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A Teacher-Delivered Intervention for Adolescents Exposed to Ongoing and Intense Traumatic War-Related Stress: A Quasi-Randomized Controlled Study

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 A B S T R A C T

Purpose: For the past 8 years, the residents of Sderot—a town in southern Israel—have been exposed to ongoing and intense war-related threat due to daily rocket attacks and mortar shelling from the adjacent Gaza region. This study first evaluates the prevalence of posttraumatic symptomatology in a sample of seventh- and eighth-grade students, and then assesses the efficacy of a universal teacher-delivered skill-oriented and present-focused intervention in preventing and reducing adolescents' posttraumatic stress-related symptoms.

Method: In a quasi-randomized controlled trial, 154 seventh- and eighth-grade students with significant levels of war-related exposure were assigned to participate in either a manualized active 16-session intervention (Extended Enhancing Resiliency Amongst Students Experiencing Stress, ERASE-Stress) or a waiting-list control group. They were assessed using self-report measures before and after the intervention on posttraumatic stress-related symptoms, somatic complaints, functional impairment, and anxiety.

Results: At baseline, 43.5% were found to have a likely diagnosis of posttraumatic stress disorder. A month after the intervention ended, students in the active intervention showed statistically significant reduction on all outcome measures compared with those in the waiting-list control group.

Conclusions: Extended ERASE-Stress—a universal teacher-delivered skill-oriented program not targeting traumatic memories and involving trained and supervised homeroom teachers—may help students suffering from significant war-related posttraumatic symptoms reduce their level of symptomatology and can serve as an important and effective component of a community mental health policy for communities affected by chronic trauma, such as war and terrorism.

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 IMPLICATIONS AND CONTRIBUTION

This study provides preliminary support for the efficacy of a universal teacher-delivered program (EES) in reducing posttraumatic reactions in adolescents exposed to intense, constant, and ongoing war. A skill-oriented and present-focused approach may be a suitable first line of school-based community mental health intervention for youth exposed to chronic war.

Studies have shown that both children and adolescents exposed to political violence are at high risk of suffering significant mental and physical health problems [1–4]. From 2000 to 2008, Sderot—an Israeli town with approximately 20,000 inhabitants—

was under constant mortar shelling and Qassam missile attacks (3- to 10-km-range steel rockets with a load of 1–10 kg) from the adjacent Gaza region. By the end of 2008, thousands of rockets and shells had fallen on this region, resulting in 15 fatalities, more than 450 injuries, and significant damage to homes and property [5]. Despite the relatively small number of casualties, life changed dramatically for Sderot's residents, particularly for youth, and the ongoing and unpredictable existential threat accompanying the intensive missile attacks resulted in the inability to maintain a normal daily routine. The impact on the population

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was significant [6,7]. Indeed, a large-scale study in 2007 found that 26.4% of the population had a likely diagnosis of posttraumatic stress disorder (PTSD), approximately 5 times higher than in an adjacent nonexposed control town [8].

Although a growing body of research indicates high levels of distress among adults in Sderot, there is a paucity of studies regarding the prevalence of stress-related symptoms in youth. One study showed elevated levels of depression among adolescents [9], whereas another found that 33% of toddlers in Sderot had PTSD [10].

