

# The Effect of Tension and Trauma Releasing Exercises (TRE) on Trauma Symptoms in East African Refugees

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**How to cite this paper:** Parker, J., Shook, B., Washington, D., English, B., & Tatum, C. (2024). The Effect of Tension and Trauma Releasing Exercises (TRE) on Trauma Symptoms in East African Refugees. *Psychology*, 15, 77-91.

<https://doi.org/10.4236/psych.2024.151006>

**Received:** November 2, 2023

**Accepted:** January 23, 2024

**Published:** January 26, 2024

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## Abstract

Evidence-based studies utilizing body-oriented techniques with traumatized populations are virtually absent in the literature. In this study, we report the effects of Tension and Trauma Releasing Exercises (TRE) on trauma-related symptoms in a community sample of East African refugees resettled in the United States. The Harvard Trauma Questionnaire (HTQ) was used to assess symptom severity prior to and after eight weeks of performing the TRE. Results showed a reduction in symptom severity for 36 out of 40 HTQ items, and a significant reduction in overall average symptom severity for the treatment group relative to a delayed treatment control. Statistical analyses of these items showed that for the treatment group, but not the controls, there was a significant reduction in symptom severity as well as the number of symptoms. It was concluded that TRE is an effective means of improving the trauma-related symptoms in East African refugees.

## Keywords

Tension and Trauma Releasing Exercises, Trauma-Related Symptoms, Bioenergetic Analysis, Somatic Psychotherapy, PTSD, Trauma and Stressor-Related Disorders

## 1. Introduction

There has been an increase in the use of somatic psychotherapy approaches and

techniques over the years (Guest et al., 2019). Therapeutic modalities such as Bioenergetic Analysis, Somatic Experiencing, Eye Movement Desensitization Reprocessing (EMDR), Hakomi, Relational Somatic Psychotherapy, and Core Energetics have become more common. However, there is a significant lack of empirical research in those approaches with the exception of EMDR and Somatic Experiencing. Therapists in each modality have anecdotally reported significant client success for decades (United States Association of Body-oriented Psychology conference, 2016). One limitation with all of the different somatic approaches listed above is that they require that clients have access to therapeutic resources.

The effects of physical activity alone and mental health have been studied and there is a growing body of evidence that shows exercise is effective in reducing mental health symptoms (Byrne & Byrne, 1993; Cooney, 2018; Dimeo, 2001). Specifically, reviews found that exercise lessens symptoms of depression, anxiety, PTSD and other mood states (Byrne & Byrne, 1993; Cooney, 2018; Rosenbaum et al., 2015; Singh et al., 2023). The use of complementary and alternative medicine such as body movement and dance has also been shown to be effective when implemented for survivors of torture and refugee trauma. Langmuir et al. (2010) suggest that body movement, somatic psychotherapy approaches, and particularly Ogden & Minton, (2000) sensorimotor psychotherapy can be helpful with processing reactions to trauma on a physical and sensorimotor level in tandem with a cognitive behavioural approach. Trauma symptoms are associated with difficulties of ineffective processing of responses to trauma. Implementation of sensorimotor activities such as body movement, exercise, and tension and trauma release exercises could be helpful with processing these trauma responses at the cognitive, emotional, and physical level.

Berceli (2010) pursued methods to provide access to techniques designed to lower anxiety, depression, and the effects of trauma in populations that have no access to therapy. He was originally trained as a bioenergetic therapist. Bioenergetic exercises used in therapy can lead to a shaking of the body, termed neurogenic tremors. Berceli found that certain exercises done in a specific order elicited these tremors and appeared to reduce trauma-related symptoms without the effect of producing strong accompanying emotional responses as occurs in traditional bioenergetic therapy. He termed this series of exercises Tension and Trauma Releasing Exercises (TRE).

TRE is a self-directed, somatic approach to the reduction of trauma symptoms (Berceli, 2010). It is not psychotherapy, although it can be used in conjunction with it. "Trauma Releasing Exercises is a series of simple exercises that stretch and stress specific muscle patterns throughout the body evoking neurogenic tremors in a controlled and sustained manner. These exercises were designed to evoke neurogenic tremors as a way of releasing deep chronic tension patterns held in the body" (p. 8). The theory underlying TRE is that reducing the somatic symptoms will lead to a reduction in the secondary psychological or emotional effects of the trauma.

One of the important aspects of TRE is that because it can be practiced outside of psychotherapy, it is available to multiple populations who do not have access to the resources required for therapeutic treatment (Heath & Beattie, 2019). Berceli has taught TRE to traumatized people in many countries with current armed conflicts. Although none of those were studied scientifically, Berceli reports positive outcomes in many such situations.

