Journal of Immigrant and Minority Health (2018) 20:529–535
https://doi.org/10.1007/s10903-017-0680-7

ORIGINAL PAPER

# Psychopathology and Associated Risk Factors Among Forcibly Displaced Syrian Children and Adolescents

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Published online: 4 December 2017


## Abstract

More than half of the 2.7 million registered Syrian refugees in Turkey are under 18 years of age. This study investigates prevalence of psychopathology and associated risk factors in refugee children in Turkey. Of a total of 218 children aged 9–15 years, 56.2% lost someone important to them, 55.1% saw dead or wounded people, 70.4% witnessed explosions or gun battles, 42.5% witnessed people being tortured and 25.6% personally experienced cruelty/torture during war. Prevalence of PTSD was 18.3% and that of anxiety-related disorders were as high as 69.0%. Death of an important person ($p = .032$) and male gender ($p = .040$) were associated with PTSD; whilst exposure to cruelty or torture ($p = .014$) and increasing duration of refuge ($p = .042$) were significantly associated with development of anxiety disorders. Findings of the present study reveals existence of the expected but unspoken mental health needs among the Syrian children in Turkey.

**Keywords** Refugee children · Mental health · Trauma · Anxiety · PTSD · Turkey

## Introduction

According to the Office of the United Nations High Commissioner for Refugees (UNCHR), the estimated number of forcibly displaced people have exceeded 65 million, a third of whom are refugees, and around 34,000 people are forced to flee their homes every day because of conflict and persecution [1]. According to a UNICEF (United Nations International Children's Emergency Fund) report, over 250,000 were killed and 12 million people have been displaced, since the start of the conflict in Syria around 6 years ago [2]. Millions of Syrian children witnessed unrelenting

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violence and 8.4 million of them are in need of humanitarian aid, inside and outside the country, according to the same report. Across the country, 1.75 million children have been forced to drop out of school, 2.5 million are living as refugees or on the run in search of safety and this brutal conflict has subsequently made Syria the world's biggest producer of both internally displaced people and refugees [2]. Globally, over half of the refugees are under the age of 18 and since the beginning of the civil war in Syria in March 2011 Turkey has become the top hosting country with a total of 2.5 million people, 54% of whom are children and adolescents [1]. Although, Turkish citizenship has recently been granted to Syrians who have been resident in Turkey for 5 years [3], the legal status of Syrians resettled in Turkey remains unclear as the 'refugee' status has been historically assigned to Europeans only, a policy rooted in Ottoman history and Cold War politics [4]. Due to this fact, we preferred to use the term 'forcibly displaced person', which has often been referred to as 'refugees' in research articles from low-income and middle-income countries [5].

Mental health of the forcibly displaced Syrian people following the mass migration to neighboring countries remains to be a sensitive issue and the tragedy has mounted to a humanitarian crisis. Exposure to violence in their home country, followed by migration and resettlement into a new context expose forcibly displaced children to numerous risks and exert cumulative effect on their emotional, social and physical development [5]. Despite the fact that Turkey has been a hub for the forcibly displaced people over the last 6 years, there have not been many studies reporting their mental health status and majority of the limited reports are about adults. In a cross-sectional survey of Syrian adult asylum seekers, the prevalence of post-traumatic stress disorder (PTSD) based on a clinical interview was reported as 33.5%, and the probability of having PTSD increased to 71% in those who had female gender, participants with personal and family history of psychiatric disorders and those who experienced two or more traumatic events [6]. In another study conducted in a sample of 57 adults, PTSD and depression were the most prevalent problems (55.2% for both) and PTSD was noted to be associated with personal experience of torture and death of a significant person due to violence [7]. Significantly higher prevalence of depressive and somatic symptoms as compared to the local control group were reported among Muslim Albanian children and adolescents who had moved to Turkey following the war in Kosovo [8].