Given the unprecedented scope of the exposure to rocket attacks, we were asked by the educational department of the municipality to devise a program that would reduce stress-related symptoms and enhance students' resilience in the city. The intervention chosen was an extension of the Enhancing Resiliency Amongst Students Experiencing Stress (ERASE-Stress) program [11,12]. ERASE-Stress is a universal, school-based, teacher-delivered intervention that provides students with educational material, cognitive-behavioral skills, affect regulation strategies, and meditative practices and helps them practice those skills at school, in the community, and at home with family support [13,14]. Two randomized controlled trials demonstrated the efficacy of ERASE-Stress in reducing stress-related symptoms and improving home and school functioning after a number of terror attacks and a natural disaster [14,15]. However, owing to the intense, constant, and ongoing existential threat in Sderot, we modified the program by extending its time frame and focused more on coping skills. Unlike many other cognitive-behavioral interventions, the current intervention places less emphasis on processing traumatic memories, and more on strengthening and acquiring new coping skills to handle daily stressors. The rationale for this approach is based on our clinical experience suggesting that in situations of ongoing long-term threat, the accumulated daily stressors significantly impact mental health. Indeed, studies with populations affected by chronic war and political violence indicate that daily stressors mediate the relationship between war exposure and mental health. (For a theoretical model, see Miller and Rasmussen's [16] review.) Furthermore, as universal approaches address symptomatic and nonsymptomatic students alike, we opted to avoid exposure techniques to prevent potential retraumatization. Previously, a similar approach was applied showing that affect regulation strategies without memory processing are efficacious in reducing posttraumatic symptoms in both youth and adults [17,18]. Additionally, as many of the students come from a traditional religious background, we also modified the ERASE-Stress program by including spiritual care strategies [19,20].

Situating interventions within schools is essential, as it helps to make this service available, feasible, and affordable [21,22]. Furthermore, school interventions can minimize stigma, increase the likelihood of program adherence, and provide peer support [12]. In addition, the fact that the program is implemented by teachers who know the students well permits the teacher to apply the intervention in a personalized fashion, helps in identifying at-risk students who may need additional treatment, and ensures continuity of support throughout the school year.

A growing number of universal school-based programs have recently been developed for children in the aftermath of war, terrorism, and natural disasters, using psychoeducation, cognitive-behavioral techniques, and mind-body interventions [23]. However, only few studies have provided empirical evidence regarding their efficacy in reducing stress-related symptoms, and many of them lacked methodological rigor [22,24,25]. An exception to this is a recent large-scale universal teacher-delivered preventive intervention conducted before

the Gaza war that showed significantly lower posttraumatic symptoms in students who received the intervention [26]. However, this study focused on students exposed to an intense, but short-term (3 weeks), conflict, whereas Sderot's youth in the present study underwent long-term exposure and received the intervention during the conflict period. Unfortunately, the researchers only assessed children after the intervention and therefore lacked baseline measures.

In this article, we first present the prevalence of posttraumatic symptomatology in a sample of seventh- and eighth-grade adolescents. Second, we report on a study assessing the impact of the Extended ERASE-Stress intervention (EES) on reducing the level of posttraumatic distress and on improving the functioning of students exposed to intense ongoing rocket attacks for the past 8 years.

Methods

Setting and participants

Sderot is a multiethnic "development town" with approximately 20,000 inhabitants that is situated in the south of Israel, a few kilometers from the Gaza region. Sderot has a poor economic infrastructure with relatively high levels of poverty and unemployment (20%) and a weak education system compared with other regions in Israel [27].

Participants were seventh- and eighth-grade students from the largest Jewish governmental religious school with approximately 1,200 students. The majority of the students were from a lower-middle class socioeconomic status. The school is situated in an area that has been heavily shelled; therefore, many of the students and their families have been exposed to the rocket attacks.

The study was first introduced to the principal, the guidance counselor, and the school psychologist. We then spent a 3-hour session presenting the program and its rationale to the entire school personnel, emphasizing the efficacy of EES in alleviating students' distress and potentially improving academic outcomes. We also gave the personnel several exercises to improve skills in coping with their own anxiety and stress.

The principal sent letters to the parents, outlining the purpose and the nature of the program. Interested parents provided written informed consent to partake in a psychoeducational session and to allow their children to complete the study questionnaires. The ethics committees of both the Faculty of Welfare and Health Research at the University of Haifa and the local educational board approved the study.

