

Four Years After the 2014 War Against Gaza Strip, Post-Traumatic Stress Disorder Among People Who were Forced to Leave their Homes During the War: A Cross-Sectional Study

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Abbreviations: PTSD: Post-Traumatic Stress Disorder; IES-R: Impact Event Scale-Revised; IES: Impact Event Scale; SPSS: Statistical Package for Social Science

ABSTRACT

Introduction: Post-Traumatic Stress Disorder (PTSD) is a common, disabling disorder that appears after the exposure to a traumatic experience. Post-traumatic stress leads to a pattern of symptoms that include a delayed response to an acute stressful and a life-threatening event or situation, such as combat exposure during war time. Individuals exposed to combat exposure in a war zone are not only at risk to experience trauma but typically they may experience multiple traumatic experiences. Gaza Strip was a target for several Israeli aggressions in the last decade. The last and the worst was the offensive of the summer of 2014. People who live in the war zone and were forced to leave their homes have encountered several stressors during the war time that included personal threats to their lives, their families and partial or complete destruction of their homes.

Purpose: This study aimed to assess the level of PTSD and to examine the relationship between exposure to war stress and posttraumatic symptoms among people who were forced to leave their homes during/following Israeli offensives against Gaza Strip in 2014.

Methodology: A cross-sectional design was used for this study. The target population of this study was people who were forced to leave their homes during the war. A convenience sample of 190 adults who were forced to leave their homes during the war completed a demographic sheet and Impact Event Scale-Revised (IES-R). IES-R was translated to Arabic in previous studies and proved to be valid and reliable. It has three sub-scales: intrusion, avoidance, and hyper-arousal.

Results: The sample consisted of 190 participants, 51.5% (96) of them were males, 13.7% (26) were injured, 18.9% (36) had lost a family member, and 28.9% (55) of them had received psychological support after the event. The results showed that 176 (92.6%) of the participants had scores more than the threshold cut-off point of 35 which means that they have severe posttraumatic symptoms. Total scores of IES-R ranged from 25.03 to 78.0 with a mean of 53.16. The most frequent symptoms of trauma subscales were "Intrusion" (mean=20.94), followed by "Avoidance" (mean=17.66), and then "Hyper-arousal" (mean=14.54). Level of trauma symptoms was not affected by sex, place of living, marital status, whether they had experienced an injury, a disability, and home destruction or not. They only factor that had an impact on level of stress was receiving psychological support or not.

Interpretation of Results and Implication for Practice: Despite the long period of the event, the findings of our study showed that participants suffered from severe posttraumatic symptoms four years after the war of 2014 against Gaza Strip. Such high prevalence rates of PTSD will have negative consequences on this group of

people including negative health outcomes, social and family relationship, and adverse psychological disorders such as acute depression, anxiety, and psychosocial disorders. This level of trauma warrants intervention programs, including counselling, to reduce stress and trauma among this vulnerable group.

Purpose: This study aimed to assess the level of PTSD and to examine the relationship between exposure to war stress and posttraumatic symptoms among people who were forced to leave their homes during/following Israeli offensives against Gaza Strip in 2014.

Introduction

In the last decade, Israel waged three wars against Gaza Strip. The last war of August 2014 was the worst and the most devastating. It continued for 51 days during July and August 2014. According to a report issued by OCHA (United Nations Office for Coordination of Humanitarian Affairs) which was issued about one week after ceasefire, the war left 2131 deaths (1,473 have been identified as civilians, including 501 children, according to preliminary assessments). About 18,000 housing units were either destroyed or severely damaged, leaving approximately 108,000 people homeless. Moreover, there were approximately 110,000 internally displaced persons who stayed in UNRWA emergency shelters and with host families. Exposure to traumatic events, such as war and displacement from own houses, leads to stress and mental problems [1-3]. According to (Andreasen 2011), such stressors can induce a final common pathway that is expressed by a variety of autonomic/physiologic, cognitive, and emotional symptoms that occur in response to a severe stressor. Such stressors may lead to a variety of several mental disorders such as depression, anxiety, somatoform disorders, psychosis, substance use disorders, impairment in social functioning, work impairments, and Post-Traumatic Stress Disorder (PTSD) [4-8].

