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## THE PREVALENCE OF PTSD AND DEPRESSION AMONG GAZA CHILDREN

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### Abstract

**Purpose:** The purpose of this study is to investigate the prevalence of posttraumatic distress disorder (PTSD) and depression among children in Gaza, Palestine.

**Methodology:** This study assessed the psychological effects of the Israeli-Palestinian conflict on children in the Gaza Strip. 286 children aged 9-14 years old, who were exposed to a wide range of war events, were selected from the Gaza Strip to participate in this study. All participants conducted the following scales: the child PTSD Reaction Index (CPTSD-RI), Beck Depression Inventory (BDI), and the Arabic version for PTSD and depression assessment.

**Finding:** The results show that the mean number of participants witnessing home destroyed and people killed was (88%) and home invasion (76%). Approximately 70% of the participants reported that they witnessed war violence against at least one of their family members. Further, 44 % of the children have a least one death in their family due to the Israeli invasion. Using t-tests, we found that significantly more females have both PTSD and depression than males. Approximately 32.8% of the participants met the criteria for severe depression, and 42.6 % met the criteria for PTSD.

**Implications:** Our results suggest that it is imperative to provide intervention programs to treat PTSD and depression symptoms among children in Gaza. These programs should take into account the cultural and religious background of the participants.

**Originality:** This investigation of the Israeli-Palestinian conflict has led to an increase in PTSD and depression symptoms among children in the Gaza Strip.

**Keywords:** *Post-Traumatic-Stress Disorder (PTSD), Depression, Israeli-Palestinian.*

### Introduction

[Yehuda et al. \(2015\)](#) reported that people may develop posttraumatic stress disorder (PTSD) due to the absence of physical safety. Due to the Israeli-Palestinian conflict, children in Gaza experienced a deep loss of self-esteem, cognitive problems, and psychiatric problems ([Abu Hein, et al. 2007](#); [Al-Ammar, 2018](#), [Elbedour, et al. 2007](#); [Evelio 1999](#); [Morgos, et al., 2007](#); [Okasha, 2007](#); [IRIN, 2012](#); [Thabet, et al. 2008](#); [Diab, Isosavi, Qouta, Kuittinen, & Punamaki, 2018](#)). Several studies have shown that exposure to trauma can lead to the development of mental health problems ([Bielawski et al., 2019](#); [Misiak et al., 2016](#); [Misiak et al., 2017](#)) and impaired ([Myers et al., 2013](#); [Radell et al., 2017](#)). PTSD was initially known as "shellshock," and subsequently as "Gross Stress Disorder."

It was widely reported after the First World War, as well as in most subsequent wars. According to the DSM 3 as well as later versions, PTSD is considered a psychiatric disorder that develops due to experiencing a traumatic event, including natural disasters, serious accidents, acts of terrorism, aggressive personal or sexual assault such as rape, and wars and combat ([Derluyn, Broekaert, Schuyten, Temmerman, 2004](#); [Yehuda et al., 2015](#); [Sadock, 2007](#)). Due to wars during the last decade, the life of a large number of children has been disrupted ([Rizkalla & Segal, 2019](#)).

According to the United Nations High Commission for Refugees (2010) report, due to wars, there were 43.7 million refugees in the world in 2010, which is the highest number in the past 15 years ([Malik, 2012](#)). Researchers have documented that children who are exposed to continuous war-related violence are at a risk for developing various types of clinical disorders such as depression, PTSD, and anxiety ([Thabet, et al. 2008](#); [Elbedour, et al. 2007](#); [Morgos et al. 2007](#); [Keshini, 2002](#); [Evelio, 1999](#)). Further, [Berman \(2001\)](#) showed that around 70% of the refugees are women and children. Many of those children experienced violence and death. In addition, some epidemiological studies have reported a high prevalence of depression and PTSD in refugee populations, especially among children, women and the disabled who live in war zones. Those groups of people suffered from panic, hopelessness, depression, PTSD, as well as other behavioural disturbances ([Al-Ammar, 2018](#), [Abu Hein, Elbe, Onwuegbuzie, Ghannam & Whitcome, 2007](#); The Canadians for Justice and Peace in the Middle East (CJPME), 2012; [Elbedour, Onwuegbuzie, Ghannam, Whitcome, & Abu Hein, 2007](#); [Evelio 1999](#); [Morgos, Worden & Gupta, 2007](#);

[Okasha,2007](#); [Thabet&Vostanis, 2011](#), [Thabet, Abu Tawahina, El Sarraj, Henely, Pelleick, &Vostanis, 2008](#); [Thabet, Abu Tawahina & El Sarraj,Vostanis, 2008](#)).