All 198 seventh- and eighth-grade students participated in either the active intervention or a control group; however, not all children were assessed. Assessments were performed only for students whose parents provided written informed consent and participated in psychoeducational sessions (see Procedure). Of the 198 students, 154 (77.8%) were administered questionnaires; there were 83 (53.9%) girls and 71 (46.1%) boys, ranging in age from 11 to 13 years (mean = 12.8; standard deviation = 1.0). None of the students whose parents signed the consent form refused to participate.

Procedure

All six seventh and eighth grade homeroom teachers participated in eight three-hour sessions totaling 24 hours of training. Thereafter, we randomly (by picking paper slips out of a bag) assigned four of the six seventh and eighth grade classes (two in each grade level) to the experimental EES and two classes (one class for each grade level) to the waiting list (WL) condition. Both the EES and WL classes took place within the framework of

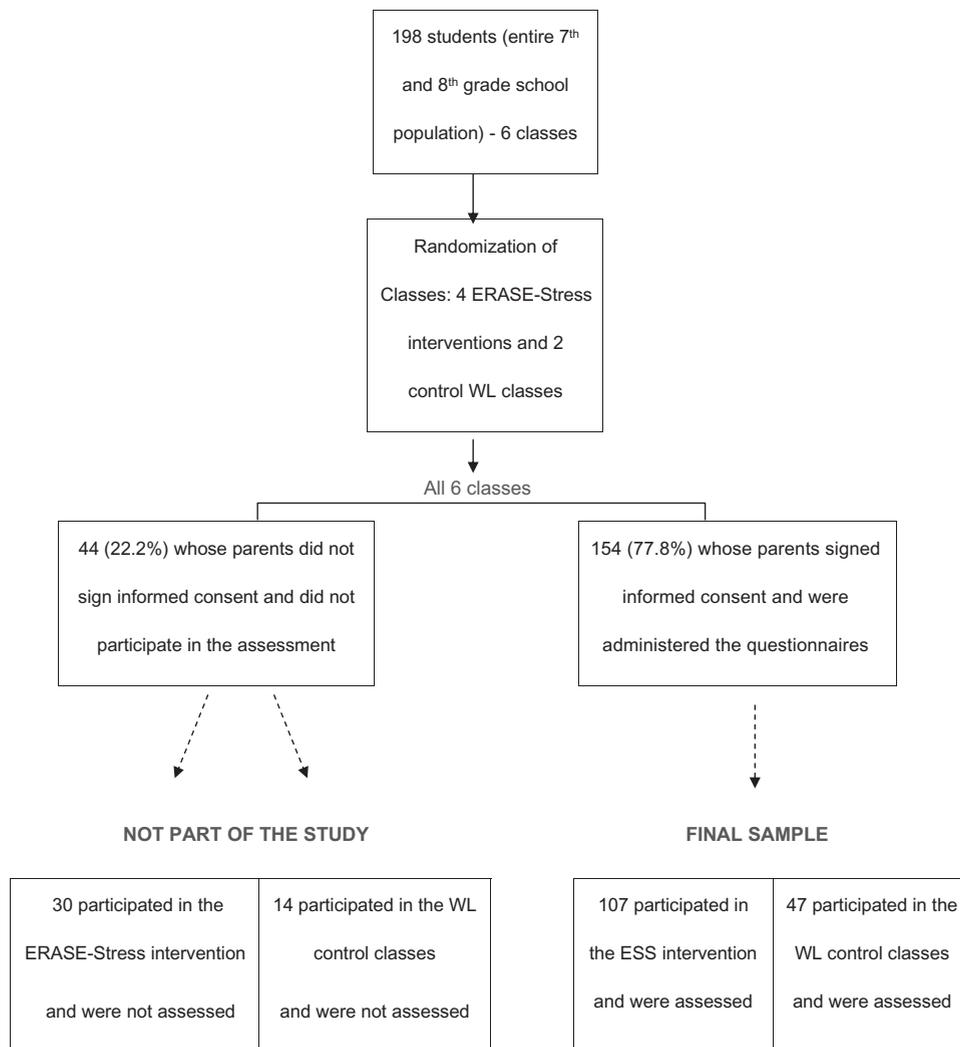


Figure 1. Student flow through the randomization, intervention, and assessment protocol.

weekly social study classes traditionally taught by the homeroom teachers. The homeroom teachers of the WL classes were instructed to delay the intervention for the following year, and have since delivered the intervention. Each class contained between 28 and 35 pupils, of whom 75%–85% participated in the assessment. [Figure 1](#) shows the sampling and assignment of students to the active and control groups.