TRE's foundational concept is that the experience of trauma, or any type of stress, occurs in both the mind and the body (Berceli, 2010). Stress is the body's protective response to a traumatic event (stressor) and is mediated via the hypothalamic-pituitary-adrenocortical axis (HPA) and associated neural pathways (McEwen, 2007). Activation of the HPA axis elicits a cascade of neurochemical events that prepare the body to respond to the threatening event. Part of the response to threat may include defensive and protective postures (tensing muscles to prepare to run, freezing, etc.) and shaking or trembling (neurogenic tremors). When trauma or stress occurs frequently, these neuromuscular responses may be stored in the brain as an unconscious procedural memory or template of the response pattern. According to Berceli, inducing neurogenic tremors in the absence of a stressor allows the body to not only release the tension pattern but additionally, over time, rewrite the neural template so that the trauma is resolved. As a result of relaxing the constant contractions, the subjective experience may be either a state of relaxation and balance, or a state of vulnerability or both. Although sound empirical evidence to support this theory is limited, both clinical anecdotal accounts (Berceli, 2010; Berceli & Napoli, 2006) and pilot studies support the efficacy of TRE in anxiety reduction (Berceli, 2009) and increasing the perceived quality of life (Berceli et al., 2014; Heath & Beattie, 2019).

Heath & Beattie, (2019) report one case study of an Australian retired soldier who was in an automobile accident with resulting, diagnosed post-traumatic stress disorder (PTSD). The soldier engaged in a TRE training and then performed the TRE exercises twice a day on his own for four months. He showed a statistically significant reduction of perceived stress as shown by scores on the Perceived Stress Scale (PPS).

TRE was also studied by Kent (2018) in a three-year grant funded by the United States Veterans Administration. The study compared results for symptoms of PTSD, depression, sleep disturbance, and cognitive functioning for a TRE group, a yoga group, and a control group. Both the TRE and Yoga group showed a significant decrease in PTSD symptoms and sleep disturbance, no change in the depressive symptoms, and an increase in cognitive functioning relative to a control group. The results for the TRE group were more significant than the yoga group but both sustained the changes over 6 months. This study suggests that more research is indicated regarding the effectiveness of TRE.

In this study, we sought to provide empirical evidence for the efficacy of TRE in reducing trauma-related symptoms in a community sample of female East African refugees resettled in the United States.

## 2. Method

### 2.1. Participants

A community sample of thirty-three female refugees from East Africa served as participants in this study and was recruited from three community centres in the greater San Diego region: Horn of Africa, the Southern Sudanese Community Centre of San Diego, and United Women of East Africa. This population was chosen due to the degree of traumatic events experienced in the subjects' home country, as well as the fact that Living Ubuntu was already working with these groups. Inclusion criteria were age 18 or greater, the ability to read and speak English, physically able to participate in the exercise program, past experience of traumatic events, and the presence of trauma-related symptoms (see below). Approval of this study was obtained from the University Institutional Review Board prior to the recruitment of participants. All participants signed an informed consent form.

Details of the participant demographics have been published in detail elsewhere (Shook et al., 2018) and are briefly summarized here. The majority of participants were under the age of 50 (age was reported in decades spanning from 18 - 29 to over 50), married, had a self-identified religious affiliation of Islam, and less than a high school diploma. Self-reported English fluency was moderate/poor for both speaking (65%) and writing (78%). The country of origin for most participants was South Sudan (33%), Somalia (25%), and Ethiopia (31%) with the primary non-English languages being Somali, Arabic, and Neur.

### 2.2. Materials

The English version of the Harvard Trauma Questionnaire (HTQ) was utilized to identify potentially traumatic events (Part 1) and as a pre- and post-treatment measure of trauma-related symptom severity (Part 4). "The HTQ is a widely used instrument for the assessment of trauma symptoms associated with PTSD in culturally diverse populations (see Heeren et al., 2012; Kleijn, Hovens, & Rodenburg, 2001; McColl et al., 2010; Mollica et al., 1992)" (Shook et al., 2018). The version of the HTQ utilized in this study was compatible with the symptoms of PTSD described in the DSM IVTR, which was the version in use at the time of the data collection. Part 1 asked whether participants had experienced any of 40 events (e.g., forced evacuation, confiscation or destruction of personal property, lack of shelter) by checking yes or no. Part 4 asked participants to indicate how much each of 40 symptoms (e.g., recurrent thoughts or memories of the events, trouble sleeping, feeling jumpy, bodily pain) bothered them during the past week. Symptom distress was rated on a 4-point scale from not at all (1) to extremely (4).

The HTQ was developed for use with culturally diverse groups to assess trauma symptoms often associated with PTSD (e.g., Heeren et al., 2012; Kleijn et al., 2001; McColl et al., 2010; Mollica et al., 1992). Part 4 lists symptoms that correspond to DSM-IV PTSD criteria (first 16 items) in addition to symptoms fre-

quently associated with trauma-exposed refugees (Mollica et al., 1992). All of those 16 items are still part of the diagnostic criteria for PTSD in the DSM VTR (APA, 2022). Community leaders assisted with translation of questionnaire items when necessary.

