



Associations between potential traumatic experience and mental health in adolescent refugee populations: A scoping review

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Abstract

This scoping review examines known associations between potential traumatic experiences and mental health outcomes among adolescent refugees. Little is known about the type and severity of traumatic experiences among adolescent refugees and whether the type and severity of these experiences are associated with poor mental health. Five electronic databases were searched to identify relevant peer-reviewed articles. Inclusion criteria were: 1) trauma was the predictor variable of the article, 2) at least one of two selected mental health conditions (depression and anxiety) was an outcome variable of the study, 3) the quantitative relationship between trauma and mental health was discussed; 4) participants of the study were adolescent refugees or asylum seekers; 5) the article was published between January 1, 2011 and August 30, 2020; 6) and written in English. Adolescents aged 12–18 of all genders were included in this review. Of 3319 potentially relevant articles identified, 11 articles were included. All the included studies employed a cross-sectional study design. Adolescent refugees experienced a variety of traumatic events, such as physical and sexual violence, war-related events, natural disasters, migration-related events, and verbal and emotional abuse. The review found a positive association between trauma exposure and poor mental health outcomes of depression and anxiety in all included studies across diverse adolescent refugee populations. The findings suggest that effective intervention strategies should be implemented to meet the needs of children and adolescent refugees as a vulnerable group in the host community as they adjust to the language, cultural, and school barriers and to support overall growth and development.

Keywords Trauma · Mental health · Refugee · Adolescent · Depression · Anxiety

Introduction

Worldwide, nearly one person is forcibly displaced every two seconds due to conflict or persecution (United Nations High Commissioner for Refugees [UNHCR], 2019). This UNHCR figure estimated that an unprecedented 70.8 million people worldwide had been forcibly displaced from their homes. Among these forcibly displaced people, nearly 25.9 million people are refugees, and over half of them are younger than

18 years (UNHCR, 2019). Refugees are people living outside of their country who cannot return due to a well-founded fear of persecution because of their race, religion, nationality, political opinion, or membership to a particular social group (UNHCR, 1951). Similarly, asylum-seekers also leave their country and seek protection in another country because of fear of persecution or human rights violations, but who have not yet been legally recognised as a refugee and are waiting to receive a decision on their asylum claim (Nicholson & Kumin, 2017). Refugees have often been exposed to different forms of trauma, making them prone to mental health problems such as Posttraumatic stress disorder (PTSD), depression and anxiety (Fazel & Stein, 2002; Knipscheer et al., 2015; Vossoughi et al., 2018).

The refugee population is affected by conflict and are often exposed to different traumatic experiences (Ai et al., 2002; Bhui et al., 2003; Fox & Tang, 2000). Trauma is commonly defined as a wound or a serious physical injury (Friedberg & Malefakis, 2018), but it can also be described

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as a disturbing event or experience that creates a sense of fear, helplessness, or horror that overwhelms a person's resources for coping and loss of normal mediating capacity (Friedberg & Malefakis, 2018; Hopper et al., 2010). In this review, trauma was conceptualised as exposure to potentially traumatic experiences by adolescent refugees pre-flight, during flight and upon arrival to the new country. Refugee trauma, as one trauma type, can be described as trauma related to war or persecution that may affect children and adolescents' mental and physical health long after the event has occurred. This type of traumatic event may occur while the refugees are in their country of origin, during displacement from their country of origin, or in the resettlement process (The National Child and Traumatic Stress Network [NCTSN], 2022). Foster (2001) identifies four stages of migration where traumatic experiences may lead to serious psychological distress: i) premigration traumatic events experienced before migration from the home country; ii) traumatic experiences during transit to a new country; iii) continuing traumatic experiences during the process of asylum-seeking and resettlement; and iv) poor living conditions in the host country due to unemployment, inadequate support and minority persecution. These experiences are often repeated, lengthy, and interpersonal in nature and have negatively impacted mental health conditions (Charlson et al., 2019; De Jong et al., 2003; Nickerson et al., 2017; Steel et al., 2009; Vossoughi et al., 2018). Additionally, Nickerson et al. (2017) reported that the extent of exposure to traumatic events may vary across several factors including area/country of origin, characteristics of conflict, and demographic factors such as gender, age, ethnicity and sexual orientation of refugees and asylum-seekers.

