

Israeli Civilians under Heavy Bombardment: Prediction of the Severity of Post-Traumatic Symptoms

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Abbreviations:

PDEQ = Peritraumatic Dissociative Experiences Questionnaire
PSS-SR = Post-traumatic Symptom Scale Self Report
PTSD = post-traumatic stress disorder

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Abstract

Context: The military conflict that occurred between Lebanon and Israel in July and August of 2006 was characterized by the heavy bombardment of specific geographic regions in Israel, resulting in considerable civilian casualties and property damage.

Objective: Israeli civilians directly and indirectly exposed to bombardment were compared on exposure to the recent bombardment, trauma history, perceived life threat and peri-traumatic dissociation during the recent bombardment, and current post-traumatic stress disorder (PTSD) symptom severity.

Design, Setting, and Participants: Following the conflict, data were collected by telephone from 317 Israeli residents randomly selected from two towns that were subject to differing levels of exposure to the bombardment.

Intervention(s): None

Main Outcome Measure(s): Exposure to trauma during the Second Lebanon War, prior trauma exposure, PTSD symptom severity, perceived life threat, and peri-traumatic dissociation.

Results: The residents directly affected by the bombardment (Kiryat Shmona; KS) endorsed more trauma exposure, ($p < 0.01$); more prior trauma, ($p < 0.01$); more life threat, ($p < 0.01$); and greater PTSD symptomatology (12 % of KY participants and 38% of KS participants had probable PTSD), compared to residents in the comparison town (Kfar Yona; KY). Both groups reported a similar degree of peri-event dissociation (KS: $M = 7.2 \pm 3.7$; KY: $M = 7.3 \pm 3.0$). Perceived life threat mediated the relationship between exposure to bombardment and PTSD symptomatology. Time spent in bomb shelters was not associated with PTSD symptom severity. Prior shelling-related trauma negatively predicted PTSD.

Conclusions: The terror of bombardment is a risk factor for PTSD among civilians. Although there is considerable resilience in chronically threatened communities, it is prudent to develop and implement public health approaches to prevent those most distressed during and after attacks from developing PTSD. Because, to a small degree, prior trauma exposure buffers the response to bombardment, interventions should consider leveraging citizens' past successful coping.

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Introduction

The 2006 Lebanon War, known in Israel as the Second Lebanon War, began on 12 July 2006 and ended on 14 August 2006. For more than four weeks, Hezbollah fired thousands of *Katyusha*, as well as much larger Fajr-3 and Fajr-5 rockets (carrying 200 lb warheads)¹ onto populated regions of northern Israel (approximately 100 rockets fired each day). By the end of the war, 43 Israeli civilians had been killed and 4,262 had been injured. The conflict also displaced approximately 400,000 Israelis.²

A short mile and a half east of the border with Lebanon is the Israeli town of Kiryat Shmona. Located between the Golan Heights and the Naftali Hills, the citizens of Kiryat Shmona have been subjected to a considerable amount of violence occurring between Israel and south Lebanese militants during the past 40 to 50 years. The town has been shelled on so many occasions as to warrant the nickname "Kiryat Katyusha" among its local citizens.³ Not surprisingly, Kiryat Shmona sustained over 1,000 rocket attacks in the Second Lebanon War, more than anywhere else in the country.

It is safe to infer that a majority of residents of Kiryat Shmona were exposed to the terror of bombardment, and many were exposed directly to serious and life-threatening events during the Second Lebanon War, which places them at risk for the development of post-traumatic distress and impairment. Exposure to an event that includes "actual or threatened death or serious injury, or a threat to the physical integrity of self or others" is a prerequisite for a diagnosis of post-traumatic stress disorder (PTSD).⁴ Research conducted with civilians exposed to war-related violence suggests that a higher degree of exposure to this type of traumatic experience is associated with increased risk for the development of PTSD.⁵ Typically, there is a dose-response relationship between degree of exposure to terror and violence and PTSD symptom severity.⁶⁻⁸ However, many individuals exposed to trauma do not develop PTSD symptoms,⁹ leading investigators to attempt to identify factors other than level of exposure to trauma that moderate or mediate the relationship between trauma exposure and the severity of PTSD symptom severity.

The psychological aftermath for Israeli civilians of the Second Lebanon War must be appreciated in the context of an extensive history of bombings and terror. No known studies have examined the impact of past trauma exposure on the relationship between subsequent exposure to heavy bombardment and the severity of PTSD symptoms among Israeli civilians.