### 2.3. Procedure

Potential participants were compensated \$15.00 to attend a meeting to complete a demographic information sheet, informed consent form, and the HTQ. Purposive sampling was utilized in selecting participants who were deemed qualified to participate if they had previously (pre-migration) undergone at least three potentially traumatic events and, within the past week, were bothered by three or more symptoms at a moderate to severe level. These cutoff criteria were selected since the literature on the HTQ indicates that such individuals are at a heightened risk of developing PTSD (Steel et al., 2002). Those qualifying for the study were randomly assigned to either a treatment (exercise) or control (delayed treatment) group.

Each group session was held once per week for eight weeks. Participants were paid \$15.00 for each session they attended and were provided with a yoga mat. Groups were led by at least one Certified TRE practitioner (i.e., the individual completed and passed modules I and II of the Global TRE Certification training program). Assistants were assigned to each group to provide translations when needed during the group, and to make reminder telephone calls during the week to encourage participants to attend the group and to remind those in the treatment group to complete the exercises during the week. All participants completed the HTQ three weeks or less before the first group, at the end of the eight sessions and again at the end of three months. Records were kept documenting attendance for both groups and for how frequently participants in the treatment group performed the exercises on their own at home.

During the first session participants in the treatment group were given an orientation to TRE (including an instructional booklet). Participants began performing the exercises in the second session and were instructed to complete them at home between sessions. During the remaining sessions, treatment group participants reported how their week had been, completed the series of exercises, and then processed whatever came up for them as a result of the exercises. The control group met for each of the eight weeks and discussed how their week had gone, and other topics of interest. While there were translators present, these were non-facilitated discussions.

### 3. Results

We analysed our data across two time-periods (pre-test and an eight-week delayed post-test) for the treatment and control conditions. (We had a 3-month delay condition, but the attrition rate was high, and the results were unstable, so these findings are not reported.) Although we administered Parts 1 and 4 of the

HTQ to all participants for both pre-test and post-test conditions, we did not analyse the Part 1 data in this report (but see Shook et al., 2018). Part 1 asked the respondents to indicate whether they had experienced, in the past, 40 different traumatic events (yes/no) and there was no reason to believe that this would change over an eight-week period. Consequently, two measures were used to compare the treatment and control groups on Part 4: 1) the average rating of the symptom severity for 40 possible symptoms, and 2) the number of symptoms that had no associated distress. Symptom severity was rated on a 4-point scale by each participant (see a full description of the scale in the Method section), and the reliability of the pre-test measure was high (Cronbach Alpha = .96). The statistical analyses of these measures were conducted on only those participants who completed the control (N = 19) and treatment phases (N = 14).

Two versions of a 2 × 2 (Treatment × Testing) Analysis of Variance (ANOVA) were conducted on all conditions of the study (selected conditions are discussed later). The first analysis was done for the average severity ratings (1 - 4) and the results showed a significant interaction between the groups (Treatment versus Control) and the testing condition (Pre-test versus Post-test):  $F(1,31) = 5.70$ ,  $p = .023$ ,  $MSE = 1.88$ ,  $\text{Partial Eta Square} = .155$  (see Figure 1). The second analysis was done on the number of items rated as a “1” (“not at all”) which indicated that there were no symptoms for that item. This analysis also showed a significant interaction between the groups and the testing condition:  $F(1,31) = 4.59$ ,  $p = .04$ ,  $MSE = 336.62$ ,  $\text{Partial Eta Square} = .129$  (see Figure 2).

