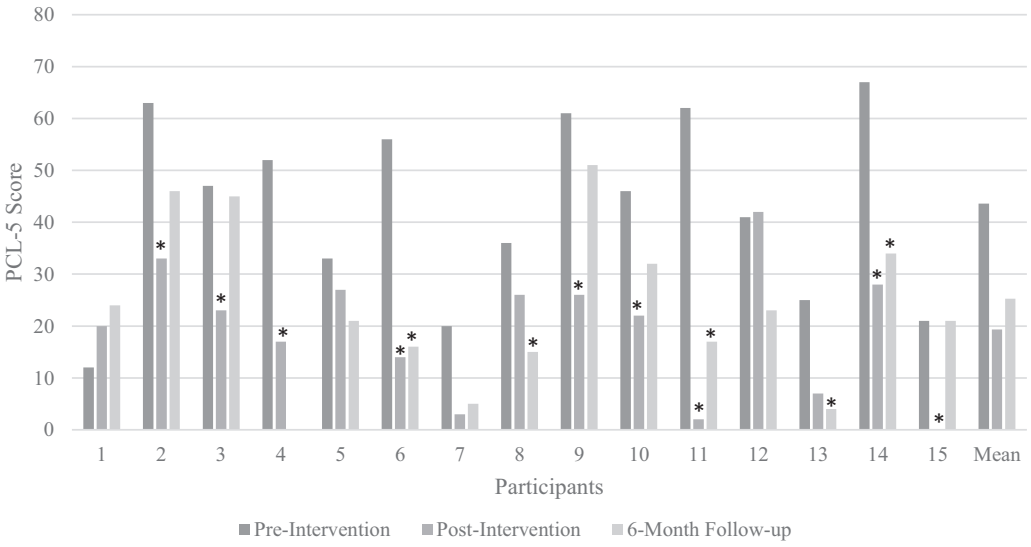


FIGURE 2 *Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) scores at preintervention, postintervention, and 6-month follow-up*
Note. Asterisks indicate clinically significant improvement from preintervention according to reliable change calculations (Jacobson & Truax, 1991).

Some participants described being less reactive, more grounded, and better able to deal with sensory memories (n = 5). One participant said this improvement allowed them to return to work. Two participants also noted the intervention brought them closure related to past events. Other participants spoke about important changes in perspective (n = 6). For example, one participant (male, aged 43 years) reported:

> The one thing that I took away from it was just feelings that I have aren't, like, they're normal to have, right? When you go to a call where you know someone died or someone you know lost a loved one and you feel like you should have done more or you feel sorry for that person or you feel frustrated, I think those are normal feelings. A lot of times I felt like none of the guys I was working with had these feelings. I felt like I was alone in these things. And I think that's one thing I learned is, if I didn't have these feelings, there's probably a bigger problem than if I did, right? …But, you know, at the beginning of my treatment, I thought I was weak, or I didn't have what it takes to do the job and I was just the only one. I think realizing that they're normal and that everyone has these feelings is helpful.

Participants reported how changing perspectives helped them work out problems, point out errors in judgment, learn to understand trauma, and recognize things bothering them. In addition, several participants reported improvements in communication and their relationships (n = 3). Some reported that their partner had noted improvements; for example, one participant (male, aged 48 years) reported:

> A lot has changed. A lot. A lot from physical to mental to relationships and everything else. So, it's hard to quantify the impact it's had but it's had such a tremendous impact in the last couple of months that it is unrecognizable from the way it was before really to be honest. Yeah, that's feedback from my wife.

Finally, four participants were less effusive about the impact of the intervention. All four reported that the intervention met their needs, but some also reported noticing no change in their life (n = 3), a recognition that there was still work to do (n = 1), and new stressors that were creating ongoing challenges (n = 1).

Satisfaction with the intervention

Participants reported an average overall satisfaction with the intervention of 8.50 on a scale of 0 (*not at all satisfied*) to 10 (*extremely satisfied*). All participants reported they would recommend the intervention. When asked what was most helpful about the intervention, seven participants identified the paraprofessional. Three of the seven

participants said the way the paraprofessional understood them or offered compassion and validation was most helpful. One participant (male, aged 54 years) reported, "She understood me and that was what I needed. I needed somebody who understood me, and we had that connection right off the start." Five of these seven individuals described the paraprofessional's ability to help the participant describe their trauma, recognize their resultant emotions and behaviors, and understand how to cope with them as the most helpful elements of the intervention. According to one participant (male, aged 43 years):

> I really enjoyed when I would be talking about a point on the lifeline and she would stop me and ask me a more pointed question…she was digging deeper into the story instead of just letting me run with the story and skipping over certain parts. She stopped me and made me explain how I was feeling during that talk. Because most [of whom] you talk to, even my wife included, would never ask these questions, right? …So, it was kind of neat to have her dig a little deeper, and it kind of made me question, why? Why did I feel that way? Or, you know, how did I deal during that? It was kind of new to me.

