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Short-Term Effects of a Writing Intervention Among Adolescents in Gaza

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This study evaluates the effect of a short-term group intervention titled Writing for Recovery in Gaza. Adolescents (N = 139) aged 12–17 were randomly assigned to an intervention or to a waiting list group. Levels of distress were assessed at baseline and at posttest. A follow-up assessment was conducted 5 months after both groups had received the intervention. Results at posttest showed a reduction in posttraumatic stress symptoms in both groups, an increase in depression in the intervention group, and no change in anxiety symptoms. At follow-up, a significant decline in depression scores was evident. Overall, no evidence for improvements due to the intervention was found.

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More than 45% of victims of war and political conflicts are children under the age of 18 (UNICEF, 2004). At least 2 million children have died and 6 million have been severely injured in such conflicts during the past decades (UNICEF, 2010). Although much research has emphasized children’s resiliency in the context of political violence, a substantial minority of children and adolescents exposed to war and armed conflicts are severely psychologically affected (Cairns, 1996).

In contrast to the prevalence of anxiety and affective disorders found in peacetime populations, the level of distress is markedly elevated in areas afflicted by war. In Western Europe, the lifetime prevalence of posttraumatic stress disorder (PTSD) in youth has been found to be 1.3%, with a rate of 0.8% for generalized anxiety disorder and 9.3% for a single episode of depression (Wittchen, Nelson, & Lachner, 1998). Conversely, in a study of refugee children from Bosnia, the proportions reporting symptoms above the clinical cutoff on scales measuring PTSD, depression, and unspecified anxiety were 28%, 47%, and 23%, respectively (Papageorgiou et al., 2000). In a sample of Iraqi children and adolescents, 88% scored above the clinical cutoff for PTSD 1 year after the Gulf War (Dyregrov, Gjestad, & Raundalen, 2002). In Gaza, the prevalence of PTSD among children has varied from 41% at the end of the 1990s to 70.1% in 2008 (Thabet, Tawahina, Sarraj, & Vostanis, 2008; Thabet & Vostanis, 1999).

In order to provide assistance and to prevent extensive psychological suffering in these populations, knowledge about cost-effective interventions applicable in war areas is strongly needed (UNICEF, 2004). The evidence base for low-cost trauma interventions in the context of war is, however, scarce (Peltonen & Punamäki, 2010; Persson & Rousseau, 2009). In reviews of mental health care and preventive interventions for children and adolescents affected by war, less than 17 outcome studies have been identified; few of these are controlled trials, and randomized controlled trials are virtually lacking (Jordans, Tol, & Komproe, 2009; Peltonen & Punamäki, 2010).

A majority of the intervention studies have reported patterns of positive treatment effects, mainly in the form of symptom reduction (Jordans et al., 2009; Peltonen & Punamäki, 2010). However, controlled trials have shown a reduction in symptoms in both intervention and control groups (Bolton et al., 2003; Igreja, Kleijn, Schreuder, Dijk, & Verschuur, 2004).

Interventions are often unaffordable in low-income countries as they are time-consuming and require professionally trained mental health workers. Further, as a number of survivors of war and disasters are reluctant to seek help (Schwarz & Kowalski, 1992), researchers have recommended mental health interventions to be implemented in children’s natural environment (Wolmer, Laor, & Yazgan, 2003).

Administering interventions in schools is perceived as a non-stigmatizing and easy access alternative to mental health care clinics (Persson & Rousseau, 2009). General interventions, treating all children alike in a class
or a school, have been recommended over targeted interventions as the former in particular may help a larger number of children who are suffering from sadness and grief, without currently diagnosable disorders (Persson & Rousseau, 2009).