Post-traumatic stress disorder is a common, disabling disorder that appears after the exposure to a traumatic experience [9]. It was defined by (Andreasen 2011) as "a syndrome, defined by a characteristic set of physiological (autonomic) and cognitive and emotional symptoms, that occurs after exposure to severe physical and emotional stress." Post-traumatic stress leads to a pattern of symptoms that include a delayed response to an acute stressful and a life-threatening event or situation, such as combat exposure during war time [10,11]. These symptoms may appear either during or immediately after the occurrence of the event, or several days later. The symptoms include initially intense fear, helplessness, or horror. Later, the individual develops a response to the stressful event that is characterized by persistently re-experiencing the event, with resultant symptoms of numbness, avoidance and hyperarousal [12]. After exposure to a stressful or a traumatic event, one usually experiences agitation, anxiety and sleep disturbance [13]. Half of those who experience posttraumatic nightmares may have dreams that exactly replicate the traumatic event [13-16]. Moreover, they may have trouble in concentration, and they try

to avoid reminders of the event. In the last two decades, research revealed that traumatic events occur far more often than what it was previously assumed [17,18] and that PTSD is a highly prevalent condition with great impact on human and society well-being and costs [19].

PTSD is characterized by three main clusters of symptoms: Re-experiencing, Avoidance, and Hyperarousal symptoms. Re-experiencing symptoms are characterized by intrusive memories, nightmares, flashbacks, and psychological and physiological reactivity when encountering traumatic events. Avoidance symptoms include avoiding thoughts and activities associated with traumatic experiences, inability to recall aspects of the traumatic event, diminished interest, emotional detachment, restricted affect, and a sense of foreshortened future. Hyperarousal symptoms of PTSD include consist of disturbance, irritability/anger, difficulty concentrating, hypervigilance, and an exaggerated startle response [5]. Individuals exposed to combat exposure in a war zone are not only at risk to experience trauma but typically they may experience multiple traumatic experiences [20,21]. Research conducted after various military conflicts has shown that military personnel were subject to considerable risk for mental health problems, including, major depression, substance abuse, impairment in social functioning, work impairments,

PTSD and increased use of health care services [22]. Studies within the Palestinian context related to trauma are limited. They were limited to studying PTSD among children and adolescents [23-30] health care providers [31-34] and a few numbers of studies about adults [36-40]. Despite the abundant studies about PTSD, only a few numbers of them have systematically examined the effect of health care providers and hospital personnel's exposure to extreme stress [38,39]. In a previous study, we aimed to assess the level of PTSD and to examine the relationship between exposure to war stress and posttraumatic symptoms among health care providers following Israeli offensives against Gaza Strip in 2014. Data were collected three months after the offensives. Results revealed that 89.8% of participants suffered from PTSD. In this study, we aimed to examine if there were any changes of our previous results after two years of the war. People who live in the war zone and were forced to leave their homes have encountered several stressors during the war time that included personal threats to their lives, their families and partial or complete destruction of their homes.

Materials and Methods

A cross-sectional design was used to conduct this study. The target population for the study was all adult individuals who were forced to leave their homes during/following the war of August 2014 against Gaza Strip. A snow-ball technique was used to recruit participants. Organizations that take care of war victims were contacted to recruit participants. Nursing students, friends, and colleagues were asked to recruit participants. The result was a convenience sample of 190 participants. Data were collected in the period between August and December 2018.

Instrument

The Impact Event Scale-Revised (IES-R) [41] was used in this study. The original Impact Event Scale (IES) predated the introduction of the diagnosis of PTSD. It is comprised of 15 items that measure two symptom clusters of PTSDs; seven items measure intrusions and eight items measure avoidance related to a negative event [42-45]. The revision of the original IES was done by Weiss and Marmar to better match the DSM-IV criteria for PTSD. As a result, a third cluster of symptoms that consists of seven items (hyperarousal subscale) was added to the original IES and its now known as IES-R. The IES-R is a self-report questionnaire that consists of 22 items measuring post-traumatic stress symptoms in three clusters: intrusion (seven items), avoidance (eight items) and hyperarousal (seven items). Participants were asked to rate how frequently each symptom was distressing for each participant during the past seven days with respect to the specified potentially stressful event on a 5-point Likert scale (where 0 = not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, and 4 = extremely).