At the beginning of the project, parents attended a 3-hour psychoeducational session focused on describing the program and encouraging them to cooperate with their children's homework assignments.

Intervention

The EES intervention consists of 16 weekly, 90-minute classroom sessions. All sessions include homework review, a warm-up introduction, experiential exercises, psychoeducational material, learned skills, and a closure exercise, followed by a new homework assignment ([Figure 2](#)).

Two major adaptations were made from the original ERASE-Stress program. First, we emphasized religious and spiritual

practices by using biblical stories, meditative prayers, and spiritual narratives. Second, as the intervention was administered while the threat was ongoing, we added affect modulation strategies (session 4), self-affirmations (session 7), a practice session on combating fears (session 9), and more social skills (session 13), thereby extending the previous ERASE-Stress program from 12 to 16 sessions. The intervention was administered from the last week of November 2007 to middle of March 2008; there were a number of breaks because of holidays and field trips.

Training

The teacher training was composed of eight 3-hour sessions conducted by two experienced EES therapists. The teachers underwent a teaching-oriented experiential version of the original intervention. Additionally, classroom simulations were conducted throughout the training, in which dissemination techniques were practiced. During the implementation of the program, the teachers received six 2-hour group supervision sessions from the trainers, starting at the fourth meeting and subsequently every two meetings.

Session 1 – Getting Started: Introducing group leaders, the program and its ground rules. Outlining the "stress continuum" from daily normal stress to traumatic stress and the impact of different stressors on individuals. Differentiating between normative and non-normative reactions toward stress and how to manage them.

Skill learned and practiced: Meditation (quite time)

Session 2 – Strengthening Your Personal Resources: Identifying students' personal resources and enhancing their coping strategies. Presenting the MOST-BASIC resiliency Model and outlining its seven areas of skills, namely the motor, the sensory, the belief system, the affective, the social, the imagery, and the cognitive.

Skill learned and practiced: Meditation and identifying students' personal coping style

Session 3 - Becoming Aware of Your Body: Learning the role of the body and its function during stressful situations and developing awareness of somatic reactions through focusing and meditative practices.

Skill learned and practiced: Focusing, meditation and body scan

Session 4 - Inhabiting Your Body: Learning affect-modulation body-oriented strategies and sensory-motor techniques to control the body during stressful situations.

Skill learned and practiced: Sensory-motor stress-release procedure and bio-energetic exercises.

Session 5 – Knowing Your Feelings: Enhancing students' emotional awareness, identifying and clarifying the connections between sensations and feelings, and learning a variety of modalities to express feelings.

Skill learned and practiced: somatic labeling and "somatic pendulation"

Session 6 – Controlling Your Emotions with Your Mind: Exploring relationships between sensations, thoughts, and feelings and learning cognitive-behavioral techniques to modify negative and unproductive thinking.

Skill learned and practiced: Challenging "faulty thoughts" and "thought stopping."

Session 7 - Controlling Your Emotions with Your Mind: Practicing cognitive-behavioral strategies and learning positive self-talk and self-affirmation techniques.

Skill learned and practiced: "Flexing thoughts" and distraction techniques.

Session 8 - Acknowledging the Presence of Fears: Becoming familiar with the source and functions of fears, and differentiating between rational and irrational fears and normalizing them.

Skill learned and practiced: Normalizing strategies and self-soothing techniques.

Session 9 – Combating Fears: Learning behavioral and cognitive strategies to combat anxiety and fears and ways to create inner sense of safety.