Adolescence is a transitional period between childhood and adulthood. It is a complex and often difficult period in development for adolescents and their families. Adolescence is a period of rapid physical, psychological and cognitive changes and accelerating succession of urgent societal demands. Adolescents face formidable challenges in the essential task of deciding who they are, what they are going to be and how they are going to achieve these developmental tasks. Thus, adolescence is an important period of human life. The impact of traumatic exposure on poor mental health outcomes may be more robust for young adolescent refugees than their adult counterparts. Child and adolescent refugees are a vulnerable group subjected to various trauma and violence, affecting their development and growth (Wood et al., 2020). Children and adolescents may be directly affected by traumatic events whether they have witnessed or personally experienced the events (Barenbaum et al., 2004; Fremont, 2004; Lustig et al., 2004). Additionally, after resettlement in a host country, new challenges related to social cohesion such as school integration, language and cultural adjustment are frequently encountered. Although the majority of

the refugee population consists of children and adolescents under the age of 18, previous studies on the traumatic experiences and mental health conditions of refugees focus mainly on the prevalence among adult populations (Charlson et al., 2019; Feyera et al., 2015; Fox & Tang, 2000; Hodes, 2000).

According to Schönfeld et al. (2017), complete mental health includes psychopathological symptoms (negative mental health) and subjective wellbeing (positive mental health). Two broad traditions of positive mental health/wellbeing describe the key components of positive mental health and the concept of wellbeing (Deci & Ryan, 2008; Westerhof & Keyes, 2010). The hedonic tradition comprises the emotional element of happiness and satisfaction with life, while the eudaimonic tradition includes human potential and optimal functioning. When these two traditions are combined, positive mental health is conceptualised to reflect general emotional, psychological and social wellbeing. This study mainly focuses on one of the dimensions of complete mental health: psychopathological symptoms (negative mental health outcomes). Specifically, this study only looks at the variables depression and anxiety as indicators of the construct of mental health.

Studies focusing on conflict-affected refugees have found varied results of the prevalence of mental health conditions across different groups. This variability may occur because of the study groups' heterogeneity, assessment methods and the host country's living situation (Bogic et al., 2015; Fazel et al., 2005; Vossoughi et al., 2018). Two systematic reviews have focused on the prevalence of mental health disorders among adult conflict-affected refugee populations. These reviews reported similar prevalence rates of mental health disorders such as depression (range 2.3–80%), PTSD (4.4–86%), and unspecified anxiety disorder (20.3–88%) (Bogic et al., 2015; Charlson et al., 2019). Vossoughi et al. (2018) reviewed mental health outcomes of youth refugees living in refugee camps and found that the prevalence of mental health disorders varied greatly, with some studies reporting null effects for posttraumatic stress disorder and others reporting prevalence as high as 87%. Moreover, Vossoughi et al. (2018) also reported that anxiety, somatic symptoms, depression and aggression levels varied across studies. Findings across these reviews demonstrate the prevalence of mental health problems among refugee populations.

Despite the fact that several studies reported varying prevalence rates of poor mental health among refugee populations, fewer studies reported the association between trauma and poor mental health outcomes in refugee children and adolescents. Examining the association between traumatic experiences and poor mental health is crucial to determine the mental health needs and intervention strategies for adolescent refugees. However, the literature was unclear about the association between exposure to a traumatic event as a risk factor and poor mental health (such as depression

and anxiety) as an outcome among child and adolescent refugees. For instance, a few studies reported that exposure to trauma affects children and adolescents' mental health (Almqvist & Brandell-Forsberg, 1997; Mollica et al., 1997; Nickerson et al., 2017). Nickerson et al. (2017) stated that traumatic events and daily stressors contribute substantially to psychopathology in refugees and asylum-seekers. Mollica et al. (1997) reported cumulative trauma was significantly associated with anxiety/depression and attention problem. Forced migration during adolescence has been found to be riskier than any other period of an individual's life (Beiser et al., 1995). Refugees in the adolescent period may be particularly vulnerable to adverse physical and mental health issues compared to adult refugees, since adolescents are in an unstable period characterised by major physical, cognitive, and psychosocial changes (Ryu, 2020). It is also unknown whether adolescents are predisposed to higher levels of mental health problems as a result of trauma, given their limited life experience in dealing with such situations. For this reason, a scoping review was conducted to systematically examine the nature of evidence in this research area, identify gaps in the literature, and provide recommendations for future primary research. Thus, this scoping review aimed to examine the association between potentially traumatic experiences and poor mental health and to identify the types of trauma exposures among adolescent refugee populations.