Children who are suffering from PTSD, often experience flashbacks, insomnia, nightmares, or daydreams in which the traumatic event is experienced again. Those children may also experience unusual intense shock responses and may have attentional problems. Several studies have reported a high prevalence of PTSD among children who are exposed to war. For example, [De Jong et al. \(2008\)](#) investigated the exposure of trauma across nation-states and reported that the lifetime prevalence of PTSD is 37%,28%, 16%, and 18 % in Algeria, Cambodia, Ethiopia, and Gaza, respectively. According to [Salman, Anthony, Jess, Janine and Fadel Abu \(2007\)](#), 79% of the Yemeni people experienced PTSD symptoms ([Al-Ammar, 2018](#)), possibly due to war.

There are three main groups of problems that characterize PTSD symptoms: re-experiencing, avoidance, and hyperarousal. Some people may experience only some of these symptoms while others may be diagnosed with all of them. While some people may experience these PTSD symptoms for a short period of time, the symptoms may last for years or even decades and may continue to cause impairment in daily functions for the rest of the person's life in other people. In rare cases, it is possible that PTSD symptoms do not emerge for several months or years after experiencing a traumatic event.

There are some prior studies that have investigated the relationship between experiencing war trauma and the development of PTSD in Gaza ([Thabet et al., 2008](#); [Thabet&Vostanis, 2011](#)). The results of studies indicated that both children and parents were exposed to a high number of traumatic events, and both groups exhibited high rates of PTSD and anxiety. In children, trauma experience was significantly associated with PTSD and anxiety. [Thabet, et al. \(2004\)](#) reported that children experienced traumatic events, both directly and also through the media. Further, [IRIN \(2012\)](#) mentioned that “*There is a significant deterioration in the psychological well-being of Palestinian children who are living in the Gaza Strip*”.

The current research objectives are as follows:(a) investigate the PTSD prevalence and depression among a sample of children in the Gaza Strip using the Beck Depression Inventory (BDI) and the Child Post Traumatic Stress Reaction Index (CPTSD-RI) ([Pynoos, Frederick & Nader, 1987](#)); (b) investigate the psychological effects of Israeli-Palestinian conflict on the psychological wellbeing of children in the Gaza Strip; and (c)delineate the possible differences in predictors of categorical diagnosis of PTSD and depression.

## Methods

### Participants

The sample consisted of 286 children (age 9-14) from the Gaza Strip; all participants were interviewed in their schools. Our inclusion criteria were participants were both males and females and live in different areas within the Gaza Strip.

### Measurements

#### Demographic questions:

The demographic question includes five questions investigating whether participants have witnessed home destruction, killing of family, acquaintances, or others, Israeli soldiers invading their home, war violence against at least one of their family members. Furthermore, the demographic data included questions about gender, grade level, age, school name, and town/city. Table 1 shows the basic descriptive statistics for age and gender.

**Table 1:** *Sample Demographics*

Characteristic	Sample	<i>M</i>	<i>SD</i>	<i>Range</i>
<i>N</i>	286			
Age		11.4	1.8	9 - 14
Gender				
Girls		175	11.5	1.7
Boys		111	11.4	1.8

### Trauma Symptoms

The child posttraumatic stress reaction Index (CPTSD-RI) ([Pynoos, Frederick& Nader, 1987](#)) is a self-report measure used to assess posttraumatic stress reactions. This 20-item measure is designed for use with 6-16 years old children who have been exposed to a traumatic event. This questionnaire was appropriate for use in our study as our participants were 9-14 years old. The CPTSD-matches the *DSM-IV* ([American Psychiatric Association, 1994](#); [Steinberg, Brymer, Becker, &Pynoos, 2004](#)), and includes the following subscales: Intrusion, Avoidance, and Hyperarousal. The CPTSD-RI has been translated and validated for use with Arabic speaking participants ([Thabet et al., 2004](#)).

## Beck Depression Inventory

We have used an Arabic version of the Beck Depression Inventory (BDI) ([West, 1985](#)). BDI is self-report questionnaire created by Aaron T. Beck and includes 21- multiple-choice questions.