The IES-R has demonstrated good psychometric properties [46]. Briere reported that the internal consistency of the three subscales were found to be very high, with intrusion Cronbach's alphas ranging from 0.87 to 0.92, avoidance Cronbach's alphas ranging from 0.84 to 0.86, and hyperarousal Cronbach's alphas ranging from 0.79 to 0.90. Currently, IES-R is considered one of the most widely used measures to assess posttraumatic stress symptoms [47]. The cut-off score for IES-R varies between 22 and 44 with a score above the cut-off indicating a person at a high risk for psychological problems [48-50]. Considering the variations of cut-off points used in different studies in different groups of participants and different cultures, the investigators chose a cut-off point of 35 for severe posttraumatic symptoms. Choosing a score of 35 as a cut point was because it relatively falls in the middle of the recommended range between 22 and 44. Moreover; it was used in a similar study by Alhajjar, (2014) and in our previous study [51].

The instrument was translated into the Arabic language by two independent bilingual researchers and was used in two previous studies aimed to measure PTSD among health care providers following the 2014 war [52-57]. Then the two Arabic versions were compared, and double checked for accuracy until common

agreement about a final translation was agreed upon. Conceptual rather the literal meaning was the goal of the translation. The final Arabic version was then back translated into the English language by a third bilingual researcher. Back-translation is a standard procedure for translating a research questionnaire from English to other languages [58]. Reliability Coefficients (Cronbach's Alpha) of the Arabic IES-R subscales were: 0.817, 0.779, 0.713 respectively, and 0.892 for total IES-R [59,60].

Statistical Analysis

The Statistical Package for Social Science (SPSS) version 22 was used to analyze data. Data were cleaned and checked for meeting statistical assumptions for normal distribution and homogeneity. Data analysis procedures included basic descriptive statistics (mean, range, standard deviation, and percentage) and frequency distribution tables. ANOVA and t test were used to compare means. Pearson's correlation was used to test correlations among study variables.

Ethical Considerations

Prior to conducting this research study, approval of the research committee at the Palestinian Ministry of Health was obtained. After explaining the purpose of the study and reassuring participants about confidentiality of data, each participant was asked to sign a consent paper prior to participation.

Results

Characteristics of Participants

The sample consisted of 190 participants. Age of participants ranged between 18 and 75 years with a mean of 28.75 (± 10.55) and 96 (51.5%) of them were males. Only 26 (13.7%) participants reported that they were injured during the war. One participant (3.7%) described his injury as severe while the others described their injuries as moderate ($n=18$, 66.7%) or mild ($n=8$, 29.6%). 36 (18.9%) had lost a family member. Only 29 (15.7%) participants reported that their houses were not destroyed while 109 (58.9%) reported partial destruction of their houses and 46 participants had a complete destruction of their houses. Finally, only 55 (28.9%) of the participants had received psychological support after the event. Table 1 summarizes demographic characteristics of the participants.

Analysis of IES-R Scale

The results of our study revealed that the great majority of the participants ($N=174$, 91.6%) had scores more than 35 (threshold cut-off) on IES-R scale. The mean for the total score of IES-R scale was 53.12 (± 10.92) and values ranged between 25.03 and 78.0. Table 2 summarizes the results of the IES-R scale and its subscales. The highest mean of the subscales belongs to "Intrusion" (mean=20.95) followed by "Avoidance" (mean=17.66) while the least frequently reported symptoms were related to hyper-

arousal subscale (mean=14.54). Table 3 shows the results for each item of the IES-R scale. The highest scores for the most stressful symptoms of trauma, as ranked by the participants, were “I had waves of strong feelings about it” (mean=3.24), followed by “I felt watchful or on-guard” (mean=3.03), and “Pictures about it popped

up into my mind” (mean=3.03). The least frequent symptoms of trauma were “Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea or a pounding heart” (mean=1.70) and “My feelings about it were kind of numb” (mean=1.72).