“Writing for Recovery” (WfR), a new manual-based group intervention developed by the Children and War Foundation, is aimed at adolescents between 12 and 18 years of age who have a history of trauma (Yule, et al., 2005). Developed from expressive writing (Pennebaker & Beall, 1986), the intervention includes six short writing sessions over 3 consecutive days, in which the adolescents undertake unstructured and more structured writing detailing their traumatic memories and insights from what they have experienced. WfR includes specific instructions and a focus on sensory aspects of traumatic events. This is in accordance with the theory of different memory coding for traumatic events (Brewin, 2001). According to Brewin (2001), the information stored in the traumatic memory is perceptual, implicit, and not necessarily in contact with autobiographical knowledge. When activated by trauma reminders, intrusive thoughts and images elicit strong emotional reactions, and thus the victim strives to avoid these memories. Avoidance hinders consolidation of traumatic experiences into verbally accessible representations, and thereby contributes to persistence of PTSD symptoms (Brewin, 2001). Narrating the traumatic memories, with a focus on sensory aspects, is therefore assumed to establish a competing consciously accessible memory trace that can inhibit activation of the original fear-inducing memory, and by such lead to symptom reduction (Brewin, 2001).

As WfR is manual based and includes uncomplicated instructions, its administration does not require professional mental health workers (Yule et al., 2005). This enables its implementation as a school-based intervention performed by teachers who have gone through 1 day of training, which makes the intervention cost-effective (Yule et al., 2005) and applicable in conflict areas.

Research on expressive writing in peacetime populations has shown positive effects on physical health, including fewer illness-related consultations with a physician (Pennebaker & Beall, 1986). Structured expressive writing has also been found to reduce PTSD symptoms in traumatized children (Van Der Oord, Lucassen, Van Emmerik, & Emmelkamp, 2010). However, to our knowledge, no effect studies on expressive writing among adolescents in war-torn areas have yet been published.

The aim of the present study was to investigate the short-term effect of the WfR intervention among adolescents living in the war-torn Gaza strip, where the political conflict is ongoing. We also aimed to explore whether potential changes in symptoms persisted over time. As there are no known harmful effects of writing, the intervention can be implemented in school settings, independent of symptom burden, in order to avoid stigmatization. It was predicted that the writing intervention would generate an initial
elevation of distress, followed by a reduction in PTSD, anxiety, and depression symptoms.

METHODS

Research Context and Ethical Challenges

Gaza has one of the highest population densities in the world, with 75% of the population registered as refugees (United Nations Relief and Works Agency [UNRWA], 2008) and 44% below the age of 14 (Central Intelligence Agency, 2010). Since the creation of Israel in 1948, the area has been embroiled in conflicts, most recently with the Israeli attack on the Gaza strip during December 2008 and January 2009. This war claimed the lives of more than 1,417 Palestinians, displaced tens of thousands of people, and turned Gaza into a disaster zone (Palestinian Central Bureau of Statistics, 2009). The current data were collected between November 2009 and April 2010, 10–15 months after the end of the latest war in the area.

This context of war entails several ethical considerations regarding recruitment for and execution of a research study on mental health (Inter-Agency Standing Committee, 2007). In accordance with the Inter-Agency Standing Committee (2007) guidelines, the coordinating and executive responsibility of the project was given to local mental health providers at the Child and Family Training and Counseling Center (CFTCC), who arranged further coordination and ethical clearance with the UNWRA as well as the Ministry of Education in Gaza.

Sample

Sample size calculation, executed by the use of G*Power3 (Faul, Erdfelder, Lang, & Buchner, 2007), was conducted to enable the detection of different symptom development over time between the intervention group and the waiting list control group (Group × Time interaction). Power (1—β) was set to .80, the level of significance (α) to .05 (two-tailed), and the test-retest correlation coefficient to .5. Effect sizes (Cohen’s $f^2$) of .10 (small), .25 (medium), and .40 (large) implied inclusion of a total of 200, 34, and 16 participants, respectively. Previous outcome studies of structured writing have reported medium to large effect sizes for psychological functioning and PTSD symptoms (Schoutrop et al., 2002). With 60 participants in each group, we regarded the risk of committing a type II error to be small. In order to take into account possible participation decline and withdrawal, 170 participants were recruited.

