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## **Emotional difficulties and post-traumatic stress disorder symptoms in children refugees & the role of ICTs: A case study in northern Greece borders**

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**Abstract.** The aim of this study was to investigate the emotional difficulties and post-traumatic stress disorder symptoms within children refugees in northern Greece borders. The present research focuses on the traumatic and emotional difficulties experienced by children refugees, who have been separated from their families during their journey to Europe. This study adopted a research approach with a sample of five children from Syria, of both sexes, aged 11 to 16 years. Each participant was given an Android-based mobile phone with the online forms of the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) and the Achenbach Adolescent Self-Report Questionnaire (YSR 11-18). The completion results showed high levels of post-traumatic stress disorder and intensive emotional problems in the sample of refugees children. In particular, the findings showed a correlation between the level of emotional problems and post-traumatic stress disorder and the type of trauma related to the family traumatic experience.

**Keywords.** post-traumatic stress disorder; refugees children; emotional dysfunction; mobile technology

### **1. Introduction**

With the global increase in the number of refugees, unaccompanied children and young people have become part of forced migrants. In the last decades, many groups of children who have sought sanctuary from wars and conflicts in the Middle East have fled from their country to relocate to the West. Most of them have started the journey with their family, but in the process, due to extremely unfavourable situations, they were left alone [1],[2],[3].

Unaccompanied minors are the most vulnerable part of the refugee flows entering Greece [1],[4] and show a wide range of mental health problems, such as increased levels of depression, anxiety disorders, post-traumatic stress disorder (PTSD) and are at high risk of developing disorders in their mental health and well-being [5],[6],[7],[8],[9]. Based on the United Nations High Commissioner for Refugees (UNHCR) [10], children, who separate from their families, are at higher risk of developing symptoms of PTSD due to the co-existence of traumatic experiences and significant emotional dysfunction[3]. Other factors that may contribute to the burden on the mental health of refugees, in addition to the refugee-migration process they experienced, are mainly related to their experiences in their country of origin

[5],[11],[12]. The traumatic experience, that an unaccompanied minor can experience, is divided into three stages: 1) while the person is in their country of origin, 2) during the trip to their destination and 3) finally when the trip is completed and they have arrived in the country of relocation [13]. According to DSM-5 [14] and ICD 11 [15] there are four types of symptoms: i) intensive revival of the event (flashbacks), ii) deliberate avoidance of stimuli reminiscent of the traumatic event iii) negative thoughts or feelings iv) hyper-alertness and psychophysiological stimulation.

The first and most common symptoms that appear in most children are constantly wondering why this terrible event happened to them and why "nothing" happen to avoid it [16]. There is a tendency for "cognitive reassessment" and for understanding the causes which led to the event [17], [18], [19]. In addition, there is the symptom of flashbacks in which the person relives involuntary scenes of trauma [20]. The same group of symptoms includes the psychological burden experienced when the person is confronted with a condition/stimulus that reminds or symbolizes the traumatic event. The last symptom concerns the bodily reactions that occur in the person when he comes in contact with a stimulus related to the trauma [21]. In the second group of symptoms, there are symptoms related to the avoidance of stimuli and situations related to the traumatic event [22]. It is possible to avoid people, places, objects and other stimuli that can trigger thoughts and feelings related to the trauma. The next group of symptoms is related to the negative changes that occur in the cognitive functions and mood of the individual. In particular, changes in memory are observed as the individual finds it difficult to remember the basic features of the traumatic event [21].

There are two main types of traumatic experiences in childhood. Type I trauma refers to childhood trauma characterized by a unique, sudden, and unexpected exposure to a stressor, while type II trauma is a result of long-term and continuous exposure to repetitive stress factors, as is often the case with psychological or sexual abuse [22]. Minors and adult migrants are more exposed to type II trauma. They experience trauma before fleeing their homeland (e.g., war), during their flight to the host country and even after their arrival in the host country [23].

Exposure to serious traumatic events, such as homeland catastrophic bombings [24](Stathopoulou et al 2016), but also multiple exposures to traumatic events increases the risk of developing PTSD and emotional problems in the juvenile refugee population. The refugee minors and their families have experienced these traumatic events before their arrival in the host country. Traumatic events are not isolated and independent and refugees minors have been repeatedly exposed to conditions that threaten either their own lives or the lives of their loved ones. The main characteristics of these events are loss and sadness [25].

## **2. The Methodology of Our Research**

### **2.1 Purpose of our research**

The purpose of our study was to highlight the psychological problems and symptoms of PTSD in unaccompanied refugee minors from Syria. It was an attempt to investigate the levels of injury-related disorder and stress experienced by the participants of the study and the levels of emotional difficulties.

### **2.2 Main research question**

The main research question was about the levels of post-traumatic stress disorder and emotional problems and how they relate to the type of traumatic experience in unaccompanied refugees minors from Syria.