The prevalence of mental health problems among refugees are estimated to be higher than in local populations as reported in majority of the reports, however surveys demonstrate a wide variation ranging from 0 to 99% for PTSD and 3–85.5% for depression [9]. For children, prevalence of psychopathology in terms of PTSD, depression, behavioral problems, psychological distress have been shown to be higher than local population among internally displaced children [10, 11]; and those externally displaced into low-income [12] and high income countries [13].

Psychological development of refugee children is adversely affected by a number of risk factors, which can be conceptualized as personal, social, and environmental issues [14]. The type and intensity of exposure to adverse events in their country of origin can also affect development of psychopathology [15]. Direct exposure to violence pose the most significant threat and has the strongest evidence [5]. In addition to the total number of traumatic events [11] and duration of exposure to them [16], characteristics of such traumatic events such as witnessing torture or imprisonment, or killing of family members [17, 18] have also been linked with development of psychological problems.

However, mental health status of the forcibly displaced Syrian children and adolescents resettled in Turkey have been neglected in research and to the best of our knowledge, this is the first study of its kind. In the present study we aimed to establish the extent of cumulative traumatic experiences related to the war and subsequent displacement; to investigate the prevalence of psychopathology in terms of post-traumatic stress, emotional and behavioral problems and assess possible risk factors. We predicted that mental health problems will be highly prevalent and a variety of risk factors such as exposure to violence, the quantity and type of traumatic events and factors related to psychosocial adjustment would be significantly higher in those with psychopathology. We also anticipated that those with a greater risk of developing clinically meaningful psychopathology could be identified with mental health screening tools so that psychological aid programs can be planned and implemented for these particularly vulnerable minors.

## Methods

### Participants

A total of 218 Syrian refugee students (M/F: 106/112); age: $11.99 \pm 1.82$ (range 9–15) attending two Temporary Education Centers (TECs) in the Fatih borough of Istanbul were included in the study. These education centers were randomly selected due to their proximity and logistic reasons. Majority of the Syrian students in Turkey attend TECs, where the education is provided in Arabic by teachers who have also come from Syria following the conflict.

### Procedure

Participants were recruited from the schools that are in the close proximity of Bezmialem University and the members

of the present research study are volunteers working at the psychosocial support team (DWW–PSST) of the Doctors Worldwide, which is an international non-governmental organization providing medical and humanitarian assistance to the disadvantaged and traumatized people all over the world [19]. Verbal assent was sought from the children and their parents provided written informed consent. Participants who had scored high in the screening questionnaires were offered to take part in a peer-group psychological support program. Participating children were not interviewed per se, they were asked to fill out validated screening questionnaires written in Arabic.

## Measures

### Socio-demographic Data Tool

The tool, developed by the study team, included items investigating demographic characteristics, and the traumatic or stressful events experienced during the war or flee period, which are listed in tables presented.

### UCLA PTSD Reaction Index/DSM Version IV—CPTS-RI [20]

The CPTS-RI is a 20-item self-report scale developed to evaluate posttraumatic stress reactions of children from 6 to 16 years of age. It covers the symptoms of PTSD related to intrusion (nine items), avoidance (seven items), and arousal (seven items). Items are rated on a 0 to 4 scale, indicating how often each symptom is experienced (ranging from 0 = *never* to 4 = *most of the time*). The cutoff value of 25 had been previously used to indicate a probable moderate or severe PTSD [21] and we adopted the clinical cut off used in a previous study, in which CPTS-RI was reported as a valid and reliable measure in predicting PTSD among Palestinian children with a reliability of $\alpha = 0.74$ for children [22].

### Spence Children's Anxiety Scale—SCAS [23]

The SCAS is a child self-report measure developed to evaluate symptoms associated with anxiety-related psychopathologies and consists of 38 items rated on a scale ranging from 0 (never) to 3 (always). The Arabic version of the SCAS was demonstrated to be a valid instrument in assessing anxiety [24]. Cut off scores for psychiatric diagnoses used in the present study were based on values reported in a previous study [25]. For the total anxiety score; Cronbach's alpha was 0.92 and the cut off values were 37 for boys and 44 for girls for preadolescents, and 25 for boys and 36 for girls in adolescent age group.