## Procedure

Conducting the study was done by an experimenter, who is not a co-author on this study. The experimenter is Palestinian, lives in Gaza, and fluent is in Arabic and English. The first author (EA) initially discussed the purpose of the study with the experimenter. The experimenter requested permission to collect data from children in schools in Gaza. The parents' committee members and school principals were legally the designated guardians for all participants. Consent forms were signed by the parents and school principals before conducting the study. All children, who were asked to conduct the study, agreed to participate. All participants have received a questionnaire and had sufficient time to read and seek clarification in order to ensure that they understand the instructions and statements well.

## RESULTS

All participants were exposed to a wide range of war-related events from both Israeli and Palestinian sides. The analysis revealed that the mean score of participants witnessing home destroyed (88 %), people killed (44%), home invasion (76%), and war violence against at least one of their family members (70 %).

## Trauma

According to CPTSD-RI, trauma symptoms ranged from 49 to 91 with a mean of 80.64 ( $SD = .69$ ). Scores over 46 in the CPTSD-RI indicate a diagnosis of PTSD. About 42.6 % of the total sample met the criteria of PTSD diagnosis. At-test was conducted to compare the PTSD scores among male and female participants. There was a significant difference in the scores for females ( $M = 83.32, SD = 7.85$ ) and males ( $M = 77.69, SD = 4.40$ );  $t(174) = 4.21, p < .00$ . The results showed that there was a gender effect, such that females have higher PTSD symptoms than males.

Specific items endorsed by female participants included experiencing excessive somatic responses, fear of the event recurring, feeling isolated, and reliving of traumatic events. However, male participants reported more sleep disturbance than girls.

## Depression

Table 2 shows the percentage of participants in different depression categories (using the BDI) across the entire sample.

**Table 2:** *Percentage of participants in different depression categories*

Depression category	BDI score	Percentage of participants
No depression	0-9	12.5%
Simple depression	10-15	17.6%
Moderate depression	16-23	46.1 %
Severe depression	24-36	23.8%
Chronic depression	37- above	0 %

Additionally, a t-test was conducted to compare the depression score among male and female participants. There was a significant difference in the scores for females ( $M = 40.71, SD = 4.32$ ) and males ( $M = 31.87, SD = 2.33$ );  $t(110) = 3.97, p < .00$ . The results showed that there was a gender effect, such that females have higher depressive symptoms than males. For severe depression, approximately 55% of the female participants have higher scores compared to 25 % the male participants. Female participants scored higher on three of the five sub-scales of depression than males' participants: interpersonal issues, ineffectiveness, and anhedonia.

## DISCUSSION

The purpose of this study was to use several questionnaires to investigate the psychological effects of the Israeli-Palestinian conflict on children in Gaza. According to [Sadock Sadock \(2007\)](#), the lifetime incidence of PTSD is estimated to be 9 -15%. However, additional 5-15% of the population may experience subclinical forms of PTSD. Regarding high-risk groups, such as those who experience war or aggression, the prevalence rates range from 5-75 %. The high rates of severe trauma symptoms in our study were partially due to the fact that children in Gaza are under war experiences as well as due to a lack of social and community services ([Schwartz & Shrirra, 2019](#)). In adults, children may suffer as their parents and relatives may not be able to care for them due to involvement in war activities.

Our findings also align with those of [Thabet and Vostanis \(1999\)](#), [Yehuda et al. \(2015\)](#), [Thabet et al. \(2004\)](#) who found that 40.6% of children aged 7 to 12 years who had experienced war reported moderate to severe PTSD symptoms. Samour reported that children in Gaza experienced insecurity and instability ([IRIN, 2012](#)), and argued that experiencing violence made them

angrier and more aggressive as well as suffer from insomnia, bedwetting, and fear of abandonment. Several studies have shown that a safe environment can reduce PTSD symptoms ([Gharib, Golembiewski, Moustafa, 2017](#)). Further, these results also align with our results that the prevalence of PTSD due to war can be very high, as found due to the Syrian war ([Gharib, Gharib, Abohamza, Moustafa, under review](#); [Kandemir, Karataş, Çeri, Solmaz, Kandemir, Solmaz, 2018](#)).