The participants were recruited from six schools in Beach Camp, a refugee camp in Gaza. The research team from CFTCC received a list of pupils in the target age group from the six schools and randomly selected participants.
Informed consent and invitation letters were distributed to 170 families, of which 150 (88.2%) gave their consent. A total of 11 (7.3%) adolescents did not show up for the first assessment. Of the 139 who attended the first assessment, 14 (10.1%) did not complete the second assessment, and one adolescent (0.7%) was excluded due to not meeting the age criterion (i.e., below the target group age). The final sample thus comprised 124 adolescents (73.0% of the original sample) aged 12–17 years ($M = 14.54$, $SD = 1.47$).

Materials

Arabic versions of all questionnaires were administered. All measures of distress were previously applied in Arabian countries (Thabet et al., 2008; Thabet & Vostanis, 1998; Panter-Brick, Goodman, Tol, & Eggerman, 2011) and recognized as valid across cultures (Yule, 2002).

DEMOGRAPHICS

Information concerning participants’ age, gender, parents’ level of education, parents’ employment status, and estimated family income was provided by the adolescent.

GAZA TRAUMATIC EVENT CHECK LIST (GTECL)

The GTECL (Thabet, Punamaki, Tawahina, El Sarraj, & Vostanis, 2009) was originally developed by Hein, Quota, Thabet, and El Sarraj (1993) in order to assess levels of trauma exposure typical for the Palestinian population in Gaza. The present version of the GTECL consists of 27 yes/no questions relevant to the Israeli siege. The total composite score (0–27) gives an indication of the amount and type of war exposure the respondent has experienced during the war (Thabet et al., 2009).

REVISED CHILD IMPACT OF EVENT SCALE 13 (CRIES-13)

The CRIES (Smith, Perrin, Dyregrov, & Yule, 2003) was originally adapted from the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979) for children. The CRIES-13 consists of 13 items related to the three core clusters of PTSD symptoms: intrusion (4 items), avoidance (4 items), and arousal (5 items). Each item is scored on a scale ranging from not at all (0) to often (5). Symptom severity scores range from 0–65. A composite score of 17 or above on the items related to intrusion and avoidance only (CRIES-8) has been suggested as an efficient cutoff for PTSD (Perrin, Meiser-Stedman, & Smith, 2005). In the present study, the Cronbach’s alpha for the CRIES-13 (.75) and CRIES-8 (.68) was satisfactory.
REVISED CHILDREN'S MANIFEST ANXIETY SCALE (RCMAS)

The RCMAS (Reynolds & Richmond, 1978) is designed to measure symptoms of generalized anxiety in children and youth. The 37 scale items are answered yes or no. The lie scale comprises nine items, with symptom severity scores ranging from 0–28. The clinical cutoff score has been set to 18 or above (Montgomery, 1974). In the present population, the Kuder-Richardson-20 value for the RCMAS (.89) was satisfactory.

DEPRESSION SELF-RATING SCALE FOR CHILDREN (DSRS)

The DSRS (Birleson, 1981) was developed to assess degree of depression in children and youth. The scale comprises 18 items and is scored on a 3-point scale (mostly, sometimes, never), with eight items reversed. The sum score ranges from 0–36. The clinical cutoff score for depression has been set to 15 or above (Birleson, Hudson, Buchanan, & Wolff, 1987). The DSRS has been reported to have good internal consistency (Birleson, 1981). The Arabic version of the instrument was obtained through translation and blind back-translation. The concurrence between the translations was satisfactory. In the present population, the Cronbach’s alpha for the DSRS (.80) was acceptable.