### 3.1. Treatment Group

#### 3.1.1. Severity Ratings

Table 1 shows the results for rated symptom severity of the pre-test and

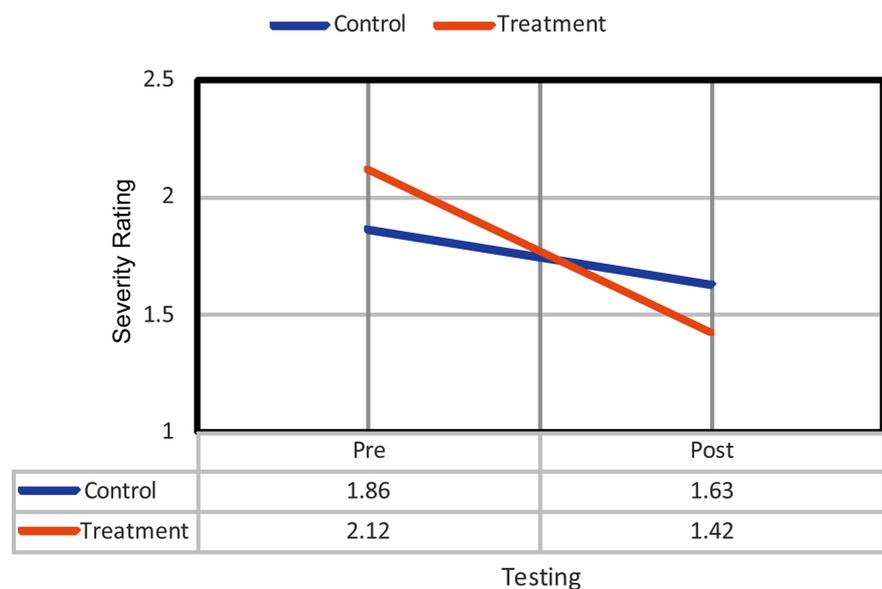
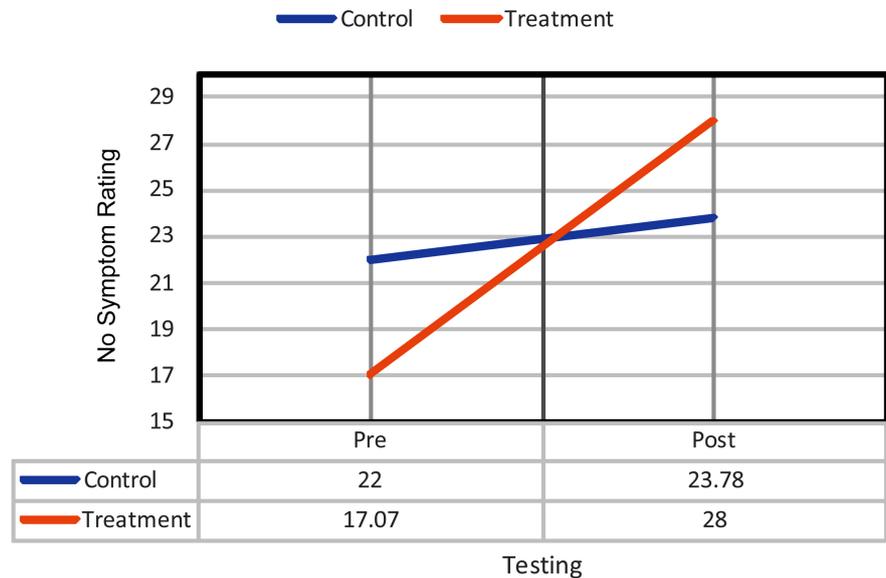


Figure 1. Symptom severity ratings for the control and treatment groups across two testing sessions (Pre-Test and Post-Test).



**Figure 2.** Number of items rated as “not at all” (no symptoms) for the control and treatment groups across two testing sessions (Pre-Test and Post-Test).

**Table 1.** Average symptom severity ratings of the harvard trauma questionnaire (Part 4) for the treatment group during pre-test and post-test (8-Week Delay).

Testing	M	N	SD	SE
Pre	2.12	14	.665	.178
Post (8-Week Delay)	1.42	14	.408	.109

Note. The difference between the pre-test and post-test was significant:  $p < .003$ .

post-test (eight-week) conditions for the treatment group. The table shows that the average severity rating during pre-testing was significantly higher than the average rated severity eight weeks later after undergoing the trauma-releasing exercises:  $F(1,13) = 13.99$   $p = .002$   $MSE = .420$ , Partial Eta Square = .518. (Note: The F-test was used instead of a t-test to compare pre-tests to post-tests. An F-test for two conditions is equivalent to a t-test, but gives more detailed information.) These results indicate that the exercises were effective in reducing the perceived severity of different traumas from 2.12 to 1.42 or 33 percent (see the Appendix for a list of the individual items that showed a significant change in average severity ratings from pre- to post-test during treatment).

### 3.1.2. No Symptoms Ratings

In addition to examining the average severity ratings, we also inspected those HTQ items that were rated “not at all” (a rating of 1). These data indicated the degree to which participants said that they experienced no symptoms for a given item. **Table 2** reports the results of the number of these “no symptom” ratings. It is clear from **Table 2** that at the end of the treatment condition (post-test) the average number of items with no symptoms increased from pre-test (17.07) to post test (28.00) or 64 percent. This increase was statistically significant:  $F(1,13) =$

**Table 2.** Number of symptom receiving a “not at all” (1) Ratings (no symptom) on the Harvard trauma questionnaire (Part 4) for the treatment group during pre-test and post-test (8-Week Delay).

Testing	M	N	SD	SE
Pre	17.07	14	11.06	2.95
Post (8-Week Delay)	28.00	14	9.50	2.53

Note. The difference between the pre-test and post-test was significant:  $p < .006$ .

11.21,  $p = .005$ , MSE = 836.03, Partial Eta Square = .463 (see the Appendix for a list of the individual items that showed a significant change in no symptoms from pre- to post-test during treatment).