Table 1: Characteristics of participants.

| Variable | | Frequency | Percentage |
|--------------------------------|---------------------|-----------|------------|
| Sex | Male | 96 | 51.5 |
| | Female | 94 | 49.5 |
| Marital status | Single | 86 | 45.3 |
| | Married | 94 | 49.5 |
| | Divorced | 7 | 3.7 |
| | Widowed | 3 | 1.6 |
| Place of living (governorate) | Gaza | 70 | 37 |
| | North | 39 | 20.6 |
| | Midzone | 28 | 14.8 |
| | Khanyounis | 1 | .5 |
| | Rafah | 51 | 27.0 |
| Was injured | Yes | 26 | 13.8 |
| | No | 162 | 86.2 |
| A family member was injured | Yes | 41 | 23.0 |
| | No | 137 | 77.0 |
| Lost a family member | Yes | 36 | 19.9 |
| | No | 145 | 80.1 |
| Received psychological support | Yes | 55 | 29.7 |
| | No | 130 | 70.3 |
| Home was destroyed | No | 29 | 15.7 |
| | Partially destroyed | 109 | 58.9 |
| | Totally destroyed | 46 | 24.9 |

Table 2: Means and standard deviations of trauma symptoms by subscales.

| | Mean | Std. Deviation | Minimum | Maximum | Cronbach's Alpha |
|---------------|-------|----------------|---------|---------|------------------|
| Intrusion | 20.95 | 5.23 | 4.00 | 32.00 | |
| Avoidance | 17.66 | 4.89 | 4.00 | 30.00 | |
| Hyper-arousal | 14.54 | 4.123 | 2.00 | 24.00 | |
| Total IES-R | 53.06 | 11.00 | 24.00 | 78.00 | |

Association Between Study Variables and PTSD

Table 4 depicts the association between study variables and IES-R scores and its sub-domains. Independent t test revealed that there were no statistically significant differences between the means of IES-R score or its subdomains among participants in many variables including sex, marital status, or was injured or not during the war (Table 4). On the other hand, variables such as having a family injured, losing a family member and receiving psychological support were found to have impact on IES-R score and all or some of its domains. Moreover, ANOVA test revealed that place of living and degree or home destruction had no impact on IES-R score and its domains. Correlation results revealed that there

was no correlation between age of participants and total IES-R and its three subscales.

Discussion

This study reveals that people who were displaced from their homes during the 2014 war still suffer from PTSD after four years of the war. Our results revealed that 91.6% had a score of more than 35 (the cut-off point) on the IES-R scale. The levels of PTSD reported in this study are amongst the highest levels reported in other parts of the world who were affected by wars and other armed conflicts. For example, rates of PTSD among Guatemalan refugees in Mexico were reported at 11.8% of the participants after 20 years of the war and 4.6% among Karenni refugees living in the Thai-Burma border [61-

63]. Studies about level of PTSD among participants from Bosnian refugees in Croatia varied from 26.3% [64] three years after the war to 5.6% [65] about 20 years after the war. Another study from Bosnia found that 18.6% of individuals in the resident's sample,

32.7% of those in medical treatment, and 38.6% of those receiving psychological treatment developed PTSD [66,67]. Similarly, rates of PTSD among participants from Afghanistan have varied between 20.4% (Scholte et al. 2004) to 42%.

Table 3: Means & SD of trauma symptoms by items (descending order).