Design and Procedure

A randomized controlled trial with repeated measures was conducted, comparing two groups: an intervention group and a waiting list control (WLC) group. Symptom assessments were scheduled 1 day before the initiation of the intervention, immediately after, 19 days after, and 4–5 months after the completion of the intervention. Following the baseline assessment, participants were randomly assigned to one of the two groups. At each school, each participant was given a consecutive number. Depending on whether the number was an even or odd one, participants were assigned to either the intervention group or to the WLC group. The intervention group received the WfR intervention, starting the day after the baseline assessment. The WLC group was supposed to complete two additional symptom assessments, in synchronicity with the assessments conducted in the intervention group, before they received the WfR intervention. However, communication difficulties caused a deviation from the protocol; the WLC group completed the second of the two planned assessments only, before receiving the WfR intervention. This deviation hindered analyses of immediate effects of the intervention and resulted in a 2 × 2 design, with the two groups compared at two points in time, one before the intervention (T1) and one at 19 days after the completion of the intervention in the intervention group (T2).
The follow-up assessment was completed in both groups approximately 5 months after the completion of the intervention in the intervention group and at 4 months after completion in the WLC group. In order to explore symptom development from the completion of the intervention in each group to the follow-up assessment, the symptom assessments conducted 19 days following the intervention in each group were merged and constitute the T3 assessment; the follow-up assessment is T4 (see Figure 1).

The intervention and symptom assessments were conducted in groups of 12–24 adolescents, in the school libraries. Each adolescent completed her or his questionnaire separately. All questionnaires were marked with an identification number and a letter indicating group assignment. Questionnaires were collected immediately after completion.

Professional psychologists from the CFTCC, who all had gone through 1 day of training in administering the manual, explained the rationale and procedures of the research project, administered the questionnaires, and administered the WfR intervention. In order to assess the instructors’ adherence to the manual, the instructors were videotaped while conducting the intervention. Videotapes were later compared to the content of the manual. In case of stress reactions, health personnel were present during the data collection, prepared to assist or refer children to the CFTCC for further follow-up.

Intervention: Writing for Recovery

In accordance with the manual, the writing sessions were completed over 3 consecutive days, with two sessions of 15 minutes each day and a break of 10 minutes between the sessions.

The writing task in each session was progressively developing from a general exploration of emotions toward encouraging insight and shifting of

![FIGURE 1](image-url) - Overview of symptom assessments at T1, T2, T3, and T4. Black bars indicate implementation of Writing for Recovery in the intervention group and waiting list group.
perspective in the last sessions of writing (Yule et al., 2005). Development of narrations from poorly organized toward coherent stories is recommended (Pennebaker, Mayne, & Francis, 1997). During the sessions of writing, the adolescents were first asked to write about their deepest emotions and thoughts related to the trauma they had experienced. The specific instructions of the manual included questions and examples of what to write, for instance: “How has this event influenced your life? For example, how is this trauma related to your childhood, your relation with your parents, with other family members, friends, or teachers?” (Yule et al., 2005, p. 5). The adolescents were later encouraged to construct a complete narrative with statements such as “A good story has a beginning, middle and an end” (Yule et al., 2005, p. 8). The instructors directed the adolescents’ attention to somatic and sensory aspects of the traumatic memory by instructions such as “write about … sights, sounds, smells” (Yule et al., 2005, p. 6), in order to promote the integration of the perceptual traumatic memories into a verbally accessible autobiographical memory. Finally, designed to facilitate insight and cognitive reframing, the manual also included questions such as “Think of another person who has gone through a similar event. Knowing what helped you most or what you would have liked, what would you say to that other person?” (Yule et al., 2005, p. 9).

The participants were given the opportunity to ask questions at the beginning and end of each session. After every session, the adolescents were encouraged to leave all painful emotions as they put the sheet of paper in a sealed box. In the closing procedures, the instructor affirmed the experience of the adolescents and reminded them of expected positive effects of writing.

Analyses

Analyses were conducted using SPSS software (version 15.0). For all measures, when missing data exceeded 25%, the person was excluded from the analysis. In cases where fewer than 25% of the items were missing, the missing items were replaced by the median of the participants’ scores.