Peri-traumatic factors, that is, the subjective experience of trauma and varying contextual features of traumatic exposure, also are important in the etiology of PTSD. For example, peri-event thoughts and appraisals, such as perceived life threat, typically are strong predictors of psychological distress and the subsequent development of PTSD.^{10,11} Furthermore, peri-traumatic dissociation has been shown to increase the risk for the development of PTSD,¹² although this effect has not always been replicated.¹³ To date, no known studies have examined peri-traumatic dissociation and perceived life threat in Israeli civilians exposed to heavy bombardment.

To summarize, previous research has investigated factors that increase the risk for developing PTSD symptomatology, many of which are relevant to the type of trauma experienced by the residents of Kiryat Shmona. These risk factors include: degree of exposure,⁵ history of prior trauma,¹⁴ peri-traumatic dissociation,¹² and perceived direct life threat.^{8,15} The effects of staying in a bomb shelter as a potential salutogenic peri-traumatic exposure variable also were examined. It was believed that the shelter experience would create a sense of connection to supportive and empathic others and reduce the perceived threat.

The prevalence of probable PTSD, the severity of PTSD symptoms, exposure to trauma during the Second

Lebanon War, trauma history, peri-traumatic dissociation, and perceived direct life threat were studied in a sample of Kiryat Shmona citizens and in citizens of Kfar Yona, a town located in central Israel that was out of reach of the Hezbollah rockets, and was unexposed to the attacks. The sounds and images of war had been constantly disseminated in the Israeli media, exposing the Israelis to sounds and sights of destruction and carnage in the North. Data were collected from Kfar Yona citizens to assess the impact of the war on citizens that had been exposed indirectly. It was hypothesized that the degree of exposure to the rocket attacks, history of trauma, perceived life threat, peri-traumatic dissociation, and current severity of PTSD symptoms would be greater in the Kiryat Shmona sample. Furthermore, it was expected that the degree of exposure to the current rocket attacks and history of prior trauma predicts the severity of PTSD symptoms. Also, it was predicted that staying in a bomb shelter would be associated with less PTSD symptom severity. Finally, we predicted that the relationship between exposure to the rocket attacks and PTSD would be moderated by prior trauma exposure, and mediated by perceived life threat and peri-traumatic dissociation.

Methods

Procedure

Participants were interviewed by telephone. A computer-generated random numbers list was used to call citizens listed in the telephone directory in the two towns being studied. Research assistants were instructed to call consecutive numbers on the list until they were answered. The sample was limited to Hebrew-speaking adults, ≥ 18 years. Because most immigrants attend subsidized Hebrew courses shortly after their arrival, it was assumed that this criterion would exclude only a relatively small number of recently arrived individuals. The volatile situation in Israel during data collection required rapid collection of data to ensure equivalence in participants' exposure to the stress of the war and its reports in the media.

Four research assistants received training to ensure standardized administration of the research instruments. These individuals were undergraduate students or college educated. Because the interview process was fairly simple to perform, involving reading aloud from printed statements and questions, standardization was achieved during a single two-hour training session. The research assistants observed one of the investigators complete several interviews, and then were permitted to make calls themselves. To ensure fidelity, random checks were conducted during the interviewing process. Corrective feedback was offered on rare occasions when minor modifications in interviewing style were warranted. In addition, one senior researcher was on-call during data collection to resolve specific dilemmas as they arose.

During the first two weeks of September 2006, data were collected in Kiryat Shmona. During the last two weeks of September, 2006, data were collected in Kfar Yona, a town of similar size and socio-economic status to Kiryat Shmona.

Measures

Participants completed several self-report measures designed to assess participants' degree of exposure to trauma

during the Second Lebanon War, history of trauma exposure, and severity of PTSD symptoms associated with exposure to the recent bombardment and its aftermath. Perceived threat and peri-traumatic dissociation also were measured.

Trauma Exposure—Based on previous research and news reports, exposure to trauma during the Second Lebanon War we assessed using a rationally-derived, 12-item situation-specific questionnaire (Appendix A). The scale evaluated physical injury, property damage, receiving assistance, leaving Kiryat Shmona, staying in a shelter, and knowing others who were physically injured. The majority of the questions were in a binary format (i.e., yes/no responses), although three questions (e.g., number of days spent in a shelter) were scored on a continuous scale. All of the questions were collapsed across various types of exposure; binary and continuous data were merged by treating displacement and shelter stay as dichotomous variables.