| | Statement | Mean | SD |
|----|---|------|-------|
| 1 | I had waves of strong feelings about it | 3.24 | 0.96 |
| 2 | I felt irritable and angry | 3.03 | 1.01 |
| 3 | Pictures about it popped up into my mind | 3.03 | 0.98 |
| 4 | I felt watchful or on-guard | 2.50 | 1.16 |
| 5 | Any reminder brought back feelings about it | 2.85 | 1.12 |
| 6 | I avoided letting myself get upset when I thought about it or remembered it | 2.37 | 1.08 |
| 7 | I tried to remove it from my memory | 2.46 | 1.21 |
| 8 | I had trouble falling asleep | 2.62 | 1.15 |
| 9 | Other things kept making me think about it | 2.66 | 1.02 |
| 10 | I tried not to think about it | 2.42 | 1.10 |
| 11 | I thought about it when I didn't mean to | 2.24 | 1.11 |
| 12 | I was aware that I still had a lot of feelings about it, but I didn't deal with them | 2.45 | 1.11 |
| 13 | I was jumpy and easily startled | 2.42 | 1.150 |
| 14 | I had trouble concentrating | 2.18 | 1.13 |
| 15 | I tried not to talk about it | 2.33 | 1.10 |
| 16 | I stayed away from reminders about it | 2.10 | 1.19 |
| 17 | I had dreams about it | 2.39 | 1.25 |
| 18 | I found myself acting or feeling as if I was back at that time | 2.23 | 1.17 |
| 19 | I had trouble staying asleep | 2.62 | 1.15 |
| 20 | I felt as if it hadn't happened or wasn't real | 1.81 | 1.32 |
| 21 | My feelings about it were kind of numb | 1.72 | 1.28 |
| 22 | Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea or a pounding heart | 1.70 | 1.34 |

In a different cross-sectional study that was conducted in the town of Juba, (2 years after the end of the civil conflict in Sudan), results revealed that over one third (36%) of respondents met symptom criteria for PTSD. Another study that assessed level of PTSD of residents from South Sudan revealed 48% of residents in southern Sudan and 46% of refugees from southern Sudan living in Uganda had PTSD. Although that our study reported the highest level of PTSD, other several studies had reported similarly high rates of PTSD among civilians forced to leave their homes and areas of conflict. In their study, Roberts et al. found that more than 54% of participants who were forced to leave their area of living in Uganda during armed conflict met the criteria for PTSD and more than 67% of them met symptom criteria for depression. The results of Vinck et al. showed also that a high percentage of participants (74.3%) met PTSD symptom criteria and 44.5% met depression symptom criteria among Ugandans during armed conflicts. Dahl et al. found that the proportion of PTSD among women who had survived the most severe traumas (concentration camps or other kinds of

detention) in Bosnia was as high as 71% of participants.

Factors influenced that the rate of PTSD among these women were high numbers of traumas, having children, being over 25 years of age, and reporting of an absent husband Dahl et al. The reasons for this unusual high level of PTSD among our participants could be due to one or two reasons. Firstly, the participants live on the border side between Gaza Strip and Israel where there are continuous harassments from the Israelis, which put continuous pressure and threats on the people living in this area. Examples of Israeli harassments include shooting at any person who gets close to the borders, limited invasions into the Palestinian side and bombardments of certain targets on the Palestinian side. Such act results occasionally in injuring or killing some of the Palestinians living near the borders. The second reason could be due to the Great Marsh of Return activities which started on March 30, 2018, a few months before starting our data collection. Since that time, Palestinians gathered on a weekly basis (each Friday) at the Palestinian side of the Palestinian-Israeli border line.

Table 4: Comparison of IES-R and its subscales in relation to different variables.