Thirteen participants described elements of the narrative exposure as the most helpful part of the intervention. Some said the in-session exposure was helpful, and others described what they learned from the exposure as important. For example, one participant (male, aged 31 years) said:

> It taught me that it was okay to think about the things that bother me.…When I have hot memories, it's ok to explore those memories as opposed to before when I thought it would be a bad thing to try to relive it or rethink about it.

Six participants described the lifeline as helpful by allowing for organization and perspective-taking and encouraging them to process past events they had "put on the back burner" or did not realize were impacting them.

When asked about the least helpful part of the intervention, three participants said the online format was unhelpful (e.g., technological issues, lack of in-person interaction). The remaining responses were unique across participants (i.e., $n = 1$) and included spending too much time on less important trauma exposure, needing more sessions to discuss more traumatic events, finding the dissociation-related skills irrelevant, experiencing unwanted memories and feelings postsession, and wishing for additional concurrent therapy. Participants were also asked what they would change about the intervention. Four participants indicated a preference for an in-person intervention. Three suggested extending the number of sessions, one reported preferring that the sessions were longer, and two preferred shorter sessions. Other suggestions, each made by one participant, included improving the lifeline's functionality, having a peer (i.e., firefighter) deliver the intervention, reducing the scriptedness of the intervention, and providing more postintervention resources.

Success of intervention tailoring

Participants were asked which parts of the intervention were appropriately tailored for firefighters. Some participants did not articulate intervention elements unique to firefighters ($n = 5$). Others ($n = 3$) reported that the intervention was not tailored for firefighters but that its individualized nature (e.g., the timeline) made it appropriate for anyone, including firefighters. Participants who reported that the intervention was tailored for firefighters said it allowed for a focus on both firefighting and life events ($n = 2$), the coach did not shy away from firefighting-related trauma ($n = 2$), and the coach demonstrated a knowledge of firefighting ($n = 1$). Three participants suggested that increasing coach familiarity with firefighting culture and logistics would be helpful, two suggested the intervention could emphasize past firefighting-related trauma instead of general life events, one recommended including peer support, and one recommended including a list of self-care ideas feasible for the firefighter lifestyle.

Perspectives on intervention delivery modality

Most participants ($n = 12$) found the intervention convenient, stating reasons such as flexibility in scheduling ($n = 10$) and the ability to do the intervention from home ($n = 5$), thus limiting the need for travel. Two participants also reported that the ease of following the intervention itself was convenient. Reported inconveniences focused on distractions (e.g., family members) in the at-home environment ($n = 3$) and internet problems ($n = 1$). When asked, 10 participants reported that being in-person instead of online would have changed their experience, sometimes positively and sometimes negatively; five participants said they did not expect the experience would be different; and one participant was unsure. One participant noted an in-person setting would increase fears about confidentiality (e.g., seeing colleagues in the waiting room), and two

thought they would be less honest or open. Other participants said an in-person experience would have increased their ease, comfort, and openness ($n = 3$); allowed the paraprofessional to better read body language ($n = 2$); and included fewer distractions ($n = 2$). Concerns about the confidentiality of the intervention were minimal ($n = 2$); for example, one participant (female, aged 43 years) said:

> I was worried that [call victims'] names or something like that or where they lived would come up in the study. But in talking to [a paraprofessional] and [investigator], they pretty much said that it will play out the scenario that happened, but it won't mention names or anything like that…I don't want to impact anybody that was involved.