Trauma History—The occurrence of traumatic life events experienced prior to the Second Lebanon War was assessed using a 12-item measure adapted from the Life Events Scale.¹⁶ Participants received an overall score that reflected the number of traumatic life events experienced prior to the Second Lebanon War (Appendix B).

PTSD Symptomatology—Post-traumatic stress disorder symptoms were assessed by telephone interview using the Post-Traumatic Symptom Scale, Self-Report (PSS-SR).¹⁷ The PSS-SR has been translated into Hebrew and used in a variety of studies in Israel.¹⁸ The Cronbach's alphas for the re-experiencing, avoidance, and arousal subscales ranged from 0.76 to 0.84.

Perceived Threat—A four-item measure was developed to evaluate how strongly participants believed their lives or the lives of their loved ones were in danger during the war. The items were: (1) "my life was in danger during the last Lebanon War"; (2) "the lives of people dear to me were in danger during the last war"; (3) "I anticipate that my life could be endangered by mortar and rocket attacks"; and (4) "I anticipate that lives of people dear to me could be endangered by mortar and rocket attacks". Questions were scored on a Likert-type scale from 1 ("I didn't experience it at all") to 5 ("I experienced it very often"), and summed for a total perceived threat score. The internal consistency of this derived scale was 0.71.

Peri-Traumatic Dissociation—Dissociative symptoms occurring during the war were assessed using a four-item measure adapted from the Peri-traumatic Dissociative Experiences Questionnaire (PDEQ).¹⁹ The four items represented various dissociative symptom clusters. Participants responded to the following four questions: (1) "There were moments when I lost contact with the flow of events, I passed out, I disconnected, or I somehow felt I was not part of what was going on"; (2) "I found myself reacting in a very automatic manner—I did things that I found out, retrospectively, I had no intention of doing"; (3) "The things that happened seemed unreal, as if it was a dream, or a movie"; and (4) "I felt that I was observing what was happening to me, float-

ing above the place or looking from the side, as if I was not involved in what was going on". The PDEQ was translated into Hebrew and has been previously used with Israeli samples.¹² In this study, the measure had a Cronbach's alpha of 0.68.

Data Processing

Descriptive statistics were calculated for both groups of study participants on the following variables: years of education obtained, number of children living in the home, birthplace, gender, religiosity, and family status. Independent samples *t*-tests were used to compare Kiryat Shmona and Kfar Yona residents on each of these demographic variables.

Summary scores were obtained for each participant on each of the measures described above. A series of independent samples *t*-tests were performed to test for group differences between Kiryat Shmona and Kfar Yona residents on each of the following variables: (1) amount of previous trauma exposure; (2) Second Lebanon War-related trauma exposure; (3) perceived life threat during the recent bombardment; (4) peri-traumatic dissociation; and (5) current PTSD symptomatology.

A hierarchical regression analysis was conducted to examine the relationship between current and past trauma exposure and the severity of PTSD symptoms.²⁰ In Step 1, the main effects of current and past trauma were examined. In Step 2, the interaction term was added to determine whether it predicted PTSD above and beyond the main effects.

Two exploratory mediational analyses were conducted to examine whether peri-traumatic dissociation or perceived life-threat mediate the relationship between exposure to trauma and the severity of PTSD symptoms.

Results

Participants

A total of 558 calls were answered during the time spent collecting data in Kiryat Shmona. Of these, 50 had poor Hebrew comprehension, and 79 were out of town. In total, 442 individuals were contacted, and verbal consent was obtained from 237 (54% response rate). Twelve individuals dropped out before completion of the entire interview leaving a sample of 203 participants. The mean value for the ages of the participants was 42.3 ±12.8 years and the majority were female (63%). Individuals who evacuated Kiryat Shmona spent an average of 18.7 ±14.2 days away from their home. Those who remained and resided in shelters spent 13.4 ±13.3 days in these shelters.

A total of 714 calls were answered during the time spent collecting data in Kfar Yona. Of those contacted, 74 had poor Hebrew comprehension, and three reported that they were not in Israel during the war. Verbal consent was obtained from 123 individuals (19% response rate), and nine dropped out before completion of the entire interview leaving a sample size of 114. The mean age was 45.0 ±14.0 years and the majority were female (59%).