A majority of the data subsets met all of the assumptions of parametric statistics. Nonparametric alternatives replaced parametric t tests when appropriate. Descriptive statistics for the central outcome measures were calculated. In order to explore potential significant differences at baseline (T1), demographic variables as well as baseline levels of exposure, depression, anxiety, and PTSD symptoms in the two groups were compared by t tests, Mann-Whitney U tests, or chi-square tests.

Effects of the intervention were tested by a repeated measures mixed between-within analysis of variance (ANOVA) with group (intervention and WLC) as the between-subjects factor and time (T1 and T2) as the repeated measures variable for all outcome measures (CRIES-13, RCMAS, DSRS). In order to assess the change in scores in each group, paired-samples
tests or Wilcoxon matched pairs signed rank tests were performed for each group separately. Potential differences in clinical proportions between T1 and T2 were explored by comparing the relative proportion scoring above the cutoff at T1 to the proportion scoring above the cutoff at T2, in each group separately, by the use of Yates corrected chi-square tests. Clinical proportions in the two groups at T2 were also compared by Yates chi-square tests.

In order to explore symptom development from T3 to T4, the groups were merged, and a one-way repeated measures ANOVA was performed with time of assessment (T3 or T4) as the repeated factor. Clinical proportions at T3 and T4 were compared using Yates corrected chi-square tests.

Effect sizes (Cohen’s $d$) were calculated for the effect of time in each group separately as well as for the between-groups effect at T2. From T3 to T4, effect sizes were calculated for the effect of time in the merged sample. Cohen’s $d$ values of .2, .5, and .8 are considered as small, medium, and large, respectively (Cohen, 1988). The level of significance was set to $p < .05$.

RESULTS

Baseline Conditions

SAMPLE CHARACTERISTICS

Table 1 shows demographic characteristics and self-reported exposure to traumatic events in the intervention group and the WLC group. The two groups did not differ significantly on any variable (see Table 1). The most commonly reported traumatic events for the intervention group and the WCL group were watching mutilated bodies on TV (92.4%/91.1%) and hearing shelling of the area by artillery (86.4%/91.1%). There was a difference in dropout rate between the two groups, as all of the 14 (10.1%) participants who withdrew from the study belonged to the WLC group. The non-attendees were more likely to report a low level of family income (92.9%), a low level of paternal and maternal education (64.3%), and paternal unemployment (71.4%) than the sample of attendees. The non-attendees and the attendees were comparable by gender, age, reported levels of exposure, and levels of distress.

LEVELS OF DISTRESS

Baseline levels of distress did not differ significantly in the two groups. Frequency analysis showed that 53.0% of the adolescents in the intervention group and 60.3% in the WLC group scored above the cutoff for clinically significant PTSD symptoms. Concerning anxiety, 27.3% of the intervention group and 22.4% of the WLC group scored above the clinical cutoff. Finally,
38.5% of the intervention group and 43.1% of the WLC group scored within the clinical range of depression. However, without any individual clinical assessments, any conclusions about diagnosis must be tentative.

**Effects of the Intervention**

Table 2 shows the mean scores at T1 and T2, interaction effects of Time × Group, effects of time in each group separately, and the relative effect sizes for all outcome measures. Changes in mean scores from T1 to T2 are shown in Figure 2.

**Effects on PTSD Symptoms**

There was a significant main effect of time, $F(1, 122) = 8.80$, $p = .004$, showing an overall decrease in CRIES-13 scores. No significant main effect of group or interaction effect of Time × Group were found for CRIES-13 scores.