DISCUSSION

This case series tested the acceptability, feasibility, and preliminary effectiveness of a paraprofessional-delivered eNET intervention for PTSD among firefighters. Descriptive statistics, patterns in the data, and pre- to postintervention and 6-month follow-up *t*-test results suggest that the intervention is promising for reducing symptoms of PTSD, anxiety, and depression as well as functional impairment. The mean PTSD symptom severity score was well below the clinical cutoff for probable PTSD at postintervention and 6-month follow-up, and PTSD symptom severity improved for all but two participants. Among intervention completers, all but two participants at postintervention and four participants at follow-up had PTSD symptom severity scores below the clinical cutoff for probable PTSD. Similarly, mean symptom scores for anxiety symptoms, depressive symptoms, and functional impairment all significantly improved postintervention. Mean scores on these measures seem to increase somewhat from postintervention to 6-month follow-up; however, gains were maintained for anxiety symptoms and functional impairment. The findings align with previous work demonstrating the effectiveness of paraprofessional-delivered NET for refugees (Neuner et al., 2008), extending such results to a firefighter sample with PTSD and a Canadian health system context. The current outcomes support further assessment of eNET for firefighters or other public safety personnel via randomized controlled trials.

The study results also suggest that paraprofessional delivery of eNET for PTSD is feasible. The paraprofessionals' effectiveness, centrality, and importance to participant successes and experiences of eNET were common themes in the qualitative interviews. Participants reported no concerns with paraprofessionals' training, experience, or expertise, and no adverse events were reported. In line with prior studies demonstrating therapeutic alliance in virtual environments (Lingley-Pottie & McGrath, 2007), quantitative measures suggested a therapeutic alliance was built between participants and paraprofessionals. Previous studies describe variations in the training and supervision of paraprofessionals (Xiong et al., 2019). In the present study, paraprofessionals were extensively trained and supervised on a regular basis and met amongst themselves for peer support. Qualitative and quantitative data lead to the conclusion that paraprofessional delivery of eNET, with training and supervision, seems to be a safe and effective way to deliver the intervention for firefighters with PTSD. Qualitative data suggest that the efficacy of paraprofessionals might be further improved by increasing the depth of their familiarity with firefighting as a job and culture. In addition, future studies might consider the use of firefighters in the paraprofessional role.

Participants largely reported positive and helpful experiences with eNET. Reports of improved mental health functioning alongside insightful changes in perspective, including some noticeable to family members, complement the quantitative data suggesting improved mental health symptoms. Participants made several suggestions for changes to the intervention that might warrant consideration. Recommendations focused on intervention length and delivery modality (i.e., virtual vs. in-person) but were not uniform across participants. Some participants preferred longer sessions, whereas others preferred shorter sessions. Some participants suggested the intervention would have been better in-person, whereas others said virtual delivery was optimal. The varied recommendations may suggest against overarching procedural changes and in favor of more flexible participant tailoring (e.g., shorter sessions for some participants, longer for others). Participant feedback highlights the advantages and disadvantages of both virtual and in-person delivery modalities. For example, participants noted virtual care can provide convenient at-home delivery and preserve confidentiality, but in-person treatment may allow paraprofessionals to respond more readily to body language changes. The advantages of virtual delivery support further implementation research.

Recruitment was a substantial obstacle in this study. Despite using multiple recruitment avenues, including organization- and social media–driven efforts, progress was slow. Challenges could reflect a culture of self-reliance in firefighting, perceived mental health stigma, fears of a lack of confidentiality, or a lack of trust in an unfamiliar research team (Gulliver et al., 2019; Haugen et al., 2017;

Hom et al., 2018; Jones et al., 2020). Many participants were women (28.6%), even though women represent less than 11% of Canadian firefighters (Canadian Association of Fire Chiefs, 2021); as such, factors deterring participation may be especially salient for men. Indeed, although research shows that stigma may be one of the most common barriers to help-seeking among firefighters (Haugen et al., 2017), other work shows that it may not be as relevant a barrier to help-seeking among women firefighters (Hom et al., 2018). Though we expect recruitment challenges with this population are not unique to eNET (e.g., Hong et al., 2013), future research may elucidate if there are specific barriers that inhibit firefighters from participating in eNET. Advertising and recruitment methods may then help overcome such barriers. In this study, most participants found working with the paraprofessional better than expected, suggesting that recruitment methods that better demonstrate what to expect (e.g., short videos showing examples of intervention sessions) may dispel misperceptions deterring participation.

This study has several limitations. The case series design limits the conclusions that can be drawn about intervention effectiveness. Without a control condition, conclusions need several caveats, such as the possibility that symptom reductions were due to the passage of time. Nevertheless, case series are incredibly useful as "proof of concept" studies and represent a logical first step in a research agenda (Kempen, 2012). Despite the limitations, this study is an important step in demonstrating that appropriately trained and supervised paraprofessionals can effectively deliver manualized eNET for PTSD. The results should promote continued exploration of the effectiveness of paraprofessional-delivered eNET for public safety personnel via rigorous study design.