Methods

We adopted the PRISMA Extension for Scoping Reviews (PRISMA-ScR) statements to report the results of this scoping review (Tricco et al., 2018). The PRISMA-ScR is intended to guide the reporting of scoping reviews. Reporting guidelines outline a minimum set of items to include in research reports and have been shown to increase methodological transparency and uptake of research findings. This reporting guideline contains 20 essential reporting items and two optional items to be included when conducting a scoping review. In this scoping review, 20 essential reporting items were included in reporting the findings of the study.

Eligibility

Articles had to be peer-reviewed publications based on primary data to be included in this review. Included articles were published between January 1, 2011, and August 30, 2020, and written in English. Articles from qualitative, quantitative and mixed study designs were included if they met the following inclusion criteria: 1) potentially traumatic experiences were the predictor variable and main focus of the article, as measured by standardized instruments; 2) at least one of two constructs (depression and

anxiety) was an outcome variable of the study, as measured by standardized scales, 3) the relationship between traumatic experiences and mental health conditions was discussed, 4) participants of the study included adolescent refugees or asylum seekers affected by conflict. Adolescents aged between 12–18 of all genders were included in this review.

Articles were excluded from the review if studies 1) did not specify the relationship between traumatic experiences and mental health problems, 2) did not include adolescent refugees or asylum seekers affected by conflict, 3) were systematic or scoping reviews of the literature, 4) were published before January 1, 2011, or after August 30, 2020. Also, grey literature were excluded.

Search strategy

Five electronic databases were searched between February 3, 2020, and August 20, 2020, to identify relevant peer-reviewed articles from Ebsco Host embedded databases (Academic Search complete, SoINDEX, Health Source: Nursing/Academic Edition, Medline and Psyc ARTICLES), PubMed, Science Direct, WoS and SCOPUS. Reference lists of the included articles were also searched for additional information.

The search included the following terms and related concepts alone and in various combinations: potentially traumatic experience, trauma, traumatic experience, traumatic event, war trauma, armed conflict, torture, and violence exposure, mental health, mental disorder, depression, anxiety, psychological distress, adolescent, adolescence, teen, teenager, refugee, and asylum-seeker.

Data extraction

Data were extracted using Covidence software and exported into an excel spreadsheet. We extracted the following data on each of the included articles: primary author and year of publication, source country, study design, participant characteristics, sample size and sampling technique, trauma measures, mental health measures, and results based on the inclusion criteria. Two reviewers (SD & AB) searched for the potential articles from the selected databases and independently screened all the potentially relevant articles' titles and abstracts identified through search strategies to determine if they met inclusion criteria. Another two reviewers read the articles' full texts and extracted the data independently (SD & EK). Uncertainty was resolved via discussion with one of the reviewers (NR). Another reviewer (CJ) verified all the data presented in Tables 1 and 2.

Table 1 Description of included studies

Authors (years)	Country	Study design	Participant Characteristics and origin	Sample size and sampling technique
Al-Krenawi and Graham (2012)	Palestine	Cross-sectional	Adolescents from refugee camp schools, age ranged from 14–18 in West Bank ($n=521$) and Gaza Strip ($n=450$), Male ($n=408$) and female ($n=563$)	Random sampling $N=971$
Jensen et al. (2015)	Norway	Cross-sectional	Mean age = 13.8 years, SD = 1.4, range 10–16 Male ($n=75$) and female ($n=18$) Originated from Asia (63%) and Africa (37%)	Non-random sampling $N=93$
Kim et al. (2015)	South Korea	Cross-sectional	North Korean refugees, age range between 13–21, mean age = 18.20 years (SD = 2.03) Male ($n=74$) and female ($n=70$)	Non-random sampling $N=144$
Lincoln et al. (2015)	United States	Cross-sectional	Somali refugee adolescents, Average age was 15.4 years (range: 11–20, SD = 2.2) Male ($n=84$) and female ($n=51$)	Snowball sampling $N=135$
Meyer et al. (2017)	Rwanda and Uganda	Cross-sectional	Adolescent refugees in two refugee contexts—Kiziba Camp, Rwanda ($n=129$) (refugees from the Democratic Republic of Congo) and Adjumani and Kiryandongo refugee settlements, Uganda ($n=471$) (refugees from South Sudan) Age range 13–17 years, Male ($n=276$) and female ($n=324$)	Systematic random sampling $N=600$
Müller et al. (2019)	Germany	Cross-sectional	Asylum-seeker children and adolescent (unaccompanied refugee minors, $n=68$; accompanied refugee minors, $n=30$), Males ($n=88$) and females ($n=10$) Primarily originated from Afghanistan, Syria, and Eritrea	Non-random sampling $N=98$
Oppedal et al. (2018)	Turkey	Cross-sectional	Syrian refugees in Turkey refugee camps, 165 female and 120 male Average age 12.5 years old (SD = 1.28)	Random sampling $N=285$
Park et al. (2018a, b)	South Korea	Cross-sectional	North Korean refugees were recruited from two alternative middle and high school 68 Females and 41 males Mean age 19.52 (SD = 3.28 years), range between 13–29 years	Non-random sampling $N=109$
Vervliet et al. (2014)	Norway and Belgium	Cross-sectional	Belgian participant group consisted of males ($n=87$) and females ($n=16$), the Norwegian group of 204 males Mean age of 16.13 (SD = 0.84), range 15–18 years Primarily originated from Afghanistan, Somalia, Guinea, and other countries	Non-random sampling $N=307$