### **2.3 Data collection**

The harshness of the participants' experiences related to their difficulty in expressing their experiences even in Arabic, made the personal session painful and difficult. The statement from the participants of good knowledge of digital applications allowed us to use ICT to overcome all the interfering factors. The use of ICT in data collection and interventions programs has been widespread in the last decade [26],[27],[28],[29],[30]. Thus, each participant was given an Android-based mobile phone with the online form of the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) and the Achenbach Adolescent Self-Report Questionnaire (YSR 11-18). Symptom-defined as PTSD was assessed through the Clinician - Administered PTSD Scale. The scale is frequently used to measure PTSD among unaccompanied refugee minors. A standard double-blind translation and back-translation procedure were used for linguistic adaptation of the questionnaire to Arabic for all sections. Cognitive testing by verbal probing was performed in which a series of probe questions in regard to respondents' potential difficulties in comprehension, retrieval of information and judgment and responses to the questionnaires' content, is administrated by the researchers. CAPS-5 consists of five Criteria (Criterion A: Exposure to actual or treatment death, serious injury or sexual abuse, Criterion B: Intrusion symptoms, Criterion C: Avoidance symptoms, Criterion D: Cognitions and mood symptoms, Criterion E: Arousal and reactivity symptoms) and 20 questions that measure the extent and the grade of PTSD symptoms prevalence. Specifically, each question scored on a 5-point frequency scale (0 = Absent, 1 = Mild, 2 = Moderate, 3 = Severe, 4 = extreme), giving a total score ranking 17-36: absent of PTSD symptoms, 36-40: mild symptoms without psychological treatment necessity, 41-44: prevalence of PTSD symptoms with psychological treatment necessity, 45+: the severe presence of symptoms immediately psychological treatment necessity [31].

Psychological problem was assessed through the Arabic version of the Achenbach Children and Adolescent Self-Report Questionnaire (YSR). Specifically, the subscales Anxious/ Depressed (13 questions) and Withdrawn (8 questions). Each question scored on 3 - a point frequency scale (0=not true, 1=somewhat or some true, 2=very true or often true). Subscales' high-level scores indicate clinician findings [32],[33].

### **2.4 Participants**

The survey involved five unaccompanied refugee minors of both sexes (3 girls and 2 boys), aged 12-16 all of them from Syria and all of them were living at the same accommodation structure in Alexandroupoli within North Greece borders. That specific age group was chosen as the children due to their age would be more able to cooperate and understand the topic of the study. Before the beginning of the study, a discussion was held with the psychologist and the manager of the accommodation structure, regarding the participants' ability and willingness to involve.

### **2.5 Procedure**

Each participant was given an Android-based mobile phone with the online forms of the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) and the Achenbach Adolescent Self-Report Questionnaire (YSR 11-18). Refugees minors completed the online forms from September 2020 to June 2021 in the accommodation structure. The final evaluation of CAPS-5 and YSR was done by the researchers, after the completion of the online questionnaires by the participants.

### 3.Results

This study aimed to assess the prevalence of PTSD in refugee minors and to evaluate the association of different risk factors with emerging psychological problems.

Participant no 1, is a 13 years old boy who reported as traumatic experience his brother's savage beating by the soldiers. It was extremely difficult to describe the traumatic event, he felt embarrassed and guilty and therefore did not give many details about the incident. The boy mentioned that it was the main reason for leaving Syria. The boy presented mild PTSD symptoms and his YSR score profile indicated the extent of emotional symptoms specifically in Anxious/Depressed subscale.

#### **Clinician - Administered PTSD Scale (CAPS-5) and Achenbach Children and Adolescent Self-Report Questionnaire (YSR) results in table 1**

**Table 1**  
**Participant 1**

<b>Subscales</b>	
<b>CAPS- CA TOTAL</b>	<b>40</b>
Reexperiencing of traumatic experience (Criterion B and D)	24
intrusion symptoms (Criterion C)	5
Avoidance symptoms (Criterion E)	11
<b>YSR- Subscales</b>	
Anxious/ Depressed	18 (clinician range)
Withdrawn	10 (borderline range)

Participant no 2, is a 12 years old girl who experienced her mother and sister drowning in a river during the journey to Europe. The girl revealed intensive intrusion symptoms through nightmares of drowning and arousal and reactivity symptoms about her lonely future. She seemed without interest and reported her constant sadness feelings. The girl presented with severe PTSD symptoms and her YSR score profile indicated clinician range emotional problems.

#### **Clinician - Administered PTSD Scale (CAPS-5) and Achenbach Children and Adolescent Self-Report Questionnaire (YSR) results in table 2**

**Table 2**  
**Participant 2**

<b>Subscales</b>	
<b>CAPS- CA – TOTAL</b>	<b>53</b>
Reexperiencing of traumatic experience (Criterion B and D)	22
intrusion symptoms (Criterion C)	15

Avoidance symptoms (Criterion E)	16
<b>YSR</b>	
Anxious/ Depressed	18 (clinician range)
Withdrawn	14(clinician range)

Participant no 3, is a 16 years old boy, who reported as a traumatic experience, a knife injury happened while he was staying at the camp, without going into further details. The boy presented with mild PTSD symptoms and his YSR score profile did not reveal any emotional problems.