### Strengths and Difficulties Questionnaires—SDQ [26]

The SDQ is a brief 25-item questionnaire, where items are rated on a 3-point scale. Separate predictions for anxiety-depressive disorders, conduct-oppositional disorders and hyperactivity-inattention disorders can be made using computerized algorithms based on the scores of symptoms and impact [27]. The cutoff score for the clinical level of psychological distress (the SDQ total score) in general population is 20, however there are no established cutoff scores for the SDQ-S with refugee children. The following previously used cut off scores for subcategories were executed: emotional problems $\geq 7$, conduct problems $\geq 5$, hyperactivity $\geq 7$, peer problems $\geq 6$, prosocial behavior $\leq 4$ [28]. The test–retest reliability, internal consistency, and criterion validity of the SDQ have been established in general child population [25] and among Palestinian children [29].

## Data Analysis

Data analysis was conducted with SPSS, version 19.0. Prevalence of PTSD, anxiety disorders and psychological distress were based on the cutoff values reported above. Chi square test was used for categorical variables and student's t test was computed for continuous variables to analyze group comparisons. Risk factors associated with PTSD, anxiety or psychological distress at a level of significance of $p < .1$ were included in multiple binary logistic regression with enter method to identify independent risk factors for these psychopathologies. The statistical significance threshold was held at $p < .05$.

## Ethical Considerations

The study was approved by Bezmialem University Ethics Committee.

## Results

Of a total of 218 children, 123 (56.2%) reported that someone important to them had died since the conflict started. One hundred nineteen participants (55.1%) saw dead or wounded people, 91 participants (42.5%) witnessed people being tortured, 150 participants (70.4%) witnessed explosions or gun battles and 55 of them (25.6%) personally experienced cruelty/torture. Descriptive statistics demonstrating variables are presented in Table 1.

Prevalence of a probable PTSD diagnosis, emotional and behavioral psychopathology and psychological distress are presented in Table 2. There were 84 respondents (44.2%) who scored higher than the cutoff value of 25 in the CPTS-RI, which indicates moderate to severe PTSD. Scores of 129

**Table 1** Descriptive statistics for participants (n = 218)

| | |
|---|---|
| Age (years) (mean ± SD) | 11.99 ± 1.82 |
| Male/female, n (%) | 106 (48.6)/112 (51.4) |
| Currently lives with family, n (%) | 208 (96.7) |
| Relatives live in Istanbul, n (%) | 154 (72.3) |
| Have friends, n (%) | 184 (87.6) |
| Speaks Turkish, n (%) | 148 (59.5) |
| Duration of time in Istanbul, (months) | 6.86 ± 10.70 (0–48) |
| Someone important left in Syria, n (%) | 174 (82.1) |
| Someone important died, n (%) | 123 (56.2) |
| Accompanying people wounded, n (%) | 68 (31.9) |
| Saw wounded or dead people, n (%) | 119 (55.1) |
| Witnessed cruelty or torture, n (%) | 91 (42.5) |
| Experienced cruelty or torture, n (%) | 55 (25.6) |
| Saw explosions or gun battle, n (%) | 150 (70.4) |
| Left without food or shelter, n (%) | 29 (13.8) |

**Table 2** Prevalence of psychopathology

| | |
|---|---|
| PTSD (*CPTS-RI total score*), n (%) | 35/191 (18.3) |
| Anxiety-related disorders (*SCAS total*), n (%) | 129/187 (69.0) |
| SDQ *total*, n (%) | 49/212 (23.1) |
| SDQ emotional problems, n (%) | 30/214 (14.0) |
| SDQ conduct problems, n (%) | 37/213 (17.4) |
| SDQ hyperactivity problems, n (%) | 38/213 (17.8) |
| SDQ peer problems, n (%) | 57/214 (26.6) |
| SDQ prosocial domain, n (%) | 7/214 (3.3) |

children (69.0%) were higher than the cutoff value for the SCAS, which indicates probable anxiety-related disorders. Scores of 49 participants (23.1%) were greater than the cut-off value of 20 in the SDQ total score, which reflects the clinical level of psychological distress (Table 2).