Demographics

Independent samples *t*-tests showed that citizens in Kfar Yona reported more years of education (mean value = 13.6 ±3.2 years) compared to citizens in Kiryat Shmona ($M = X$, $SD = X$); $t(309) = 3.4$; $p = 0.001$, and had more children liv-

ing in their home (Kfar Yona mean value = 2.8 ± 1.2 ; Kiryat Shmona mean value = 2.2 ± 1.8 ; $t(233) = 3.2$, $p = 0.002$). Chi-square analyses indicated that the groups also differed across birthplace, chi-square (6) = 28.8, $p = 0.001$; residents of Kiryat Shmona were more likely to be first or second generation immigrants. There were no differences between the two towns on gender, religiosity, and family status.

Second Lebanon/July War-Related Exposure

Kiryat Shmona residents reported more war-related exposure during the Second Lebanon War (mean 16.5 ± 13.4) compared to Kfar Yona residents (mean = 2.7 ± 4.8); $t(308) = 13.5$, $p = 0.001$, $R^2 = 0.37$.

History of Previous Trauma

Kiryat Shmona residents reported more life event stressors that occurred prior to the war (Kiryat Shmona mean = 1.7 ± 1.5 ; Kfar Yona mean = 1.1 ± 1.3 , $t(314) = 4.0$, $p = 0.000$); however, the effect size was small ($R^2 = 0.04$).

PTSD Symptomatology

The Kiryat Shmona group reported greater PTSD symptom severity (Kiryat Shmona mean = 12.8 ± 11.5) than the Kfar Yona group (mean = 6.8 ± 7.8). Using a PSS-SR total score of 14 as a cutoff for probable PTSD,²¹ 12% of Kfar Yona subjects and 38% of Kiryat Shmona subjects had probable PTSD (odds ratio = 3.54, $p < 0.01$).

History of Previous Trauma, Second Lebanon War Exposure and Severity of PTSD Symptoms

The main effect of prior trauma was found to negatively predict PTSD ($\beta = -0.26$, $t = -4.75$, $df = 306$, $p < 0.00$). This suggests that to a mild degree, prior trauma exposure buffered the degree of current distress. By contrast, exposure to the Second Lebanon War positively predicted PTSD, although to a mild degree ($\beta = 0.11$, $t = 2.07$, $df = 306$, $p < 0.04$).

Dissociation and Perceived Threat

The KS group (mean = 16.1 ± 3.4) reported greater perceptions of life threat relative to participants in the Kfar Yona group (mean = 11.6 ± 3.6 ; $t(315) = 11.1$, $p = 0.000$, $R^2 = 0.28$); however, participants in both groups reported a similar degree of peri-event dissociation during the war (Kiryat Shmona: $M = 7.2 \pm 3.7$; Kfar Yona: $M = 7.3 \pm 3.0$).

Moderator Analyses for Trauma History and Time Spent in Bomb Shelter

A history of previous trauma did not moderate the relationship between exposure to the Second Lebanon War and current PTSD symptom severity ($\beta = 0.25$, $t = 0.68$, $df = 305$, NS) and number of days spent at a bomb shelter was not found to predict current severity of PTSD symptoms ($\beta = -0.90$, $t = -1.37$, $df = 197$, NS).

Meditational Analyses for Peri-Traumatic Dissociation and Perceived Life Threat

Perceived life threat mediated the relationship between trauma exposure and current severity of PTSD symptoms (Sobel's $Z = 4.29$, $p < 0.01$), whereas peri-traumatic dissociation did not (Sobel's $Z = 0.781$; $p = 0.43$).

Discussion

The 33-day long rocket and mortar attack on Israel's civilian centers in the summer of 2006 was an unprecedented threat that forced more than a million citizens to either flee from their homes or hide in bomb shelters. While many communities had experienced direct fire for the first time, for the residents of the border town of Kiryat Shmona, this was an all-too-familiar occurrence. Kiryat Shmona was hit by one-quarter of the total incoming rockets fired at Israel during the Second Lebanon War. Kiryat Shmona residents reported significantly more exposure to the recent bombardment, prior trauma, perceived life threat, and severity of PTSD symptoms than did the citizens living in Kfar Yona, a town subjected to the national threat exclusively through media coverage or by having friends or family in cities that were attacked.