Despite the fact that depression among preschool-age is extremely rare ([Kaplan & Sadock, 2007](#)), our results show that 23.8 % of the children met the criteria of severe depression diagnosis (see Table 2 above; also, for discuss on relation between age and mental health, see [Shrira et al., 2018](#)). According to [Kaplan and Sadock \(2007\)](#), the rate of depression is 0.3 % in preschoolers. Like our findings, [Zakrison, Shahen, Mortaja, and Hamel \(2004\)](#) found that 24.3% of children in Palestine Territories suffer from emotional disturbance, due to losing homes, schools or mosques. According to the Canadians for Justice and Peace in the Middle East (CJPME) in 2012, about 94% of Palestinian children felt that they are not safe anywhere and even their parents are not able to secure them a safe environment. According to [IRIN \(2012\)](#), 73% of children in Gaza still suffer from clinical disorders such as trauma, involuntary urination, and high blood pressure. In addition, these children feel a deep loss of self-esteem due to the conflict and dream to leave Gaza and live in a safer place ([Abu Hein et al. 2007](#); [Elbedour et al. 2007](#); [Evelio, 1999](#); [Morgos et al., 2007](#); [Okasha, 2007](#); [IRIN, 2012](#); [Thabet, et al. 2008](#)).

There are several Palestinian families who live with 2-3 dollars a day in Gaza ([Amog, 2002](#)). Children in Gaza Strip survived the conflict since they are 3 or 4 years old. In addition, since the start of the siege in the first Intifada, several parents did not work to secure their family's needs ([Punamäki, Qouta, Peltonen, 2018](#)). Moreover, several parents work for a long period of time, and thus do not sufficiently care for their children ([Amog, 2002](#)). However, other studies found that the development of PTSD among Palestinians is more related to socioeconomic status, and not the severity of war trauma ([El-khodary&Samara, 2018](#); [El-khodary&Samara, 2019](#)).

### Gender Effect

According to [Sadock and Sadock \(2007\)](#), women have a higher lifetime prevalence to develop PTSD than men. Historically, the trauma classification for men and women was different. For men, it was usually combat experience, while, for women, it was sexual assault.

By investigating CPTSD-RI subscales, we found that there are certain items endorsed more by our female participants including excessive somatic responses, fear of the event recurring, feeling isolated, and reliving of trauma events than male participants. On the other hand, our male participants reported more sleep disturbance than female participants. Further, our female participants had higher levels of intrusion and avoidance than male participants, but, our male participants had higher levels of hyperarousal. Future research should investigate why boys and girls experience PTSD differently.

The prevalence of depression in school-age children is about the same in boys and girls ([Amog, 2012](#)). However, among adolescents, the rate of major depressive disorder of females is double that of males. However, the current study found that females had a higher percentage of depression in female than male participants. According to [Amog \(2012\)](#), females spend more time at home watching news of the war which could affect them negatively, while males often go out to enjoy their time with friends. Accordingly, the gender difference in experiencing depression could be due to cultural differences in social activities allowed to boys and girls.

### APPLICATION

This investigation provides several forms of application that can be utilized through charity, governmental, and academic purposes. The data produced in this investigation provides a general understanding of the current level of depression and PTSD disorders experienced by the children residing in a high-risk conflict zone. This information can be used to guide specialized services in order to meet the needs of the children's mental health issues, greater efforts are needed to target symptoms of PTSD and Depression. Furthermore, this investigation warrants the need for a further empirical study to understand on a larger scale the extent of the impact on Palestine children's mental health. Lastly, this investigation details the current impact of Palestine-Israel conflict on children's mental well-being and justifying the need for further involvement by the United Nations to seek peaceful terms between Palestine and Israel.

### CONCLUSIONS, LIMITATIONS, AND FUTURE STUDIES

One limitation of this study was the inability to generalize the results of this research to other age groups in Gaza because the participation in this study was limited to children aged 9-14 years old. Similarly, this study was implemented in Gaza, and thus, we cannot generalize our results to other cities or Palestine Territories. Further, we had a small sample size due to difficulty recruiting children to participate in the study.

Future research should also consider the roles of families, communities, support institutions such as mosques, NGOs to work with children in Gaza to build a safe environment. Moreover, a comprehensive mental health assessment might help identify

other psychiatric problems that children in Israel and Palestine could have as a result of prolonged and intense exposure to the war.

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