Skill learned and practiced: Fear-control strategies including breathing, relaxation, distraction, and guided imagery

Figure 2. Extended ERASE-Stress list of sessions.

Session 10 – Dealing with Anger and Rage: Understanding the differences between anger and aggression, tracking how anger accelerates into rage, and learning anger management techniques.

Skill learned and practiced: Anger management techniques including breathing, relaxation, somatic release, disarming, and assertive expression.

Session 11 – Coping with Grief and Loss: Exploring and normalizing grief and loss reactions and providing an opportunity to express these feelings within a safe context.

Skill learned and practiced: Creating personal grief rituals, asking for emotional support, and using self-soothing imagery.

Session 12 - Giving and Receiving Support: Exploring students' social needs and ways these needs are being fulfilled through giving and receiving. Learning to ask for social support.

Skill learned and practiced: Techniques to offer and receive social support.

Session 13 – Building your Social Shield: Exploring students' "social map" (social networks) and working toward redesigning their relationships according to their wishes. Learning social skills.

Skill learned and practiced: Social communication (mirroring, validating, and empathizing) and conflict-resolution techniques.

Session 14 – Boosting Self-Esteem: Exploring students' sources of self-image and self-esteem and ways these concepts impact their coping styles. Learning to accept one's deficits as well as to acknowledge one's strengths.

Skill learned and practiced: Self-affirmations and giving oneself a gift of growth.

Session 15 – Turning Crisis into an Opportunity: Becoming aware of negative thought patterns and learning how to reframe them positively.

Skill learned and practiced: Reframing techniques and positive self-talk.

Session 16 - Seeking a Better Future: Exploring dreams and fantasies and learning how to build a plan toward achieving them in the future. Reviewing the program and providing an opportunity for closure.

Skill learned and practiced: Briefly going over the skills learned in the program.

Figure 2. (continued)

Program fidelity

Each homeroom teacher implemented the program fully in his own class. Fidelity assessments were done to ensure the manual was followed. Teachers were aware that the trainers would come and observe interventions, but did not know when. The monitoring schedule was set before the interventions began: each teacher was monitored 4 times, and no teacher was monitored twice in a row. Observations were held for each of the 16 distinct sessions to ensure fidelity as well as feedback information for each session, to be worked with during group supervision. Ratings were performed on a 6-point Likert-type scale ranging from 0 (not at all as stipulated in the manual) to 5 (exactly

as stipulated). They rated the teachers' adherence to the manual as applied to five areas: whether (1) the teacher adhered to the topics, (2) the exercises were followed, (3) the class members participated actively in the session, (4) the homework was discussed, and (5) the overall orientation of the course was upheld. All rating scores were either 4 or 5 on all domains and in all classes, confirming a high fidelity to the program manual.

Measures

Questionnaires were self-administered 1 week before and 1 month after the training. Clinicians blinded to the experimental

Table 1
Baseline demographic, exposure, and symptom characteristics^a

Measures	Experimental group n = 107	Control group n = 47	ES or OR (95% CI)
Female gender	60 (56.1%)	23 (48.9%)	OR = 1.33 (.67–2.65)
Age	12.9 (SD = 1.0)	12.8 (SD = 1.0)	ES = .10 (–.24–.44)
Exposure			
No exposure at all	2 (1.9%)	4 (8.5%)	OR = .20 (.40–1.16)
Present at a Qassam fall and was hurt	3 (2.8%)	1 (2.1%)	OR = 1.55 (.76–3.08)
Present at a Qassam fall but not hurt	47 (43.9%)	16 (34.4%)	
Present at the location of a Qassam fall soon before Saw a Qassam fall nearby	85 (79.4%)	40 (85.1%)	OR = .32 (.08–1.37)
Was supposed to be at the location of a Qassam fall	82 (76.6%)	39 (83.0%)	
Knew someone killed by a Qassam	56 (52.3%)	30 (63.8%)	
Knew someone injured by a Qassam	53 (49.5%)	15 (31.9%)	OR = .55 (.27–1.11)
23 (48.9%)	23 (48.9%)		
Symptomatology			
Severity of PTS (0–68)	43.2 (SD = 11.3)	39.6 (SD = 13.6)	ES = .30 (–.05–.64)
Likely diagnosis of PTSD	48 (44.9%)	19 (40.4%)	OR = 1.20 (.60–2.40)
Severity of functional problems (4–12)	10.0 (SD = 2.3)	9.8 (SD = 3.0)	ES = .08 (–.26–.42)
Severity of somatic complaints (6–18)	8.4 (SD = 2.3)	7.8 (SD = 2.0)	ES = .27 (–.07–.61)
Severity of separation anxiety (7–21)	13.5 (3.4)	12.6 (SD = 3.5)	ES = .20 (–.08–.61)
Severity of general anxiety (8–24)	14.6 (SD = 3.7)	13.6 (SD = 3.8)	ES = .27 (–.08–.61)