OPEN PRACTICES STATEMENT

This study was preregistered at clinicatrials.gov as NCT04386330. Neither the data nor the study materials have been made available on a permanent third-party archive; requests for the data or materials can be sent via email to the lead author at j.olthuis@unb.ca.

AUTHOR NOTE

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REFERENCES

American Psychological Association. (2017). Clinical practice guideline for the treatment of PTSD. https://www.apa.org/ptsd-guideline/ptsd.pdf

Beaton, R., Murphy, S., Johnson, C., Pike, K., & Corneil, W. (1998). Exposure to duty-related incident stressors in urban firefighters and paramedics. *Journal of Traumatic Stress*, *11*(4), 821–828. https://doi.org/10.1023/A:1024461920456

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory—II*. Psychological Corporation. https://doi.org/10.1007/978-1-4419-1005-9_441

Blevins, C., Weathers, F., Davis, M., Witte, T., & Domino, J. (2015). The Posttraumatic Stress Disorder Checklist for *DSM-5* (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, *28*(6), 489–498. https://doi.org/10.1002/jts.22059

Canadian Association of Fire Chiefs. (2021). The Great Canadian Volunteer Firefighter Census 2021. https://cdn.ymaws.com/cafc.ca/resource/resmgr/census_2021/_EN_Census_Report.pdf

Carleton, R. N., Afifi, T. O., Turner, S., Taillieu, T., Duranceau, S., LeBouthillier, S. J., Ricciardelli, R., MacPhee, R. S., Groll, D., Hozempa, K., Brunet, A., Weekes, J. R., Griffiths, C. T., Abrams, K. J., Jones, N. A., Beshai, S., Cramm, H. A., Dobson, K. S., … Asmundson, G. J. G. (2018). Mental disorder symptoms among public safety personnel in Canada. *Canadian Journal of Psychiatry*, *63*(1), 54–64. https://doi.org/10.1177/0706743717723825

Collins, K. A., Westra, H. A., Dozois, D. J. A., & Burns, D. D. (2004). Gaps in accessing treatment for anxiety and depression: Challenges for the delivery of care. *Clinical Psychology Review*, *24*(5), 583–616. https://doi.org/10.1016/j.cpr.2004.06.001

denBoer, P. C. A. M., Wiersma, D., Russo, S., & Bosch, R. J. (2005). Paraprofessionals for anxiety and depressive disorders. *Cochrane Database of Systematic Reviews*, *2*, Article CD004688. https://doi.org/10.1002/14651858.CD004688.pub2

Elbert, T., & Schauer, M. (2002). Psychological trauma: Burnt into memory. *Nature*, *419*(6910), 883. https://doi.org/10.1038/419883a

Goldstein, R. B., Smith, S. M., Chou, S. P., Saha, T. D., Jung, J., Zhang, H., Pickering, R. P., Ruan, W. J., Huang, B., & Grant, B.

F. (2016). The epidemiology of *DSM-5* posttraumatic stress disorder in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions–III. *Social Psychiatry and Psychiatric Epidemiology*, *51*(8), 1137–1148. https://doi.org/10.1007/s00127-016-1208-5

Gulliver, S. B., Pennington, M. L., Tores, V. A., Steffen, L. E., Mardikar, A., Leto, F., Ostiguy, W., Zimering, R. T., & Kimbrel, N. A. (2019). Behavioral health programs in fire service: Surveying access and preferences. *Psychological Services*, *16*(2), 340–345. https://doi.org/10.1037/ser0000222

Hatcher, R. L., & Gillaspy, J. A. (2006). Development and validation of a revised short version of the Working Alliance Inventory. *Psychotherapy Research*, *16*(1), 12–25. https://doi.org/10.1080/10503300500352500

Haugen, P. T., McCrillis, A. M., Smid, G. E., & Nijdam, M. J. (2017). Mental health stigma and barriers to mental health care for first responders: A systematic review and meta-analysis. *Journal of Psychiatry Research*, *94*, 218–229. https://doi.org/10.1016/j.jpsychires.2017.08.001

Hom, M. A., Stanley, I. A., Spencer-Thomas, S., & Joiner, T. E. (2018). Mental health service use and help-seeking among women firefighters with a career history of suicidality. *Psychological Services*, *15*(3), 316–324. https://doi.org/10.1037/ser0000202