Table 1 (continued)

Authors (years)	Country	Study design	Participant Characteristics and origin	Sample size and sampling technique
Wagner et al. (2019)	Palestine	Cross-sectional	Youth living in the West Bank and East Jerusalem, males (1241) and females (1240), Mean age 19.1 years, range 15–24 years	<i>N</i> = 2481 Stratified two stages of a random sample
Yayan et al. (2020)	Turkey	Cross-sectional	Syrian refugee children; male (<i>n</i> = 580) and female (<i>n</i> = 535) The mean age was 10.53 ± 2.79 years	<i>N</i> = 1115 Non-random sampling

Data synthesis

Data were presented in tabular form. All the included studies were grouped based on the types of information they analysed and summarised based on the descriptive characteristics of studies (i.e. primary author and year of publication, source country, study design, participant characteristics, sample size and sampling technique). Results are presented based on the trauma and mental health inclusion criteria.

Results

A total of 3319 articles were identified as potentially relevant for the study. After the removal of duplicates, 1058 studies remained for title and abstract screening. Based on reading titles and abstracts, 1017 articles were excluded. Lastly, 41 articles were considered relevant for further assessment by reading them in full text. Based on a full-text reading of the articles, 30 articles were excluded due to excluded outcomes (*n* = 19), consisting exclusively of an adult population (*n* = 8), participants were not from the refugee or asylum seeker population (*n* = 1) and excluded research settings (*n* = 2). Finally, 11 articles were included in the scoping review based on the inclusion and exclusion criteria. Figure 1 presents a flow diagram for the search and screening process.

Table 1 presents all the included articles, authors, year of publication, country, study design, participants characteristics and origin, and sample size and sampling technique. Five studies were conducted in European countries (Jensen et al., 2015; Müller et al., 2019; Oppedal et al., 2018; Vervliet et al., 2014; Yayan et al., 2020), four were from Asian (Al-Krenawi & Graham, 2012; Kim et al., 2015; Park et al., 2018a, b; Wagner et al., 2019) and one each were from the United States (Lincoln et al., 2015) and African countries (Meyer et al., 2017). Most studies (*n* = 6) included participants from Asian countries, three studies from Asian and African countries, and two were from African countries. All the included studies (*n* = 11) utilized a cross-sectional

research design; these studies presented the expected directional relationship between trauma as a predictor variable and mental health as an outcome variable. Seven studies employed forms of non-random sampling, and the remaining four studies used random sampling techniques to select participants for the study. A total of 6338 participants were included across the included studies, of which more than half (*n* = 3288) were male participants. The smallest study included 93 participants, and the largest study included 1241 participants.

Table 2 provides information for each included article, authors, publication year, trauma measures, mental health measures, types of trauma and results for the relationship between trauma and mental health outcomes.