ES = effect size; OR = odds ratio; CI = confidence interval; SD = standard deviation; PTS = posttraumatic symptomatology; PTSD = posttraumatic stress disorder.

^a There were no significant differences on any of the variables at baseline.

condition assisted students when necessary, ascertained that the questionnaires were fully answered, and monitored for potentially adverse reactions. Answer sheets were coded for confidentiality and were completed in approximately 30 minutes. Internal reliability data are presented with in the Result section.

Objective exposure [4] was assessed by having students respond “yes” or “no” to seven statements about the degree and type of their exposure to Qassam missile falls. Exposure level was defined as a three-level variable: (a) personal exposure (ie, being present at a Qassam fall with or without being physically injured), (b) near miss (ie, having been near the site when a Qassam fell, having been at the site before or after an attack), and (c) exposure of others (ie, knowing someone who had been exposed and was either hurt or killed). Based on whether students answered yes to at least one question within each of the aforementioned categories, three binary scores were calculated. One positive response was regarded as meeting criterion A1 of PTSD (exposure to a traumatic event). A previous 2-week test-retest assessment on 142 students [12] calculated on a cumulative exposure to terror index was found to be .85.

The number and severity of PTSD symptoms were assessed using the basic 17-item self-report version of the University of California at Los Angeles Posttraumatic Stress Disorder Index for Diagnostic and Statistical Manual of Mental Disorders, fourth edition (child version) [28,29]. Respondents indicate how frequently they experience a symptom using a 5-point Likert scale ranging from never (1) to very often (5). A categorical measure for a likely diagnosis of PTSD was constructed by assessing whether the reported symptoms met the criteria required for a Diagnostic and Statistical Manual of Mental Disorders, fourth edition, diagnosis. A score of at least 3 was necessary for an item to be considered as a symptom criterion. A cumulative posttraumatic severity (PTS) score was also computed.

Subjective functional impairment was measured using four items derived from the Child Diagnostic Interview Schedule (social relationships, school performance, family relationships, afterschool activities) [30]. Scoring is from usually not true (1), sometimes true (2), to usually true (3), relating to current state.

Somatic complaints related to terrorism were assessed using six items from the Diagnostic Predictive Scales [30]. Scoring is from usually not true (1), sometimes true (2), to usually true (3), relating to current state.

Generalized anxiety (eight items) and separation anxiety (seven items) scores were retrieved from the Screen for Child Anxiety-Related Emotional Disorders [31], a self-report inventory assessing anxiety symptoms in children. Scoring is from usually not true (1), sometimes true (2), to usually true (3), relating to current state.

Analysis

To assess possible differences between the experimental and control groups on baseline measures, we performed univariate analyses. For descriptive purposes, we presented the levels of exposure and symptomatology in the entire sample. To assess the effectiveness of the intervention on the continuous measures, we performed repeated-measures analyses of variance. To assess the effectiveness of the intervention on the categorical symptom criteria measure for a likely diagnosis of PTSD, we used a χ^2 test comparing the experimental and control classes on recovery or absence of recovery from PTSD on those with PTSD at baseline. Questionnaire completion was duly ascertained during administration, there were therefore no missing data.