The relationship between degree of exposure and severity of PTSD symptoms was not moderated by exposure to previous trauma. This implies that there is a significant mental health burden associated specifically with the exposure to bombardment during the Second Lebanon War that the citizens of Kiryat Shmona experienced, but that the residents of Kiryat Shmona were not made more vulnerable by previous trauma exposure. In fact, overall, prior trauma exposure served as a partial buffer to distress. This would suggest that, to a mild degree, Kiryat Shmona citizens have developed resilience to repeated bombardments and terror.

Although hypothesized to be a resilience factor, time spent in a bomb shelter was not associated with severity of PTSD symptoms. It may be that the experience of the crowded, austere bomb shelters combined with the terror experience cancelled out any sense of shared experience and social support.

Kiryat Shmona residents reported a greater perceived life threat than did the Kfar Yona residents. However, no group differences in peri-traumatic dissociation were observed. Furthermore, perceived life threat, but not peri-traumatic dissociation was found to mediate the relationship between trauma exposure and severity of PTSD symptoms. As the two groups of Israeli citizens did not differ in peri-traumatic dissociation, despite experiencing significant differences in current and past trauma exposure, it may be that peri-traumatic dissociation is associated with individual difference (i.e., trait) factors instead of specific peri-traumatic phenomena. There is reason to believe that Kfar Yona citizens who were particularly upset by the news coverage of the war were more agreeable to take part in this research study. Therefore, it is conceivable that many of them were anxiety- and dissociation-prone.

It should be noted that there is a possibility that the higher levels of current PTSD symptom severity observed among Kiryat Shmona residents may reflect the fact that these data were collected very soon after the cease-fire (less than one month); perhaps before Kiryat Shmona residents had an adequate opportunity to process and cope with their trauma. Furthermore, a limitation of the current study is that Kfar Yona residents were interviewed two weeks after Kiryat Shmona residents. As emotional distress and PTSD symptoms generally are highest in the weeks immediately following trauma exposure, the higher severity of PTSD symptoms observed among Kiryat Shmona residents may

at least partially reflect the difference in time between exposure and assessment. Because response rates were low in Kfar Yona and moderate in Kiryat Shmona, the reader is cautioned that the results cannot necessarily be generalized to the population in each of these cities. This is especially germane to Kfar Yona; the most frequent reason provided by Kfar Yona residents for declining our invitation to participate in this study was that the war in the north of Israel had no effect on them. On the other hand, low response rates do not necessarily confer bias; response rates between 30% and 70% show little bias.²²

Future research examining individuals exposed to bombardment will improve our understanding of risk factors for PTSD in civilians exposed to bombardment and terror. These efforts will serve to help develop public health approaches to foster resilience and interventions designed to facilitate recovery in those most impacted.

Conclusions

The terror of bombardment is associated with considerable risk for the development of PTSD. Residents with higher prior trauma exposure were not more vulnerable to the development of PTSD. Rather, prior exposure may act as a

buffer to distress. Public health-based stress management interventions are relatively common in Israel for communities affected by terror and war. Further prospective research is needed to assess if stress prevention programs have an immunizing effect beyond personal resilience and successful coping with prior stressful events.

Although hypothesized to be a resilience factor, time spent in a bomb shelters was not associated with the severity of PTSD symptoms. It may be that the experience of the crowded, austere bomb shelters combined with the terror experience cancelled out any sense of shared experience and social support.

Finally, it seems that residents of locales subjected to national threats exclusively through media coverage or by having friends or family in cities that were attacked also can be at risk for the development of post-traumatic distress. Reports of peri- and post-traumatic distress among indirectly exposed citizens should underscore the need for national outreach programs outside of the perimeter of direct impact.

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Appendix A—Second Lebanon War Exposure Inventory

Please mark the most appropriate answer with regard to your experience during the recent war:

1. Have you stayed in a bomb shelter? Y N
2. How long have you stayed in a bomb shelter? ____
3. Do you know anybody whose home was hit by a rocket? Y N
4. Have you been physically injured? Y N
5. Do you know anybody who has been physically injured? Y N
6. Have you received help for post-traumatic anxiety? Y N
7. Has your home been hit by a rocket?
8. Have you sustained other property damages (e.g., to your car or other equipment?) Y N
9. Have you left the town during the war? Y N
10. If so, how many days have you stayed out of town? ____
11. If so, in how many different places have you stayed during the war? ____

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Appendix B—Second Lebanon War Trauma History Inventory

Have you ever experienced one of the following events prior to the recent Lebanon War? Please mark the most appropriate answer.