Types of potential trauma exposure

Included studies (*n* = 11) employed various instruments to measure potentially traumatic experiences. The Stressful Life Event questionnaire (*n* = 3) was the most frequently used instrument to measure traumatic experiences. Other included studies (*n* = 8) used various instruments depending on participants' types of trauma exposure, refugee origin and cultural context. Different trauma measures identified various types of traumatic exposures. The Stressful Life Event (SLE) questionnaire (Jensen et al., 2015; Oppedal et al., 2018; Vervliet et al., 2014) identified stressful life events such as family separation, physical or sexual violence, war or armed conflicts, and natural disasters. The traumatic event questionnaire (Al-Krenawi & Graham, 2012) included personal and family members' exposure to political violence. The UCLA Posttraumatic Stress Disorder Index for DSM-IV Adolescent version (Kim et al., 2015) instrument categorized specific traumatic events as interpersonal and accidental. The War Trauma Screening Scale (WTSS) identified violence and exposure to adversity in war (Lincoln et al., 2015). Adolescents' exposure to violence and abuse questionnaire identified four categories of violence and abuse: witnessing violence, verbal abuse, physical violence and sexual violence (Meyer et al., 2017). Child and Adolescent Trauma

Table 2 Scoping review results on types of potential traumatic experience and the relationship between traumatic experience and mental health

Authors (years)	Trauma Measures	Mental health Measures (Depression and anxiety)	Types of trauma	Association between trauma and poor mental health
Al-Krenawi and Graham (2012)	Traumatic Event Questionnaire	Brief Symptom Inventory (BSI)	Political violence: personal and family members exposure to violence	Exposure to political violence was significantly positively associated with the mental health symptoms of depression ($r=0.25$, $p<0.001$) and anxiety ($r=0.22$, $p<0.001$)
Jensen et al. (2015)	Stressful Life Events (SLE)	Hopkins Symptom Checklist-37 for Adolescents (HSCL)	Three primary areas of stressful life events (Family separation, physical or sexual violence and war or armed conflict)	The number of SLE was associated with depression ($r=0.27$, $P=.020$), and anxiety symptoms ($r=0.34$, $P=0.003$)
Kim et al. (2015)	UCLA Posttraumatic Stress Disorder Index for DSM-IV Adolescent Version	HSCL-25	Specific traumatic events categorized as: interpersonal and accidental traumatic events	Trauma exposure (Trauma-accident, TA and Trauma-interpersonal, TI) was positively correlated with mental health outcomes, depression ($r=0.34$, $p<0.001$ (TA), and $r=0.28$, $p<0.01$ (TI)) anxiety ($r=0.29$, $p<0.01$ (TA) and $r=0.24$ $p<0.01$ (TI))
Lincoln et al. (2015)	War Trauma Screening Scale	Depression Self-rating Scale (DSRS)	Violence and adversity exposure in war context	Trauma was associated with depressed mood symptoms ($r=0.374$, $p<0.001$)
Meyer et al. (2017)	Adolescents' exposure to violence and abuse questionnaire	Screen for Child Anxiety Related Disorders (SCARED) Mood and Feeling Child Self Report (MFQ-C) Strengths and Difficulties Questionnaire (SDQ)	Four categories of violence and abuse: witnessing violence, verbal abuse, physical violence and sexual violence	In Rwanda, the high-violence class was significantly associated with increased odds of high anxiety symptoms (AOR 3.56, 95% CI 1.16–10.95). In Uganda, with the no-violence class as the reference category, membership in the low-violence versus no-violence class increased the odds of high symptoms of depression (AOR 3.13, 95% CI 1.83–5.36) but was not significantly associated with anxiety symptoms. Membership in high-violence class versus no-violence class was significantly associated with higher levels of symptoms of depression (AOR 3.97, 95% CI 1.07–7.61) and higher levels of anxiety symptoms (AOR 2.04, 95% CI 1.05–3.96)

Table 2 (continued)