Chi square tests and student's t tests were computed to examine relationship between demographic variables and the psychological outcome variables, the scores on the SCAS, SDQ and CPTS-RI. Developing a probable anxiety-related disorder was significantly associated with higher age ($Z = 3.85$; $p < .001$), death of an important person ($\chi^2 = 22.91$; $p < .001$), seeing wounded/dead people ($\chi^2 = 15.04$; $p < .001$), witnessing violence/killing ($\chi^2 = 10.18$; $p = .001$), witnessing explosions/gun fights ($\chi^2 = 9.80$; $p = .002$) and personally experiencing cruelty/torture ($\chi^2 = 15.79$; $p < .001$). There was no significant age difference between participants with and without PTSD or psychological distress.

Similarly, the following traumatic experiences were associated with development of PTSD; death of an important person ($\chi^2 = 6.80$; $p = .033$), seeing wounded/dead people ($\chi^2 = 4.52$; $p = .034$), witnessing violence/killing ($\chi^2 = 6.12$; $p = .013$) and witnessing explosions/gun fights ($\chi^2 = 6.16$; $p = .013$). Death of an important person, seeing wounded/dead people and witnessing violence/killing were the only factors associated with all three categories of psychopathology i.e. PTSD, anxiety and psychological distress (Table 3).

Multiple binary logistic regression analysis was conducted to investigate the significance of possible independent variables. In the first step, a binary categorization of the PTSD symptom severity based on the cut off value in CPTS-RI was used as the dependent variable, and multiple regression was done to predict independent variables

**Table 3** Comparison of variables between subjects with above and below the cut off score in each group

| | PTSD (CPTS-RI total) | Anxiety (SCAS total) | Psychological distress (SDQ total) |
|---|---|---|---|
| Age | $Z = 1.09$; $p = .28$ | $Z = 3.85$; **$p < .001$** | $Z = 2.07$; **$p = .039$** |
| Gender | $\chi^2 = .45$; $p = .50$ | $\chi^2 = .72$; $p = .40$ | $\chi^2 = 3.00$; $p = .083$ |
| Someone important died | $\chi^2 = 6.80$; **$p = .033$** | $\chi^2 = 22.91$; **$p < .001$** | $\chi^2 = 7.85$; **$p = .020$** |
| Saw wounded or dead people | $\chi^2 = 4.52$; **$p = .034$** | $\chi^2 = 15.04$; **$p < .001$** | $\chi^2 = 8.06$; **$p = .005$** |
| Witnessed violence or killing | $\chi^2 = 6.12$; **$p = .013$** | $\chi^2 = 10.18$; **$p = .001$** | $\chi^2 = 7.92$; **$p = .005$** |
| Accompanying people wounded | $\chi^2 = 1.56$; $p = .21$ | $\chi^2 = 8.36$; **$p = .004$** | $\chi^2 = 1.15$; $p = .28$ |
| Saw explosions or gun fights | $\chi^2 = 6.16$; **$p = .013$** | $\chi^2 = 9.80$; **$p = .002$** | $\chi^2 = 1.29$; $p = .26$ |
| Experienced cruelty or torture | $\chi^2 = 1.46$; $p = .23$ | $\chi^2 = 15.79$; **$p < .001$** | $\chi^2 = 2.03$; $p = .16$ |
| Left without food or shelter | $p = .053$* | $\chi^2 = .82$; $p = .36$ | $\chi^2 = 1.22$; $p = .27$ |
| Duration of refuge, (months) n (%) | $Z = 1.66$; $p = .097$ | $Z = 2.59$; **$p = .010$** | $Z = .68$; $p = .50$ |
| Satisfied with life in Istanbul, n (%) | $\chi^2 = 1.64$; $p = .44$ | $\chi^2 = 4.55$; $p = .10$ | $\chi^2 = 2.07$; $p = .36$ |
| Speaking Turkish, n (%) | $\chi^2 = 1.56$; $p = .46$ | $\chi^2 = 12.01$; **$p = .002$** | $\chi^2 = 2.22$; $p = .33$ |