The decline in proportion scoring above the clinical cutoff was not significant in any of the groups according to chi-square tests: In the intervention
<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention group (n = 66)</th>
<th>Waiting list control group (n = 58)</th>
<th>Difference in change: Time × Group</th>
<th>Differences between groups: d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>T2</td>
<td>t/T</td>
<td>d</td>
</tr>
<tr>
<td>CRIES-13</td>
<td>28.47 (11.71)</td>
<td>25.08 (14.72)</td>
<td>2.24*</td>
<td>0.25</td>
</tr>
<tr>
<td>CRIES-8</td>
<td>18.50 (7.89)</td>
<td>16.20 (9.68)</td>
<td>2.16*</td>
<td>0.26</td>
</tr>
<tr>
<td>RCMAS</td>
<td>12.47 (7.15)</td>
<td>13.05 (8.17)</td>
<td>-.182</td>
<td>-0.08</td>
</tr>
<tr>
<td>DSRS</td>
<td>14.05 (6.12)</td>
<td>20.98 (5.46)</td>
<td>-4.73</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Note. Numbers in parentheses are standard deviations. Mixed between-within ANOVA was used for interaction effects, and paired-samples t test was used for effect of time in each group separately.

aDSRS: n = 65.

bWilcoxon matched pairs signed rank test.

*p < .05; **p < .001.
group, this proportion was 53.0% at T1 and 45.5% at T2, whereas the corresponding proportion in the WLC group was 60.3% at T1 and 56.9% at T2. The clinical proportion in the two groups did not differ at T2.

**Effects on anxiety symptoms**

No significant main effects of time or group or significant Time × Group interaction effects were found (see Table 2) for the anxiety scale (RCMAS). The proportion scoring above the clinical cutoff in the intervention group at T1 (27.3%) did not differ significantly from the clinical proportion at T2 (33.3%). In the WLC group, this proportion (22.4%) did not change during the same time period. At T2, the clinical proportion in the two groups did not differ significantly.

**Effects on depression symptoms**

There was a significant main effect of time on DSRS scores, $F(1, 121) = 24.46, p = .000$, showing an overall increase in depression, as well as a significant main effect of group, $F(1, 121) = 22.97, p = .000$. There was also a significant Time × Group interaction effect, $F(1, 121) = 22.37, p = .000$ (see Table 2), reflecting an increase in depression symptoms in the intervention group only (see Figure 2). The effect is also reflected by the difference in change of clinical proportions in the two groups; the clinical proportion in the intervention group increased significantly from 38.5% at T1 to 89.4% at T2, Yates $\chi^2(1, N=131) = 34.75, p = .000$, whereas the clinical proportion in the WLC group did not change significantly (43.1% at T1 and 44.8% at T2). At T2, the clinical proportion in the intervention group was significantly higher than in the WLC group, Yates $\chi^2(1, N=124) = 26.41, p = .000$. 

![Figure 2](Image)
Change in Symptoms From T3 to T4

Table 3 shows the mean scores of all outcome measures in the merged sample and the change in mean scores from T3 to T4.

CHANGE IN PTSD SYMPTOMS FROM T3 TO T4

In the merged sample, from T3 to T4, no significant main effect of time was found for PTSD (Table 3). The clinical proportion of the merged sample at T3 (47.6%) was not significantly different from the clinical proportion at T4 (48.8%). However, the level of PTSD symptoms was significantly lower at T4 compared to the baseline levels (T1), $t(122) = 3.84, p = .000$.

CHANGE IN ANXIETY SYMPTOMS FROM T3 TO T4

No main effect of time was found for the anxiety scale (RCMAS) in the merged sample from T3 to T4. The proportion scoring above the cutoff for anxiety at T3 (30.6%) was not significantly different from the clinical proportion at T4 (26.0%). The level of anxiety at T4 was not significantly different from the baseline levels (T1).

CHANGE IN DEPRESSION SYMPTOMS FROM T3 TO T4

A significant main effect of time was found for DSRS score, $F(1, 121) = 64.64, p = .000$, in the merged sample, due to a symptom reduction from T3 to T4. The proportion scoring above the cutoff for depression decreased significantly from 91.1% at T3 to 44.3% at T4, $\chi^2(1, N=246) = 59.83, p = .000$. The level of depression at T4 was not significantly different from the baseline levels (T1).

Adherence to the Manual

As only parts of the intervention were successfully recorded on tape, the existing video material was not sufficient to complete a thorough assessment.