| Variable | | IES-R | | Intrusion | | Avoidance | | Hyper-arousal | | Total IES-R | |
|--------------------------------|---------------------|-------|-------|-----------|-------|-----------|-------|---------------|-------|-------------|---|
| | | Mean | P | Mean | P | Mean | P | Mean | P | Mean | P |
| Gender | Male | 20.54 | 0.295 | 17.94 | 0.449 | 14.41 | 0.661 | 52.82 | 0.714 | | |
| | Female | 21.34 | | 17.4 | | 14.68 | | 53.41 | | | |
| Marital status | Single | 20.15 | 0.096 | 18.11 | 0.311 | 13.96 | 0.124 | 52.23 | 0.375 | | |
| | Married | 21.45 | | 17.37 | | 14.92 | | 53.69 | | | |
| Was injured | Yes | 22.14 | 0.075 | 16.92 | 0.438 | 14.73 | 0.746 | 9.29 | 0.686 | | |
| | No | 20.68 | | 17.82 | | 14.5 | | 11.23 | | | |
| A family member injured | Yes | 22.75 | 0.002 | 18.59 | 0.184 | 15.86 | 0.001 | 57.22 | 0.002 | | |
| | No | 20.21 | | 17.32 | | 13.99 | | 51.46 | | | |
| Lost a family member | Yes | 23.04 | 0.001 | 18.63 | 0.204 | 16.05 | 0.002 | 57.73 | 0.002 | | |
| | No | 20.26 | | 17.4 | | 14.07 | | 51.68 | | | |
| Home was destroyed | No | 20.5 | 0.749 | 17.06 | 0.535 | 14.52 | 0.948 | 51.87 | 0.678 | | |
| | Partially destroyed | 20.67 | | 17.37 | | 14.49 | | 52.53 | | | |
| | Totally destroyed | 21.62 | | 18.52 | | 14.48 | | 54.62 | | | |
| Received psychological support | No | 22.66 | 0.002 | 18.15 | 0.369 | 15.29 | 0.06 | 56.1 | 0.01 | | |
| | Yes | 20.23 | | 17.5 | | 14.1 | | 51.87 | | | |
| Place of living | Gaza | 21.24 | 0.153 | 17.41 | 0.29 | 14.17 | 0.07 | 52.79 | 0.069 | | |
| | North | 20.38 | | 16.55 | | 14.2 | | 51.13 | | | |
| | Midzone | 19.92 | | 18.21 | | 14.4 | | 52.28 | | | |
| | Rafah | 21.79 | | 18.72 | | 15.73 | | 56.23 | | | |

The Israelis respond to this assembly by shooting at the Palestinians and throwing gas bombs against them. The latest report issued by the ministry of health on March 9th, 2019 revealed that 261 Palestinians were killed and 29,678 were injured. Such a high number of deaths and casualties leave people who are living in the area under constant pressure and constant threat to be killed or injured themselves or a family member which may contribute to the high level of PTSD reported in this study. Moreover, the results of this study showed that the level of PTSD among people from Gaza Strip who were forced to leave their homes were higher than those reported by health care professionals immediately after the same war and two years after the same war. This can be due to the fact that health care professionals (especially doctors) are getting familiar to deal with such stressful situations and dealing with cadavers and other badly injured people which help them to develop coping strategies which resolved in higher resilience during the exposure to victims during war time.

The study did not find significant associations of all independent variables, such as gender, marital status, etc. (Table 4) on the rate of PTSD. One exception was the variable receiving psychological support or not. Participants who received psychological support reported less scores of PTSDs in all the domains of IES-R, but these scores were statistically significant for intrusion domain ($p = 0.002$) and for the total IES-R score ($P = 0.010$). This result, along with other findings from other studies, emphasize the importance of providing psychological support for this vulnerable individual

who are at consistent and continuous pressure and distress due to the on-going conflict at the Palestinian-Israeli borders. The highest scores of the IES-R went to the intrusion subscale (20.85) followed by avoidance (17.66) and hyper-arousal received the least score (14.54). These findings wear in line with other studies which reported that avoidance was the most prominent symptom followed by avoidance and hyper-arousal among health care providers who witnessed the 2008 and 2014 wars against the Gaza Strip.

Conclusion

Results of this study revealed a very high level of PTSD among Palestinians who were forced to leave their homes four years after the 2014 war. The reported rate of PTSD is one of the highest levels reported in global literature. PTSD has a negative sequel on mental health. For example, it leads to depression and dysphoria, increased anger level, family distress and troubled family relationships and secondary traumatization among family members and social dysfunction. The presence of high numbers of PTSD cases requires the implementation of individual and community-based treatment programs to protect them and promote their mental health. Examples of treatment programs include sessions of supportive counseling and psychoeducation. Many programs that provide psychosocial support, especially those implemented by local personnel, showed promising outcomes and were effective to reduce the impact of PTSD. Moreover Hyman, Gold and Cott added that social support had significantly buffered PTSD development.

Based on that, the researchers recommend the implementation of such supportive programs to buffer PTSD and limit its impact on mental health of people living on war zones.

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