Bold values are statistically significant ($p < .05$)

*Fischer's exact test

associated with PTSD. Participants who had lost an important person (p = .032) or had a male gender (p = .040) were more susceptible to developing PTSD. In the second model, binary categorization of the total SCAS anxiety scores was regressed on the predictor variables. Losing someone important (p = .027), exposure to cruelty or torture (p = .014) and increasing duration of refuge (p = .042) were the parameters that were significantly associated with development of anxiety disorders. In the third logistic regression analysis, the binary classification of the psychological distress was the dependent variable. Being a male was identified as the only factor independently associated with psychological distress (p = .024).

When the factors that may be related to "acculturative stress" such as; duration of refuge (the time they have been in the new cultural environment), satisfaction with their current life and speaking the local language (Turkish) were examined in multiple binary logistic regression analysis, only duration of refuge was found to be associated with high anxiety scores (Table 4).

## Discussion

To the best of our knowledge this the first study of its kind to investigate the prevalence of psychopathology in terms of PTSD, emotional and behavioral problems and psychological distress among forcibly displaced Syrian students residing in Turkey. These children are at risk for developing a list of psychological problems and their psychological needs are required to be prioritized alongside the needs for safety, housing and education. PTSD is commonly comorbid with other psychiatric disorders, especially including emotional problems and anxiety both in general pediatric population [30] as well as in children exposed to war-related trauma [31]. Findings in the present study are, overall, consistent with the literature.

Adjustment to a new culture can be also be stressful for forcibly displaced people. Psychological distress leading to low self-esteem, depression and anxiety because of adjustment to a new culture, which is substantially different from the original culture, is called acculturative stress [32]. However, research indicates that being part of a social environment with the same religion, being in the company of their family and having friends can help overcome acculturative stress [33]. Disappointment with what the refugees have found in their new host country as opposed to what they had expected has also been documented in the literature. Poor conditions of housing and neighborhood they were placed in, financial problems, discrimination, experiences related to culture shock and religious and ethnic persecution have been reported by the Iraqi adult refugees and asylum seekers in the United States [34]. In the present study, vast majority of the participants (97%) reported that they were living with their family, three quarters of them (72%) had relatives living in Istanbul and most of them (88%) had friends. Close similarity between the religious, socio-demographical and cultural characteristics of Turkish community in the neighborhoods they live in and that of Syria can be interpreted to explain the absence of association between dissatisfaction with life in İstanbul (21% not satisfied; 36% unsure) and psychological distress. In terms of speaking Turkish, 40.5% reported that they don't speak or understand Turkish at all. However, contrary to our expectation, language barrier