### TABLE 3  Mean Scores at T3 (Posttest) and T4 (Follow-Up) for the Merged Sample.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Posttest (T3) ($N = 123$)</th>
<th>Follow-up (T4) ($N = 123$)</th>
<th>Effect of time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>CRIES-13</td>
<td>24.85</td>
<td>13.57</td>
<td>25.28</td>
</tr>
<tr>
<td>CRIES-8</td>
<td>15.89</td>
<td>8.87</td>
<td>16.08</td>
</tr>
<tr>
<td>RCMAS</td>
<td>12.54</td>
<td>7.89</td>
<td>12.14</td>
</tr>
<tr>
<td>DSRS$^a$</td>
<td>20.80</td>
<td>5.13</td>
<td>13.94</td>
</tr>
</tbody>
</table>

*Note. Repeated measures ANOVA.

$^aN = 122$.

$^{**}p < .001$. 

$^{*}p < .01$.
of adherence to the manual. However, successful video recording of some sessions gave indicators of partial deviance from the manual. For instance, according to the manual, adolescents should be explicitly informed that even though they may feel guilt after a traumatic event: “write about what you now know—that you . . . were not to blame” (Yule et al., 2005, p. 7). However, in one of the video clips, the instructors did not explicitly inform the adolescents that they were not to blame. These observations may indicate some lack of adherence to the manual. Considering language barriers and the limited number of video files, caution must be exercised in interpreting adherence to the manual.

Participants’ Experience of Participating in the Study

When asked 19 days after completing the intervention (T3), 88.4% of the adolescents reported the participation as a positive experience. This proportion increased to 94.3% at the follow-up assessment (T4). The level of satisfaction was comparable in the two groups.

DISCUSSION

The aim of the present study was to evaluate the short-term WfR intervention in the context of the ongoing political conflict in Gaza. Applying a WLC design, the hypothesis of significant symptom relief following the intervention was, overall, not confirmed.

The baseline levels of PTSD symptoms (T1) were high in both groups, with 53.0% of the intervention group and 60.3% of the WLC group scoring within the clinical range. These findings are consistent with previous reports from populations struck by war (Dyregrov et al., 2002; Morgos et al., 2007).

There was no interaction effect between time and group from T1 to T2; however, a decline in PTSD symptoms appeared in both groups. This lowered level of symptoms was still evident at T4. This finding contradicts our prediction of symptom relief limited to the intervention group. It also contrasts from results of previous studies of expressive writing in peacetime populations, in which symptom declines were reported exclusively in the intervention group (Schoutrop et al., 2002; Sloan & Marx, 2004).

Some previous reports from war areas studying similar therapeutic methods have found a reduction of PTSD symptoms in both the intervention and control groups (e.g., Igreja et al., 2004). Such findings have been suggested to reflect regression toward the mean, as psychological distress can vary over time (Bolton et al., 2003). However, as the lowered level of symptoms persisted, it may also reflect a natural decline in PTSD symptoms (Foa & Riggs, 1995). Regardless of the true explanation, our results highlight the importance of controlled trials in assessing effectiveness, as a
non-controlled intervention study in the present population probably would have shown an effect regardless of the actual efficacy of the intervention.

The baseline levels of anxiety, with an estimated 27.3% in the intervention group and 22.4% in the WLC group scoring within the clinical range, were comparable to previous reports (Thabet et al., 2008). The level of anxiety did not change significantly in any of the groups from T1 to T2 or from T3 to T4. Although some effect studies evaluating more comprehensive interventions for trauma-exposed children have reported a decline in anxiety symptoms (e.g., Berger, Pat-Horenczyk, & Gelkopf, 2007), other outcome studies from war-affected areas have reported no significant reduction in anxiety due to trauma-focused interventions (e.g., Bolton et al., 2007).