## 3.2. Control Group

### 3.2.1. Severity Ratings

**Table 3** shows the results for the pre-test and post-test conditions for the control group. Although there was a decline in the average severity of symptoms from pre-test (1.86) to post-test (1.63), there is no evidence that this 12 percent decline was statistically significant:  $F(1,18) = 1.93$ ,  $p = .097$ , MSE = .266, Partial Eta Square = .097. These results indicate that the control group that did not receive the trauma-releasing exercises showed no changes over time in their perceived severity of different trauma related symptoms.

### 3.2.2. No Symptoms Ratings

Again, in addition to examining the average severity ratings, we also inspected those HTQ items that were rated “not at all” (a rating of 1). As earlier described, these data indicated the degree to which participants said that they experienced no symptoms for a given item. **Table 4** reports the results of the number of these “no symptom” ratings. For the control condition the average numbers of items with no symptoms increased from pre-test (22.00) to post-test (23.78). This 5 percent increase was not statistically significant:  $F(1,18) = .429$ ,  $p = .525$ , MSE = 30.421, Partial Eta Square = .023.

## 3.3. Treatment versus Control

### 3.3.1. Severity Ratings

This analysis directly compared the treatment results to the control results. **Table 5** shows the change (difference) in severity ratings from the pre-test to the post-test for the treatment and control groups. As shown in the table, there was a larger change for the treatment group (.702) compared to the control group (.168). The F-test comparing these two changes showed that the treatment group changed to a greater degree than the control group, a change of 76 percent:  $F(1,31) = 5.35$ ,  $p = .027$ , MSE = .430, Partial Eta Square = .147. Referring to earlier results, **Table 1** revealed that the pre-post change for the treatment group (33 percent) was significant and **Table 3** revealed that the pre-post change for the control group (12 percent) was not significant.

**Table 3.** Average symptom severity ratings of the Harvard trauma questionnaire (Part 4) for the control group during pre-test and post-test (8-Week Delay).

Testing	M	N	SD	SE
Pre	1.86	19	.686	.157
Post (8-Week Delay)	1.63	19	.477	.109

Note. The difference between the pre-test and post-test was *not* significant:  $p > .096$ .

**Table 4.** Number of symptom receiving a “not at all” (1) ratings (no symptom) on the Harvard trauma questionnaire (Part 4) for the control group during pre-test and post-test (8-Week Delay).

Testing	M	N	SD	SE
Pre	22.00	19	11.10	2.54
Post (8-Week Delay)	23.78	19	9.10	2.08

Note. The difference between the pre-test and post-test was *not* significant:  $p > .525$ .

**Table 5.** Pre-post change for treatment and control groups for average symptom severity ratings of the Harvard trauma questionnaire (Part 4).

Group	M	N	SD	SE
Treatment Change (pre minus post)	0.702	14	0.682	0.182
Control Change (pre minus post)	0.168	19	0.636	0.146
Treatment vs. Control Difference	0.534	33	0.699	0.23

Note. The difference between the treatment change and the control change was significant:  $p < .028$ .

**Table 6.** Pre-Post change for treatment and control groups for the number of items with no symptoms for the Harvard trauma questionnaire (Part 4).

Group	M	N	SD	SE
Treatment Change (pre minus post)	-10.92	14	12.21	3.26
Control Change (pre minus post)	-1.78	19	12.03	2.76
Treatment vs. Control Difference	9.13	33	12.77	4.26

Note. The difference between the treatment change and the control change was significant:  $p < .05$ .

### 3.3.2. No Symptoms Ratings

A parallel finding is shown in **Table 6** which shows the change (difference) in the number of items with no symptoms (“not at all” ratings) from the pre-test to

the post-test for the treatment and control groups. A comparison of these two changes showed that the treatment group change ( $-10.92$ ) was greater than the control group change ( $-1.78$ ), a change of 83 percent. The difference between the treatment and control groups was statistically significant:  $F(1,31) = 4.58$ ,  $p = .04$ ,  $MSE = 673.24$ ,  $\text{Partial Eta Square} = .129$ . Referring to earlier results, **Table 2** revealed that the pre-post change for the treatment group (64 percent) was significant and **Table 4** revealed that the pre-post change for the control (5 percent) group was not significant.

#### 4. Discussion

There were two major findings of the study. The first is that the treatment group showed a significant reduction in the severity of symptoms on the HTQ as compared with the control group. Participants who endorsed the presence of symptoms pre-treatment and after the TRE groups reported that the severity of thirty-six out of forty items listed on the HTQ were reduced. In order to more clearly interpret results recorded in the Appendix, items were collapsed by the authors into categories of related symptoms. Experiences that were reduced included sleep disturbances; the ability to connect with others; difficulty with feeling or managing affect; dissociation; issues related to a sense of competency and self; and memories, thoughts, or body sensations related to the traumatic event. Participants reported an improvement in their quality of life, their sense of agency, relational capacity, and emotional regulation in their group sessions held each week, as well as on the HTQ Part 4 at the end of the treatment period and at the three-month follow-up. An anecdotal report of the experience of the decrease in the severity of symptoms from one subject was that she felt compelled to move her dresser in front of her bedroom door every night in order to feel safe enough to sleep. After the TRE treatment she was able to eliminate that behaviour entirely.