**Table 4** Multiple logistic regression of risk factors

| | PTSD (CPTS-RI total score) | | | Anxiety disorders (SCAS total score) | | | Psychological distress (SDQ total score) | | |
|---|---|---|---|---|---|---|---|---|---|
| | OR | 95% CI | *p* | OR | 95% CI | *p* | OR | 95% CI | *p* |
| Age | .92 | .75–1.12 | .38 | 1.01 | .74–1.36 | .97 | 1.20 | .97–1.47 | .088 |
| Gender | .71 | .51–.98 | **.040** | .74 | .46–1.18 | .21 | .66 | .46–.94 | .024 |
| Someone important died | 1.50 | 1.04–2.18 | **.032** | 1.70 | 1.06–2.73 | **.027** | 1.31 | .86–1.98 | .21 |
| Saw wounded or dead people | 1.34 | .92–1.96 | .12 | 1.41 | .84–2.38 | .20 | 1.29 | .83–2.00 | .26 |
| Witnessed violence or killing | .99 | .67–1.46 | .96 | 1.40 | .81–2.42 | .23 | 1.40 | .92–2.14 | .11 |
| Accompanying people wounded | 1.07 | .73–1.56 | .73 | 1.52 | .86–2.67 | .15 | – | – | NS |
| Saw explosions or gun fights | 1.34 | .88–2.03 | .17 | 1.23 | .75–2.02 | .40 | – | – | NS |
| Experienced cruelty or torture | 1.34 | .89–1.99 | .16 | 3.90 | 1.32–11.52 | **.014** | .96 | .63–1.45 | .83 |
| Left without food or shelter | – | – | NS | – | – | NS | – | – | NS |
| Duration of refuge (months), n (%) | – | – | – | 1.06 | 1.00–1.11 | **.04** | – | – | NS |
| Satisfied with living conditions, n (%) | .94 | .53–1.68 | .84 | – | – | NS | – | – | NS |
| Speaking Turkish, n (%) | 1.17 | .81–1.67 | . 41 | 1.02 | .61–1.68 | .95 | – | – | NS |

Only the variables with a p < .1 was included in multiple logistic regression analysis, except for gender and age

Bold values are statistically significant ($p < .05$)

did not have any association with psychological distress or other psychopathologies. We tentatively explain this finding with their cohabitation with a relatively large Arabic speaking community in their current neighborhood and attending schools where teachers are from the same country and therefore speaking the same language and sharing a similar culture. Possible association between the time period since migration and mental health has previously been investigated. In a study of Namibian adolescent refugees, depressive symptoms were reported to have increased with time in absence of a strong social support system especially early in the exile period [35].

Similar to the risk factors associated with trauma related psychopathology as documented in existing literature, a list of traumatic experiences have been found to be associated with development of psychopathology in the present sample. As expected, death of an important person, seeing wounded/dead people, witnessing violence/killing, witnessing explosions/gun fights and injuries to the people accompanying them during the war/fleeing period were the risk factors demonstrated in the present study. However, the most striking finding appears to be absence of association between personal experience of cruelty or torture and a probable diagnosis of PTSD. On the other hand, death of an important person (i.e. death of an immediate family member) was found to be independently associated with development of probable diagnoses of PTSD and anxiety. Repercussions and meanings of major object loss in otherwise traumatized children can be attributed to their developmental immaturity and insufficiently developed coping capacities. It can be speculated that the impact of losing a significant person in the conflict (likely to be death of a figure of attachment) may have a stronger association with development of psychopathology as compared to personal experiences of traumatic events for child survivors of atrocities. However this finding would certainly need further exploration.

Limitations of the study include a relatively small sample size and conducting the survey in two schools in the same borough due to feasibility factors. Participants are aged between 9 and 15 years, hence the pediatric population outside these age limits are left out, and findings are based on self-report measures where the parental view has not been sought. Therefore generalizability of the results is constrained and they should to be interpreted with caution. Although we cited the literature highlighting cumulative effect of stressful traumatic effects on development of psychopathology, this relationship has not been examined in the present study.

Findings of the present study reveals existence of expected but unspoken mental health needs of the Syrian children in Turkey and could have implications for developing future interventions targeting preventative and therapeutic measures.

**Acknowledgements** We are grateful to the Doctors Worldwide management for the resources they provided.

## Compliance with Ethical Standards

**Conflict of interest** The authors declare that they have no competing interests.

## Abbreviations

| | |
|---|---|
| UNCHR | United Nations High Commissioner for Refugees |
| SCAS | Spence Children's Anxiety Scale |
| SDQ | Strengths and Difficulties Questionnaire |
| UCLA | University College Los Angeles |
| PTSD | Post Traumatic Stress Disorder |
| DWW-PSST | The Doctors Worldwide, psychosocial support team |
| DSM | Diagnostic and Statistical Manual of Mental Disorders |

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