Results

Demographic and clinical sample characteristics

Comparing the EES experimental and WL control groups, there were no statistically significant differences for gender, age, level of exposure, and posttraumatic symptoms and related distress (Table 1). Merged scores from the EES and WL groups showed that 67 students (43.5%) had been in the close vicinity of a Qassam rocket fall, 147 (95.5%) had a near-miss experience, and 97 (63%) knew someone either physically wounded or deceased (or both) after a Qassam attack. At baseline, 43.5% of the students

Table 2

Comparison of EES (n = 107) and WL control (n = 47) groups on outcome variables at each assessment

Measures	First assessment		Second assessment		Main effect for time F(1,152)	Main effect for group F(1,152)	Time × group F(1,152)	ES ^a Partial η^2
	M	SD	M	SD				
PTS severity (0–68)								
EES	43.2	11.3	34.2	10.3	32.60*	.22	34.93*	.19
WL	39.6	13.6	39.6	12.8				
Functional problems (4–12)								
EES	10.0	2.3	8.8	1.9	19.05*	.55	20.34*	.12
WL	9.8	3.0	9.7	2.9				
Somatic complaints (6–18)								
EES	8.1	2.3	7.2	1.7	18.30*	.02	19.67*	.12
WL	7.8	2.0	7.9	2.2				
Separation anxiety (7–21)								
EES	13.5	3.4	11.8	3.3	3.74	.53	26.15*	.15
WL	12.6	3.5	13.3	3.8				
General anxiety (8–24)								
EES	14.6	3.7	12.8	3.4	22.8*	.38	10.10*	.06
WL	13.6	3.8	13.1	3.5				

EES = Extended ERASE-Stress; WL = waiting-list.

^a $\eta^2 > .06$ constitutes a medium and $\eta^2 > .14$ a large effect size.* $p < .001$.

had a likely diagnosis of PTSD, which included at least one functional problem.

All Cronbach α reliability scores were found to be reasonable or high: PTSD severity (.89), functional impairment (.73), somatic complaints (.69), general anxiety (.80), and separation anxiety (.78).

Treatment effects

Of the 48 children who had a likely diagnosis of PTSD at baseline in the experimental group, only 13 (27.1%) remained with PTSD compared with 12 (63.9%) of 19 in the control group. Thirty-five (72.9%) in the experimental group and seven (36.8%) in the control group recovered from probable PTSD ($\chi^2 = 7.57$; $p = .006$; odds ratio = 2.67; 95% confidence interval = 1.10–6.35). The odds ratio shows that the children who participated in the intervention were approximately 2.7 times more likely to recover from PTSD. Eyeballing the results shows that of the 59 children without PTSD in the experimental group, three (5.1%) had developed PTSD compared with none in the WL group. These three children had relatively high levels of symptom severity at baseline (36, 44, and 46 points) with modest elevations in symptom severity at follow-up (4–6 points). To contextualize these results, we found 6 of the 107 children (5.6%) in the experimental group and 8 of the 47 (17%) in the control group to have had a worsening of their PTS score of 10% or more from baseline to follow-up ($\chi^2 = 5.15$; $p = .023$, odds ratio = 3.45; 95% confidence interval = 1.13–10.61). The odds ratio shows that the children who did not participate in the intervention were approximately 3.5 times more likely to have a PTS elevation of >10%.

Table 2 shows the mean scores on each of the outcome variables at each assessment by time, group (EES vs. WL), and interaction effects. Results show a statistically significant impact of the intervention on all outcome variables compared with the control group. Effect sizes are presented as eta squared (η^2). An effect size of >.01 is considered small, >.06 is considered medium, and >.14 is considered large. Effect sizes for treatment by time interaction were large for PTS and separation anxiety, and medium for functioning, somaticism, and general anxiety.