Hong, O., Fiola, L. A., & Feld, J. (2013). Challenges and successes in recruiting firefighters for hearing loss prevention research. *Workplace Health & Safety*, *61*(6), 257–263. https://doi.org/10.1177/216507991306100604

Hsieh, H., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12–19. https://doi.org/10.1037/0022-006X.59.1.12

Jahnke, S., Poston, W., Haddock, C., & Murphy, B. (2016). Firefighting and mental health: Experiences of repeated exposure to trauma. *Work*, *53*(4), 737–744. https://doi.org/10.3233/WOR-162255

Jones, S., Agud, K., & McSweeney, J. (2020). Barriers and facilitators to seeking mental health care among first responders: "Removing the darkness." *Journal of the American Psychiatric Nurses Association*, *26*(1), 43–54. https://doi.org/10.1177/1078390319871997

Kakuma, R., Minas, H., Van Ginneken, N., Dal Poz, M. R., Desiraju, K., Morris, J. E., Saxena, S., & Scheffler, R. M. (2011). Human resources for mental health care: Current situation and strategies for action. *The Lancet*, *378*(9803), 1654–1663. https://doi.org/10.1016/S0140-6736(11)61093-3

Kaltenbach, E., McGrath, P. J., Schauer, M., Kaiser, E., Crombach, A., & Robjant, K. (2021). Practical guidelines for online narrative exposure therapy (e-NET)–a short-term treatment for posttraumatic stress disorder adapted for remote delivery. *European Journal of Psychotraumatology*, *12*(21), Article 1881728. https://doi.org/10.1080/20008198.2021.1881728

Katzman, M. A., Bleau, P., Blier, P., Chokka, P., Kjernisted, K., Van Ameringen, M., & the Canadian Anxiety Guidelines Initiative Group. (2014). Canadian clinical practice guidelines for the management of anxiety, posttraumatic stress and obsessive-compulsive disorders. *BMC Psychiatry*, *14*(Suppl 1), Article S1. https://doi.org/10.1186/1471-244X-14-S1-S1

Kempen, J. H. (2012). Appropriate use and reporting of uncontrolled case series in the medical literature. *American Journal of Ophthalmology*, *151*(1), 7–10. https://doi.org/10.1016/j.ajo.2010.08.047

Kessler, R. C., Sonnega, A., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, *52*(12), 1048–1060. https://doi.org/10.1001/archpsyc.1995.03950240066012

Kolassa, I.-T., Ertl, V., Eckart, C., Kolassa, S., Onyut, L. P., & Elbert, T. (2010). Spontaneous remission from PTSD depends on the number of traumatic event types experienced. *Psychological Trauma: Theory, Research, Practice, and Policy*, *2*(3), 169–174. https://doi.org/10.1037/10019362

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Lely, J. C. G., Smid, G. E., Jongedijk, R. A., Knipscheer, J. W., & Kleber, R. J. (2019). The effectiveness of narrative exposure therapy: A review, meta-analysis and meta-regression analysis. *European Journal of Psychotraumatology*, *10*(1), Article 1550344. https://doi.org/10.1080/20008198.2018.1550344

Leon, A. C., Shear, M. K., Portera, L., & Klerman, G. L. (1992). Assessing impairment in patients with panic disorder: The Sheehan Disability Scale. *Social Psychiatry and Psychiatric Epidemiology*, *27*(2), 78–82. https://doi.org/10.1007/BF00788510

Lingley-Pottie, P., & McGrath, P. J. (2007). Distance therapeutic alliance: The participant's experience. *Advances in Nursing Science*, *30*(4), 353–366. https://doi.org/10.1097/01.ANS.0000300184.94595.25

Lingley-Pottie, P., McGrath, P. J., & Andreou, P. (2013). Barriers to mental health care: Perceived delivery system differences. *Advances in Nursing Science*, *36*(1), 51–61. https://doi.org/10.1097/ANS.0b013e31828077eb

McCall, H. C., Beahm, J. D., Fournier, A. K., Burnett, J. L., Carleton, N., & Hadjistavropoulos, H. D. (2021). Stakeholder perspectives on internet-delivered cognitive behavioural therapy for public safety personnel: A qualitative analysis. *Canadian Journal of Behavioural Science*, *53*(3), 232–242. https://doi.org/10.1037/cbs0000242

Monson, E., Caron, J., McCloskey, K., & Brunet, A. (2017). Longitudinal analysis of quality of life across the trauma spectrum. *Psychological Trauma: Theory, Research, Practice, and Policy*, *9*(5), 605–612. https://doi.org/10.1037/tra0000254