Authors (years)	Trauma Measures	Mental health Measures (Depression and anxiety)	Types of trauma	Association between trauma and poor mental health
Müller et al. (2019)	Child and Adolescent Trauma Screen (CATS)	Hopkins Symptom Checklist 37 for Adolescents	Potential traumatic events on war related, migration related, sexual violence, physical injury and witnessing violence	The total number of traumatic experiences were significantly correlated with all HSCL-37A measures, depression ($r=0.46, p<0.001$) and anxiety ($r=0.35, p<0.001$)
Oppedal et al. (2018)	Stressful Life Events Questionnaire	Children's Depression Inventory (CDI)	Potentially traumatic events related to family separation, personal injuries, war trauma and life-threatening situations	The correlation of accumulated traumatic events with depression was significant, even if that of each individual event was not. ($r=0.29, p<0.001$ for the total number of traumatic exposures, $r=0.37, p<0.001$ for the index with the three significant items and $r=0.21, p<0.01$ for the eight nonsignificant items)
Park et al., (2018a, b)	The Korean version of the Early Trauma Inventory Self Report-Short Form (ETISR-SF)	The Korean version of the Center for Epidemiologic Studies-Depression Scale (CES-D)	Four domains of trauma: physical trauma, sexual abuse, emotional trauma and general traumatic events	Early trauma was positively associated with depressive symptoms ($B=0.63; 95\% CI=0.50-0.74; p=0.01$)
Vervliet et al. (2014)	Stressful Life Events Questionnaire (SLE)	Hopkins Symptom Checklist-37A (HSCL-37A)	Different kinds of traumatic events such as separation from family, natural disaster, war, physical or sexual abuse	Main effect for the number of traumatic experiences on anxiety: ($F=17.545, df=1, p=0.000$) and depression ($F=16.919, df=1, p=0.000$) was significant. The more traumatic experiences reported by the unaccompanied minors, the more symptoms they had of anxiety ($B=0.066$), depression ($B=0.071$)
Wagner et al. (2019)	Exposure to violence was measured with 11 events, categorized into 3 types of violence exposure	Hopkins Symptoms Checklist (HSCL-25)	Three categories of violence exposure: personally experienced violence witnessed violence, vicarious or heard about violence	Violence exposure was associated with depression ($\chi^2=3.22, p<0.001$), anxiety ($\chi^2=3.27, p<0.001$)
Yayan et al. (2020)	Child Post-Traumatic Stress Reaction Index (CPTSI-RI)	State-Trait Anxiety Inventory for Children-Trait Form (STAIC-Trait Form) Children's Depression Inventory (CDI)	Exposure to 19 various types of traumatic Events	Strong and positive correlation between the types of traumatic events and depression and anxiety respectively ($r=0.840, p<0.01, r=0.852, p<0.01$)