The second major finding was that the 14 treatment participants endorsed the total elimination of eleven out of the forty symptoms on the HTQ. Those items, again in collapsed categories, included sleep disturbance, difficulty feeling and managing affect, a lack of trust in others, and the ability to concentrate and focus. As with the first finding, these results greatly enhanced the participants' quality of life.

In general, these findings are very consistent. Regardless of which measure was analysed (symptom severity rating or no symptom rating), the treatment group was significantly different from the control group. With regard to symptom severity, the treatment group rated severity as much lower than the control group after eight weeks of trauma-releasing exercise. Similarly, the treatment group reported no symptoms ("not at all") much more frequently than the control group after eight weeks. The differences were very impressive: changes for the treatment group ranged from 33 to 64 percent (significant); changes for the control group ranged from 20 to 5 percent (non-significant). Furthermore, a direct comparison between the treatment and control groups revealed that the

treatment produced a 76 to 83 percent change relative to the control group.

It is somewhat difficult to compare our results to previous studies since we used a community sample of participants and self-reported measures of trauma-related symptoms of distress. However, meta-analytic reviews indicate that physical activity and/or exercise yield moderate effect sizes for anxiety, depression, and psychological distress (Singh et al., 2023) and a small to moderate effect size for PTSD (Rosenbaum et al., 2015). In our study we found, relative to the control group, a large effect size for trauma-related symptom severity and a moderate effect size for the reduction in the number of symptoms. When comparing the pre-and post-test for the TRE group alone there were large effect sizes for both symptom severity and symptom frequency (the pre-and post-test comparison for the control group was non-significant). This suggests that TRE interventions may be equally or more effective in the reduction of mental health symptoms relative to other forms of physical activity. Future studies are needed that directly compare different types of exercise to TRE on self-reported symptoms of distress.

Participants in our study were exposed to myriad pre-migration events in their country of origin that were potentially traumatizing (e.g., lack of shelter, food and water, ill health with no access to medical care, forced evacuation, extortion, being forced to hide, serious injury, witnessing murder or death due to violence, and living in refugee camps; see Shook et al., 2018). Such experiences heighten the risk of developing mental health problems (e.g., Bhui et al., 2003; Jaranson et al., 2004; Karunakara et al., 2004; Schweitzer et al., 2006) in a population that may have little access to, or the ability to afford, mental health care. Our results demonstrate the significant effect that TRE, without accompanying psychotherapy or other types of treatment, can have in reducing, and even eliminating, symptoms of trauma. The benefit is that these exercises are easily taught and can be practiced by people who have no access to psychological services. Further, Kent (2018) found that these exercises can reduce stress and anxiety, while improving a sense of well-being, in people without a history of moderate to severe trauma. However, TRE has not demonstrated any significant effect on depression. Bercei (2010) has taught TRE to people in several war-torn countries and anecdotally reported promising effects.

It is also important to note that of the 40 symptoms listed in Part 4 of the HTQ, only sixteen are included in the diagnostic criteria for Post-Traumatic Stress Disorder. Clinicians who are assessing clients may not ask about the other nineteen symptoms and thus may not identify those that could benefit from trauma-based treatment, including TRE. These undetected types of symptoms may lead to further decline in the client's ability to manage aspects of daily living such as the ability to plan, feel that their experience is understood, and the experience of bodily pain.

## 5. Conclusion

The use of TRE with people suffering from trauma, especially those without ac-

cess to psychotherapy or the willingness to engage in therapy, warrants further study. Studies with larger sample sizes, and follow-up of six to twelve months, could be helpful in analysing the long-term effects of doing the exercises over a significant period of time. Studying the effectiveness in different populations, especially those with various levels of trauma, for example a single trauma (physical and/or sexual assault, car accident, vicarious trauma, etc.) could contribute significantly to the understanding of the use of TRE as a way of reducing traumatic symptoms.

Additionally, studying the use of TRE in conjunction with psychotherapy could examine its effects as an adjunctive treatment as well. This paper suggests that the use of TRE in psychotherapy can be similar to the use of EMDR, hypnosis, mindfulness, or other adjunctive approaches, which enhances the level of efficacy if used in the therapeutic process (Prochaska & Norcross, 2018).

This study supports the use of TRE in people with a history of one or more traumatic events. The availability of the use of TRE makes it especially helpful with populations with little to no access to actual psychological services. Even for people who have had more formal treatment can also utilize TRE as ongoing support after terminating from therapy.