**Clinician - Administered PTSD Scale (CAPS-5) and Achenbach Children and Adolescent Self-Report Questionnaire (YSR) results in table 3**

**Table 3**  
**Participant 3**

Subscales	
<b>CAPS- CA TOTAL</b>	<b>39</b>
Reexperiencing of traumatic experience (Criterion B and D)	11
intrusion symptoms (Criterion C)	13
Avoidance symptoms (Criterion E)	15
<b>YSR</b>	
Anxious/ Depressed	12(borderline range)
Withdrawn	6(normal range)

Participant no 4, is a 16 years old girl, who revealed a traumatic experience the constant fear about her younger sister`s safety during the journey from Syria. She reported they were living together in the same accommodation structure. The girl revealed high intrusion and avoidance symptoms. She mentioned that she also tries to participate in all structure`s activities and she likes schools. The girl presents with severe PTSD symptoms and her YSR score profile indicates clinician range emotional problem.

**Clinician - Administered PTSD Scale (CAPS-5) and Achenbach Children and Adolescent Self-Report Questionnaire (YSR) results in table 4**

**Table 4**  
**Participant 4**

Subscales	
<b>CAPS- CA TOTAL</b>	<b>50</b>
Reexperiencing of traumatic experience (Criterion B and D)	23
intrusion symptoms (Criterion C)	18

Avoidance symptoms (Criterion E)	9
<b>YSR</b>	
Anxious/ Depressed	15(clinician range)
Withdrawn	16(clinician range)

Participant no 5, is a 14 years old girl who lived in the accommodation structure and wasn't willing to share any information about her family members. She only mentioned that she has been abused by her father, when the war broke out in Syria. She mentioned high symptoms reexperiencing of traumatic experience and she revealed clinician sadness and withdrawal symptoms. The girl presented severe PTSD symptoms and her YSR score profile indicates clinician range emotional problems.

**Clinician - Administered PTSD Scale (CAPS-5) and Achenbach Children and Adolescent Self-Report Questionnaire (YSR) results in table 5**

**Table 5**  
**Participant 5**

Subscales	
<b>CAPS- CA-TOTAL</b>	<b>50</b>
Reexperiencing of traumatic experience (Criterion B and D)	30
intrusion symptoms (Criterion C)	11
Avoidance symptoms (Criterion E)	9
<b>YSR</b>	
Anxious/ Depressed	20(clinician range)
Withdrawn	15(clinician range)

**4. Discussion & the role of ICTs**

This study was an attempt to evaluate PTSD and psychological problems in unaccompanied refugee minors. The participants' sample was insufficient and the results can't be generalized. However, all participants have high levels of PTSD and most of them have intensive psychological problems.

The results of the present study are consistent with the results of other research and conclude that the intensity and type of traumatic events can cause dysfunctions in the mental health and emotional development of children and adolescents [34],[6],[7],[8], [9].

According to the research question on what extent refugees experience post-traumatic stress disorder, three participants showed severe symptoms of trauma and stress and needed psychiatric care. They also reported feeling emotionally numb, as if they could not feel joy or sadness and seemed to feel unreasonably intense nervousness and anxiety. Two participants showed mild PTSD but high scores in this category and they also need psychiatric

intervention. Furthermore, the emotional profile is consistently related to post-traumatic stress disorder level. Severe symptoms PTSD reveal serious emotional dysfunction.

The most notable finding of this study, despite the small number of participants, is the correlation between the type of traumatic experience and the level of PTSD. The threat to or from the family causes more serious symptoms. Many studies report that the loss-exposure at risk of a family member, prevails other injuries for post-traumatic stress disorder, and parental loss is the biggest traumatic stimulus [35],[36],[37], [38],[39],[40],[41]. The family symbolizes a protective and safe environment. The threat to the family is interpreted as the collapse of the safe world with many psychological consequences. This may constitute a threat to the long-term adjustment of children, as the children may not be able to develop coping strategies of their own.

The result of the last participant who reported abuse by her father agrees with a significant number of studies that have found an association between post-traumatic stress disorder and family-related violence [42]. The studies indicate that the risk of family-related violence is significantly higher when a family member suffers from a post-traumatic stress disorder and other consequences of war trauma. In the case of refugees, a growing body of research has likewise documented that trauma does not only affect the individual but has consequences for the whole family [43].

Finally, many researchers have already made extensive research regarding the contribution of ICTs, e-Learning, VR, STEM, Games and AI in various domains [50-52, 58-68, 72-85,88-97] as well as mobile applications as powerful tools in education [46-49, 86, 87] and especially for stress management [44]. Computer-based applications, as well as mobile applications, have gained popularity within the special needs and treatment community. Both are configured as powerful intermediate tools that complement human intervention [45], and could be used in parallel with mindfulness, emotional and metacognitive techniques & strategies [53-57, 69-71, 98-113]

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