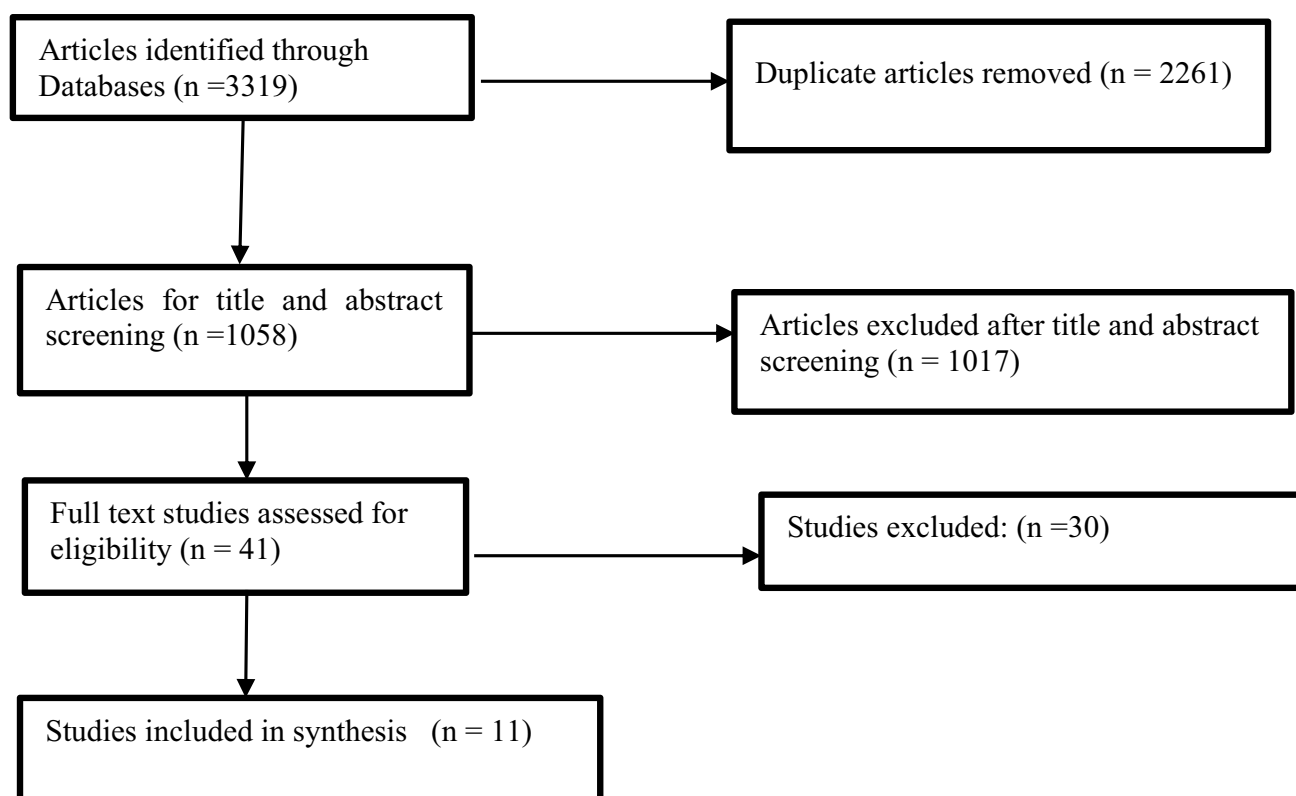


Fig. 1 Flow diagram of scoping review study selection process

Screen (CATS) (Müller et al., 2019) identified potential traumatic events as war-related, migration-related, sexual violence, physical injury or witnessing violence. The Korean version of the Early Trauma Inventory Self Report-Short Form (ETISR-SF) measured four domains of trauma: physical trauma, sexual abuse, emotional trauma and general traumatic events (Park et al., 2018a, b). The exposure to violence measure identified three categories of violence exposure: personally experienced violence, witnessed violence, and vicarious or heard about violence (Wagner et al., 2019). Child Post-Traumatic Stress Reaction Index (CPTS-RI) measured exposure to violence by 19 various types of traumatic events (Yayan et al., 2020).

Association between potential traumatic experience and poor mental health outcomes

Of the reported mental health outcomes: eight studies reported depression and anxiety (Al-Krenawi & Graham, 2012; Jensen et al., 2015; Kim et al., 2015; Meyer et al., 2017; Müller et al., 2019; Vervliet et al., 2014; Wagner et al., 2019; Yayan et al., 2020), three reported depression alone (Lincoln et al., 2015; Oppedal et al., 2018; Park et al., 2018a, b). All of the included studies ($n = 11$) found a positive association between traumatic exposure during adolescence

(such as political violence, stressful life events, traumatic events) and poor mental health outcomes (depression and anxiety).

Studies conducted in Palestine, Norway, and South Korea on the relationship between different types of traumatic experiences (political violence, number of stressful life events, and interpersonal and accidental trauma) and poor mental health outcomes (depression symptoms and anxiety symptoms) among adolescent refugees found a significant positive relationship between these variables (Al-Krenawi & Graham, 2012; Jensen et al., 2015; Kim et al., 2015). Another study conducted in the United States also found a significant positive association between exposure to war trauma and depressive mood (Lincoln et al., 2015).

In Africa, a study was conducted in Rwandan and Ugandan refugee camps. In Rwanda, the study identified a strong association between exposure to high-level violence classes and an increased risk of experiencing severe anxiety symptoms (AOR 3.56, 95% CI 1.16–10.95) (Meyer et al., 2017). Similarly, in Uganda, the study found that by using the no-violence level class as a reference category, participation in the low-violence level class versus the no-violence level class increased the likelihood of having severe depression (AOR 3.13, 95% CI 1.83–5.36) but did not affect anxiety symptoms. Conversely, membership in the high-level

violence class versus the no-violence level class was significantly linked with increased levels of depressive symptoms (AOR 3.97, 95% CI 1.07–7.61) and anxiety symptoms (AOR 2.04, 95% CI 1.05–3.96) (Meyer et al., 2017).

Discussion

This scoping review identified 11 articles assessing the association between trauma exposure and poor mental health outcomes among adolescent refugees published between January 1, 2011, and August 30, 2020. All studies included in this scoping review reported a strong positive association between traumatic experiences and poor mental health outcomes. This finding was consistent with Mollica et al. (1997), which found that cumulative trauma was significantly associated with anxious/depression and attention problem. The strong association between traumatic experiences and poor mental health outcomes may be attributed to challenges with cultural adaptation and language communication for children and young adolescents in the host country. Moreover, adolescence is a complex and often difficult stage in development for adolescents and their families because of rapid physical, psychological and cognitive changes and an accelerating succession of urgent societal demands.