1. A motor vehicle accident? Y N
2. Another accident (e.g., occupational, domestic or recreational)? Y N
3. Mortar or Katyusha rocket fire? Y N
4. Physical Assault (e.g., slaps, kicks, punches, beatings)? Y N
5. Assault with a weapon (e.g., bat, knife, gun)?
6. Sexual assault, including sexual harassment, rape, attempted rape, or any other sexual coercion? Y N
7. House damaged by a mortar or rocket attack? Y N
8. Injury or life threatening illness? Y N
9. Extreme human suffering? Y N
10. Sudden violent death? Y N
11. A turn to the worst in your financial situation? Y N
12. Moving? Y N

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Editorial Review—Israeli Civilians under Heavy Bombardment: Prediction of Post-Traumatic Symptom Severity

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We congratulate Somer *et al* for this interesting and important research.¹ During the 34 days of fighting of the Second Lebanon War II (12 July to 14 August 2006), civilians in Israel's northern region suffered a bombardment of approximately 4,000 rockets. On average, daily attacks were around 120 rockets struck daily. The rockets attacks resulted in 2,774 anxiety and acute stress reaction casualties that were evacuated from the scene. Subsequently, the bombardments led to a high prevalence of post-traumatic stress disorders (PTSD).²

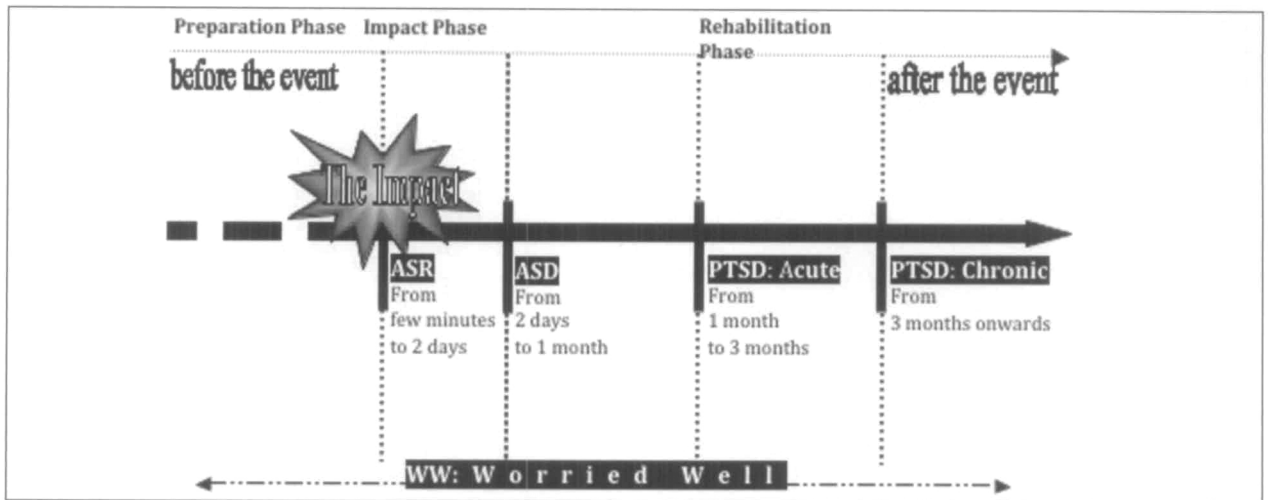
Previous research investigated factors that increase the risk of developing PTSD symptoms. The risk factors include: degree of exposure, history of prior trauma, peri-traumatic dissociation, and perceived direct-life threat.³ Bleich *et al* studied the psychiatric implications of SCUD missile attacks on the civilian population during the Persian Gulf War in 1991, and found, in a survey of 12 hospitals admitting casualties in Israel, that approximately 43% of the 773 casualties evacuated to hospitals were diagnosed as psychological casualties.⁴ Israel had absorbed 18 missile attacks.⁴ Another study of the Israeli population before, during, and after the SCUD missile attacks associated with the Gulf War found a 250% increase in the risk for clinical depression during the period of the SCUD missile attacks.⁵

In their study, Somer *et al* examined the degree of exposure to trauma during the Second Lebanon War, history of trauma exposure, severity of PTSD symptoms, peri-traumatic dissociation, and perceived direct-life threat, in a sample of citizens near the northern border, compared to a sample of citizens in the of center of Israel that were not exposed to direct rocket attacks.¹ The impact of past trauma exposure on the relationship between subsequent exposure to heavy bombardment and PTSD symptom severity among Israeli civilians was examined.