The baseline levels of depression symptoms were high in both groups, with 38.5% of the intervention group and 43.1% of the WCL group scoring within the clinical range. This is comparable to levels of depression found in other populations struck by war (Morgos et al., 2007; Papageorgiou et al., 2000) and markedly higher than peacetime levels of depression measured by the DSRS (Ivarsson & Gillberg, 1997).

More alarming however, was the elevation of depression symptoms following the intervention. This unexpected increase in depression scores clearly contrasts with results from studies conducted in peacetime populations (Sloan & Marx, 2004). One possible explanation for the elevated level of depression in the intervention group may be the short time period (19 days) between the intervention and the posttest (T2). Thus, the increase in depression may reflect a temporary negative effect of the processing of traumatic memories. This hypothesis finds support in the significant decline in depression symptoms in the merged sample from T3 to T4. Finally, as the level of depression at T4 did not differ significantly from the baseline level of depression (T1), the intervention did not have a long-term effect on depression in any direction.

In sum, there were no substantial psychological improvements that could be attributed to the writing intervention, contradicting results from peacetime studies of expressive writing (Sloan & Marx, 2004), as well as the predictions in this study.

Some critics have questioned the implementation of programs introducing Western-based PTSD treatments in non-Western communities struck by war, arguing that they are culturally insensitive. Possible cultural insensitivity could to some extent explain the general lack of improvement due to Western trauma interventions in non-Western societies. However, the construction of narratives embedded in WfR is claimed to be a common element in most cultures, and consequently a narrative approach seems suited to cross-cultural application (Schauer et al., 2005).

The indications of partial lack of adherence to the manual should also be addressed. Failing to explicitly tell the adolescents that they were not to blame for any traumatic event may hinder prevention of guilt feelings. As
trauma-related guilt is associated with both PTSD symptoms and depression (Kubany et al., 1995), reducing or preventing guilt is an essential element of trauma therapy. A potential lack of adherence to the manual implies the need to interpret the results cautiously and reduces the generalizability of the outcomes. Finally, a brief intervention of six writing sessions may be insufficient to generate a significant or clinically meaningful positive effect on psychological distress in the context of an ongoing political conflict.

Despite the lack of general symptom relief due to the intervention, a great majority of the adolescents reported their experience of participating in the research project to be positive. The proportion of adolescents reporting their participation in the study to be a positive experience increased from 88.4% 19 days after completing the intervention to 94.3% 4 to 5 months later. Although not necessarily resulting in a measurable health effect, this may indicate that adolescents experience creation of narratives of traumatic disturbing memories as a meaningful process.

As randomized controlled trials evaluating the effects of trauma interventions in war-torn areas are rare, a major strength of the present study was the experimental design, enabling a rigorous evaluation of the intervention. However, implementing a randomized controlled trial in the context of an ongoing political conflict entailed several difficulties. The closed borders of Gaza made it impossible for the researchers to meet and limited the communication within the research group, which contributed to deviations from the research protocol that may have weakened the experimental design. On the other hand, strengths of the study include standardized validated and widely applied measures of distress and assessment of adherence to the procedure. However, an inclusion of measures of daily functioning and objective measures of physical health would perhaps further have strengthened the study; there may be a discrepancy between levels of distress and functioning (Sack, Him, & Dickason, 1999), and measures of physical health could have enabled detection of important effects of writing (Frattaroli, 2006).

Substantial monetary resources are spent on aid programs, and for both ethical and economic reasons, knowledge about what kinds of interventions are helpful, and for whom, is crucial. The short-term WfR intervention, as implemented in this context, did not lead to substantial mental health improvements in the present sample. Further, the significant elevation of depression symptoms that was detected 19 days after the completion of the intervention may indicate that such interventions must be implemented with caution. Considering the prevalent psychological suffering in war-torn areas, the need for effective interventions applicable in these contexts is urgent. As WfR currently is being evaluated in several areas struck by war, the present study constitutes an important contribution to the initial knowledge base for structured expressive writing applied in war-affected populations.
REFERENCES


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