All of the included studies found various categories of traumatic events experienced by child and adolescent refugees. This result was in line with the findings of Foster's (2001) four stages (premigration traumatic experience, transit traumatic experience, asylum-seeking and resettlement traumatic experience, and poor living conditions in the host country) of migration-related traumatic experiences that may lead to serious psychological distress. Refugee trauma as one of the trauma types can be described as trauma related to war or persecution that may affect children and adolescents' mental and physical health long after the events have occurred. Moreover, this result confirms previous studies' findings that child and adolescent refugees are vulnerable groups subjected to various trauma and violence, affecting their development and growth. In addition, these groups face new challenges related to school integration and language and cultural adjustment in a host country (Barenbaum et al., 2004; Fremont, 2004; Lustig et al., 2004).

Despite Africa being the leading refugee source continent (UNHCR, 2020), most studies ($n=9$) included participants from Asian countries. The results also indicated that only one study was conducted in Rwanda and Uganda (Meyer et al., 2017). There is limited research conducted on child and adolescent refugees originating from Africa. As Nickerson et al. (2017) stated, the extent of exposure to traumatic events may vary across several factors, including area/country of origin, characteristics of conflict and personal factors. The current literature leaves gaps in the types of traumatic

experiences and the relationship between trauma exposure and poor mental health outcomes among African-originated refugee children and adolescents.

Strengths and limitations

The strengths of this scoping review include that articles were searched from five electronic databases, which allowed the reviewers to screen and select an adequate number of articles for the study. Furthermore, most studies reported strong methods (such as large sample sizes, random sampling, and reliable measurements). This scoping review has several limitations. The review did not include grey and non-English literature, which may result in the absence of pertinent research conducted in other languages. It did not assess the included studies' risk of bias. The lack of longitudinal research on adolescent refugees that met this study's inclusion criteria is one of the limitations of this review. Another limitation is the bias of disproportionately publishing only statistically significant research outputs in the current literature.

Recommendations

The current literature documented consistently positive associations between trauma and poor mental health outcomes. Therefore, effective and efficient intervention strategies should be implemented to meet the needs of child and adolescent refugees as vulnerable groups in the host community. This population frequently experiences language, cultural, and school barriers and needs support adjusting as well as support for overall growth and development in areas such as low-self-confidence, lack of social skills, intense sadness, fears and worries. Community-based interventions, which may take place in schools, religious-based organisations, refugee camps, neighbourhoods and other community settings, should be implemented by school counsellors, social workers, psychiatrists, religious leaders, other mental health professionals and para-counsellors. This intervention may address pre-migration traumatic experiences and problems related to resettlement in the new country such as new language acquisition, social-cultural adjustment and peer relationships for young refugees and asylum-seekers (Vostanis, 2016).

Another intervention that should be implemented is called Trauma Systems Therapy for Refugees (TST-R), which focuses on the experience of trauma that refugees face from pre-migration, during migration, and during resettlement and beyond targeted refugee youth age range between 10 and 18 years. TST-R also specifically addresses social-environmental factors that compound the problems associated with trauma exposure, such as poverty, inappropriate

school placements, and acculturative stress (Ellis et al., 2011, 2013).

Despite Africa being the leading refugee source continent (UNHCR, 2020), there are limited studies about African-originated refugees. Thus, future primary research should focus on African-originated refugees and settings to fill the gap in the literature on the types of traumatic experiences and the association between trauma and poor mental health outcomes.

Furthermore, longitudinal research should be conducted on adolescent refugees, which might indicate the developmental nature of the impact of traumatic experiences on mental health across the sub-stages of adolescence (early adolescence, middle adolescence and late adolescence) development.

Conclusions

The review concluded that there is a unanimous positive association between trauma exposure and poor mental health outcomes (namely depression and anxiety). Children and adolescents are vulnerable groups exposed to various traumatic experiences affecting their normal development and growth. There are gaps in the literature about the types of traumatic experiences and the association between trauma and poor mental health outcomes in African-originated adolescent refugees.

Authors' contributions SD contributed to the conception and drafted the manuscript, searched, and screened the studies, extracted and analysed the data. AB searched and screened the titles and abstracts of potential articles. EK participated in the data extraction and critically reviewed the manuscript. CJ contributed to verifying the extracted data and critically reviewed the manuscript. NR resolved uncertainty in the data extraction and critically reviewed the manuscript. All authors have read and approved the final manuscript.

Data availability All data generated and analysed are included in the manuscript.

Declarations

Ethics approval and consent to participate Not applicable.

Consent for publication Not applicable.

Competing interests The authors declare that they have no competing interests.

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