Somer *et al* were surprised to find that the relationship between the degree of exposure to rockets bombardment and severity of PTSD symptoms was not moderated by exposure to previous trauma.¹ In fact, they found that overall, prior trauma exposure served as a partial buffer to distress. They suggested that the explanation of these results might be that prior trauma exposure enhanced the development of resilience to repeated bombardments and terror.

There is agreement in the literature that repeated exposure to trauma has an impact on an individual's reaction to later traumatic experiences,⁹ but the direction of the impact is not clear. Two major approaches are postulated: the vulnerability approach maintains that past traumatic experiences weaken the individual ability to cope effectively with future stresses,¹⁰ and the resilience approach maintains that past traumatic experience immunizes individuals from the negative consequences of another traumatic event.^{11,12} In light of the dispute, the study of Somer *et al* contributes significant support to the resilience approach. Their findings coincide with the findings of the Solomon *et al* study conducted among adolescents in different areas of Israel during Al-Aktsa Intifada.¹³

Somer *et al* also hypothesized that staying in a bomb shelter would be associated with less severe PTSD symptoms and were surprised to find that time spent in the shelter was not found to predict that trend.¹ They reasoned their



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Figure 1—Mental health timeline reactions © Rubinstein Z. (2003)

hypothesis that staying in the shelter will serve as a potential salutogenic, peri-traumatic exposure variable, since the shelter experience would create a sense of connection to supportive and empathic others and reduced perceived threat. This line of thinking did not meet the situation in the shelters in the north. From close observation of the northern Israeli population during the war (both authors served in the Second Lebanon War (i.e., Chief Medical Officer of the HFC and Head of the Mental Health Branch, HFC, respectively)), we could realize that more often than not, staying in the shelters, sometimes beyond the necessity that security consideration actually demanded, was a symptom of avoidance and other psychopathological symptoms. Moreover, the conditions in the shelters and the *ad hoc* group experience and interaction that developed subsequently seemed to foster unfavorable mental conditions. Their finding supported our direct personal observation and their suggested explanation of these results, that the experience of the crowded, austere bomb shelters combined with the terror experience cancelled out the sense of shared experience and social support seems coherent.

Somer *et al* did not observe group differences in peri-traumatic dissociation.¹ Furthermore, perceived life threat, but not peri-traumatic dissociation was found to mediate the relationship between trauma exposure and severity of PTSD symptoms. As the two groups of Israeli citizens did not differ in peri-traumatic dissociation despite experiencing significant differences in current and past trauma exposure, it may be that peri-traumatic dissociation is associated with individual difference (i.e., trait) factors instead of specific peri-traumatic phenomena.

The major limitation of the study of Somer *et al*, as given by them, is that the data were collected in the study group early (one month) after the cease-fire and from the control group data were collected two weeks later.¹ This

time gap in data collection might explain, as they argue, some of the differences in the prevalence of PTSD. The prevalence of PTSD in the near border town is expected to be lower as time passes between the exposure to the rockets to data collection. We would suggest caution for accounting such difference for the delay of two weeks. Mental symptoms of the post-traumatic event are labile in certain time points along the mental reaction timeline continuum, as described in the mental health timeline continuum hypothesis, (Figure 1) by which psychological reactions to a traumatic impact develop along a timeline continuum.^{14,15} According to the hypothesis and as clinical observations indicate, the longer the distance of time from impact, the less labile are the symptoms. It also is worth mentioning that a considerable number of casualties usually recover spontaneously along the timeline, but for some, immediate intervention can prevent them from deteriorating to the next phase.

The second limitation of Somer *et al* was the low response rates in the center of Israel and the moderate response rate in the near border town, which might imply that the sample might not be representative.¹ We agree that low response rates, *per se*, do not necessarily confer bias; as was previously shown.¹⁶

Finally, we wish to congratulate again Somer *et al* for their very important and interesting article. We encourage the authors and other researchers working in the field of PTSD, to conduct future research examining individuals exposed to bombardment, in order to improve the understanding of risk factors for PTSD in civilians exposed to terror. These efforts might serve developing public health approaches to foster resilience and interventions designed to facilitate recovery in those most impacted cases. We wish that global peace will come true and that we will never need to deal with the implications of terrorism on public health or mental health.

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