National Institute for Health and Care Excellence. (2018). Posttraumatic stress disorder [NICE guideline NG116]. https://www.nice.org.uk/guidance/ng116

Neuner, F., Elbert, T., & Schauer, M. (2018). Narrative exposure therapy (NET) as a treatment for traumatized refugees and post-conflict populations. In N. Morina & A. Nickerson (Eds.), *Mental health of refugee and conflict-affected populations: Theory, research and clinical practice* (pp. 183–199). Springer. https://doi.org/10.1007/978-3-319-97046-2_9

Neuner, F., Onyut, P. L, Ertl, V., Odenwald, M., Schauer, E., & Elbert, T. (2008). Treatment of posttraumatic stress disorder by trained lay counselors in an African refugee settlement: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *76*(4), 686–694. https://doi.org/10.1037/0022-006X.76.4.686

Olthuis, J. V., Wozney, L., Asmundson, G., Cramm, H., Lingley-Pottie, P., & McGrath, P. J. (2016). Distance-delivered interventions for PTSD: A systematic review and meta-analysis. *Journal of Anxiety Disorders*, *44*, 9–26. https://doi.org/10.1016/j.janxdis.2016.09.010

Ozer, E., Best, S., Lipsey, T., Weiss, D., & Cooper, H. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, *129*(1), 52–73. https://doi.org/10.1037/0033-2909.129.1.52

Panagioti, M., Gooding, P. A., & Tarrier, N. (2012). A meta-analysis of the association between posttraumatic stress disorder and suicidality: The role of comorbid depression. *Comprehensive Psychiatry*, *53*(7), 915–930. https://doi.org/10.1016/j.comppsych.2012.02.009

Pigeon, W. R., Campbell, C. E., Possemato, K., & Ouimette, P. (2013). Longitudinal relationships of insomnia, nightmares, and PTSD severity in recent combat veterans. *Journal of Psychosomatic Research*, *75*(6), 546–550. https://doi.org/10.1016/j.jpsychores.2013.09.004

Pugach, C. P., Nomamiukor, F. O., Gay, N. G., & Wisco, B. E. (2021). Temporal stability of self-reported trauma exposure on the Life Events Checklist for *DSM-5*. *Journal of Traumatic Stress*, *34*(1), 248–256. https://doi.org/10.1002/jts.22611

Schalinski, I., Schauer, M., & Elbert, T. (2015). The Shutdown Dissociation Scale (Shut-D). *European Journal of Psychotraumatology*, *6*(1), Article 25652. https://doi.org/10.3402/ejpt.v6.25652

Schauer, M., Neuner, F., & Elbert, T. (2011). *Narrative exposure therapy: A short-term treatment for traumatic stress disorders* (2nd ed.). Hogrefe Publishing.

Siehl, S., Robjant, K., & Crombach, A. (2021). Systematic review and meta-analyses of the long-term efficacy of narrative exposure therapy for adults, children and perpetrators. *Psychotherapy Research*, *31*(6), 695–710. https://doi.org/10.1080/10503307.2020.1847345

Spitzer, R., Kroenke, K., Williams, J., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Statistics Canada. (2022, May 5). Survey on mental health and stressful events, August to December 2021. https://www150.statcan.gc.ca/n1/daily-quotidien/220520/dq220520b-eng.htm

Waddell, E., Lawn, S., Roberts, L., Henderson, J., Venning, A., & Redpath, P. (2020). Why do you stay?: The lived-experience of partners of Australian veterans and first responders with posttraumatic stress disorder. *Health and Social Care in the Community*, *28*(5), 1734–1742. https://doi.org/10.1111/hsc.12998

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013). The Life Events Checklist For DSM-5 (LEC-5). https://www.ptsd.va.gov/professional/assessment/te-measures/life_events_checklist.asp

Weathers, F. W., Litz, B. T., Keane, T. M., Palmier, P. A., Marx, B. P., & Schnurr, P. P. (2013). The PTSD Checklist for DSM-5 (PCL-5). https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp

Xiong, T., Wozney, L., Olthuis, J., Swati Singh, R., & McGrath, P. (2019). A scoping review of the role and training of paraprofessionals delivering psychological interventions for adults with post-traumatic stress. *Journal of Depression and Anxiety*, *8*(4), 342. https://doi.org/10.35248/2167-1044.19.8.342

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