The results of this study with a small sample size are significant enough, in our opinion, to warrant dedicating resources to further study.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- American Psychiatric Association (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Association.  
<https://doi.org/10.1176/appi.books.9780890425787>
- Berceli, D. (2009). *Evaluating the Effects of Stress Reduction Exercises Employing Mild Tremors: A Pilot Study*. Thesis, Arizona State University.  
<http://traumaprevention.com/research/>
- Berceli, D. (2010). *Neurogenic Tremors: A Body-Oriented Treatment for Trauma in Large Populations*. <http://traumaprevention.com/research/>
- Berceli, D., & Napoli, M. (2006). A Proposal for a Mindfulness-Based Trauma Prevention Program for Social Work Professionals. *Complementary Health Practice Review*, 11, 153-165. <https://doi.org/10.1177/1533210106297989>
- Berceli, D., Salmon, M., Bonifas, R., & Ndefo, N. (2014). Effects of Self-Induced Unclassified Therapeutic Tremors on Quality of Life among Non-Professional Caregivers: A Pilot Study. *Global Advances in Health and Medicine*, 3, 45-48.  
<https://doi.org/10.7453/gahmj.2014.032>
- Bhui, K., Abdi, A., Abdi, M., Pereira, S., Dualeh, M., Robertson, D., Sathyamoorthy, G., & Ismail, H. (2003). Traumatic Events, Migration Characteristics and Psychiatric Symptoms among Somali Refugees: Preliminary Communication. *Social Psychiatry and Psychiatric Epidemiology*, 38, 35-43. <https://doi.org/10.1007/s00127-003-0596-5>

- Byrne, A., & Byrne, D. G. (1993). The Effect of Exercise on Depression, Anxiety, and Other Mood States. *Journal of Psychosomatic Research*, *37*, 565-574.  
[https://doi.org/10.1016/0022-3999\(93\)90050-P](https://doi.org/10.1016/0022-3999(93)90050-P)
- Cooney, G. (2018). Exercise and Mental Health: A Complex and Challenging Relationship. *The Lancet Psychiatry*, *5*, 692-693.  
[https://doi.org/10.1016/S2215-0366\(18\)30291-8](https://doi.org/10.1016/S2215-0366(18)30291-8)
- Dimeo, F. C. (2001). Effects of Exercise on Cancer-Related Fatigue. *Cancer*, *92*, 1689-1693.  
[https://doi.org/10.1002/1097-0142\(20010915\)92:6+<1689::AID-CNCR1498>3.0.CO;2-H](https://doi.org/10.1002/1097-0142(20010915)92:6+<1689::AID-CNCR1498>3.0.CO;2-H)
- Guest, D., Parker, J., & Williams, S. L. (2019) Development of Modern Bioenergetic Analysis. *Body, Movement and Dance in Psychotherapy*, *14*, 264-276.
- Heath, R., & Beattie, J. (2019). Case Report of a Former Soldier Using TRE (Tension/Trauma Releasing Exercises) for Post-Traumatic Stress Disorder Self-Care. *Journal of Military and Veterans Health*, *27*, 35-40.
- Heeren, M., Muller, J., Ehlert, U., Schnyder, U., Copiery, N., & Maier, T. (2012). Mental Health of Asylum Seekers: A Cross-Sectional Study of Psychiatric Disorders. *BMC Psychiatry*, *12*, Article No. 114. <https://doi.org/10.1186/1471-244X-12-114>
- Jaranson, J. M., Butcher, J., Halcon, L., Johnson, D. R., Robertson, C., Savik, K., Spring, M., & Westermeyer, J. (2004). Somali and Oromo Refugees: Correlates of Torture and Trauma History. *American Journal of Public Health*, *94*, 591-598.  
<https://doi.org/10.2105/AJPH.94.4.591>
- Karunakara, U. K., Neuner, F., Schauer, M., Singh, K., Hill, K., Elbert, T., & Burnha, G. (2004). Traumatic Events and Symptoms of Post-Traumatic Stress Disorder amongst Sudanese Nationals, Refugees and Ugandans in the West Nile. *African Health Services*, *4*, 83-93.
- Kent, D. (2018). *Results of Three-Year Study of the Efficacy of TRE in the Reduction of Symptoms of PTSD*. United States Veteran's Administration.
- Kleijn, W. C., Hovens, J. E., & Rodenburg, J. J. (2001). Posttraumatic Stress Symptoms in Refugees: Assessments with the Harvard Trauma Questionnaire and the Hopkins Symptom Checklist-25 in Different Languages. *Psychological Reports*, *88*, 527-532.  
<https://doi.org/10.2466/pr0.2001.88.2.527>
- Langmuir, J., Kirsh, S., & Claussen, C. (2010). A Pilot Study of Body-Oriented Psychotherapy: Adapting Sensorimotor Psychotherapy for Group Treatment of Trauma. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*, 214-220.  
<https://doi.org/10.1037/a0025588>
- McColl, H., Higson-Smith, C., Gjerding, S., Omar, M. H., Rahman, B. A., Hamed, M., & Awad, Z. (2010). Rehabilitation of Torture Survivors in Five Countries: Common Themes and Challenges. *International Journal of Mental Health Systems*, *4*, Article No. 16.  
<http://www.ijmhs.com/content/4/1/16>  
<https://doi.org/10.1186/1752-4458-4-16>
- McEwen, B. S. (2007). Physiology and Neurobiology of Stress and Adaptation: Central Role of the Brain. *Physiology Reviews*, *87*, 873-904.  
<https://doi.org/10.1152/physrev.00041.2006>
- Mollica, R. F., Caspi-Yavin, Y., Bollini, P., Truong, T., Tor, S., & Lavelle, J. (1992). The Harvard Trauma Questionnaire: Validating a Cross-Cultural Instrument for Measuring Torture, Trauma, and Posttraumatic Stress Disorder in Indochinese Refugees. *Journal of Nervous & Mental Disease*, *180*, 111-116.  
<https://doi.org/10.1097/00005053-199202000-00008>
- Ogden, P., & Minton, K. (2000). Sensorimotor Psychotherapy: One Method for Processing