Discussion

Results show posttraumatic symptomatology in 12- and 13-year-old adolescents in Sderot to be relatively high. Indeed, 43.5% had a likely diagnosis of PTSD at baseline. Regarding the intervention, students who received EES reported statistically significant reductions on all outcome measures compared with the control group, suggesting that a universal, school-based, and teacher-delivered intervention may be helpful in alleviating elevated levels of posttraumatic symptoms in youth exposed to chronic war. Indeed, other studies examining youth exposed to natural disasters, continuous long-term political conflicts, or difficult social circumstances also showed the efficacy of universal skill-oriented interventions in reducing symptomatology [14,15,17,18,32]. It is possible that interventions such as those that are present focused and not necessarily past or trauma oriented are more suitable for individuals exposed to continuous and ongoing traumatic circumstances [33].

On the other hand, it should be mentioned that three students developed a likely diagnosis of PTSD during the 5 months of the intervention, whereas none of the control group students did. Although it is possible that the worsening was due to retraumatization or, alternatively, the continued exposure of these students to shelling, the results suggest that they already had relatively elevated symptomatology and that their worsening was minor. Furthermore, results show that more children had statistically significant increases of >10% of their baseline score in the control group compared with the intervention group, suggesting it was not the intervention that led to worsening PTS scores. Still, it is imperative to assess whether for a small number of students, the intervention may have had unintended adverse effects. Further research is warranted to explore the conditions under which present-oriented skill-based interventions or past-oriented exposure-based interventions may be preferable.

The study has a number of limitations. First, as the WL group received the regular social science classes rather than an active control intervention, we cannot rule out the possibility that it was the change in the regular curriculum that made the difference. Second, as the students came from a specific socioeco-

conomic background and were traditionally religious, the generalizability of our results to the entire student population has to be further studied. Third, the self-assessments could have been influenced by social desirability. Fourth, we could not evaluate whether the impact of the intervention was maintained over time. Fifth, as we do not know why some of the parents did not return the signed consent forms, it is possible that at least some of them had higher symptomatology levels. Conversely, this study has important strengths, including a quasi-randomized design within a naturalistic setting, the use of a structured manualized program, a fidelity check, the use of clearly defined target outcomes, and a comprehensive, reliable, and valid assessment battery.

Future studies should assess the long-term impact of EES and use objective measures such as students' school attendance, academic performance, health status, and behavior at school and at home, as well as ratings by both teachers and parents. In addition, research should investigate which students may be candidates for other modalities, such as targeted interventions or psychotherapy.

Conclusions and implications

Although the past decade has seen a major increase in the number of school-based interventions designed to deal with the impact of war and terror on children [32], most were trauma-targeted interventions and delivered by professionals. Only a few were universal interventions delivered by teachers [12,14,15,22,26]. This is the first study that shows the efficacy of a universal, teacher-delivered intervention in significantly distressed adolescents exposed to intense and ongoing war-related stress. Given the fact that such approaches are more accessible, feasible, and affordable and tend to be nonstigmatizing, this finding is important in terms of providing broad public mental health services for traumatized children of diverse social and ethnic populations, who would otherwise be deprived of those services.

Most major disasters present an enormous challenge for local health systems, as the needs of affected populations usually far exceed the capacity for providing adequate mental health services [34]. Universal interventions should be considered an important component of any postdisaster community mental health approach [35]. Indeed, a similar intervention was implemented in the aftermath of the tsunami in Sri Lanka and was shown to be both feasible and efficacious in reducing PTS in children [13,15]. However, future research will need to sort out when either universal or targeted interventions should be implemented, and with which kind of affected populations. Until then, a two-stage approach starting with a universal intervention followed by targeted specialized interventions for those who still suffer from posttraumatic distress may be advisable. Finally, our study also illustrates the importance of developing culturally sensitive interventions and adapting it to specific targeted populations even within the same country and society [15].

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