Traumatic Memory. *Traumatology*, 6, 149-173.

<https://doi.org/10.1177/15347656000600302>

Prochaska, J., & Norcross, J. (2018). *Systems of Psychotherapy: A Transtheoretical Approach*. Cengage.

Rosenbaum, S., Vancampfort, D., Steel, Z., Newby, J., Ward, P. B., & Stubbs, B. (2015). Physical Activity in the Treatment of Post-Traumatic Stress Disorder: A Systematic Review and Meta-Analysis. *Psychiatry Research*, 230, 130-136.

<https://doi.org/10.1016/j.psychres.2015.10.017>

Schweitzer, R., Melville, F., Steel, Z., & Lacherez, P. (2006). Trauma, Post-Migration Living Difficulties, and Social Support as Predictors of Psychological Adjustment in Resettled Refugees. *Australian and New Zealand Journal of Psychiatry*, 40, 179-187.

<https://doi.org/10.1080/j.1440-1614.2006.01766.x>

Shook, B., Tatum, C., Parker, J., & English, B. (2018). Pre-Migrations Trauma Experiences of East African Refugees in the United States. *American International Journal of Contemporary Research*, 8, 12-23.

Singh, B., Olds, T., Curtis, R., Maher, C. et al. (2023). Effectiveness of Physical Activity Interventions for Improving Depression, Anxiety and Distress: An Overview of Systematic Reviews. *British Journal of Sports Medicine*, 57, 1203-1209.

<https://doi.org/10.1136/bjsports-2022-106195>

Steel, Z., Silove, D., Phan, T., & Bauman, A. (2002). Long-Term Effects of Psychological Trauma on the Mental Health of Vietnamese Refugees Resettled in Australia: A Population-Based Study. *The Lancet*, 360, 1056-1062.

[https://doi.org/10.1016/S0140-6736\(02\)11142-1](https://doi.org/10.1016/S0140-6736(02)11142-1)

## Appendix

Harvard Trauma Questionnaire Items (Part 4) that changed significantly between the pre-test and the post-test Item Number and Description:

- \*1. Recurrent thoughts or memories of the most hurtful or terrifying events
- \*2. Feeling as though the event is happening again
- \*3. Recurrent nightmares
- 4. Feeling detached or withdrawn from people
- \*\*5. Unable to feel emotions
- \*7. Difficult concentrating
- \*8. Trouble sleeping
- 11. Avoiding activities that remind you of the traumatic or hurtful event
- 12. Inability to remember parts of the most traumatic or hurtful events
- 14. Feeling as if you don't have a future
- 16. Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events
- \*17. Feeling that you had less skills than you had before
- 18. Having difficulty dealing with new situations
- 19. Feeling exhausted
- 20. Bodily pain
- 21. Troubled by physical problem(s)
- 23. Finding out or being told by other people that you have done something that you cannot remember
- \*24. Difficulty paying attention
- \*\*25. Feeling as if you are split into two people and one of you is watching what the other is doing
- \*26. Feeling unable to make daily plans
- \*29. Hopelessness
- 30. Feeling ashamed of the hurtful or traumatic events that have happened to you
- \*\*31. Feeling that people do not understand what happened to you
- 33. Feeling that people do not understand what happened to you
- \*34. Feeling that someone you trusted betrayed you
- 35. Feeling humiliated by your experience
- \*36. Feeling no trust in others

**Note:** Items with no asterisk show a decrease from pre-test to post-test in symptom severity ratings (1 - 4) only.

\*Items in which both the severity rating (1 - 4) and the "not at all" (1) ratings (no symptoms) decreased from pre-test to post-test.

\*\*Items in which only the "not at all" (1) ratings (no symptoms) decreased from pre-test to post-test.