



REVIEW ARTICLE



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# The effects of war, displacement, and trauma on child development

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In this paper, we review how refugee children's psychological development is impacted by experiencing war, displacement, and trauma. As the Syrian conflict has resulted in the largest refugee crisis in modern history, we focus on Syrian refugees, but comparisons to other current major conflicts (Myanmar, Afghanistan, and Yemen) are done for reference, making this review relevant, not only for the Syrian conflict but war-affected children in general. The potentially traumatic events (PTEs) experienced by families and children vary depending on current and past migration experiences. During the premigration phase, there is a high risk of war-related PTEs whereas lack of shelter, high insecurity, and exploitation are common during the perimigration phase. Common PTEs during postmigration include uncertain legal status, changed family dynamics, downward mobility, and lack of social support. A high number of PTEs, low mental health, and permanent postmigration stress are evident across conflicts. In addition to these PTEs that impact all family members, there are additional long-lasting child-specific interpersonal PTEs related to parental practices and lack of support. These cumulative stressors are associated with poor mental health and developmental delays in several domains including cognitive functioning, emotion regulation, affective processing, and prospective control. At the same time, some studies demonstrate a high degree of resilience, and normative development, or report a lack of association between the psychological development of children and levels of PTEs. The number of studies assessing child development in this context is limited and more research is required in order to fill knowledge-gaps related to the mechanisms, and causal relations, behind these developmental outcomes.

The number of people experiencing peace (i.e., lack of war or armed conflicts) in the world has been steadily decreasing over the last 15 years (Institute for Economics and Peace, 2022). With ongoing wars in Syria, Ethiopia, South-Sudan, and Yemen, a long history of conflict in Afghanistan, and the recent war in Ukraine, more than 100 million people around the world have been forcefully displaced (UNHCR, 2021b, 2021c). This number is expected to double by 2050 due to global warming and a lack of resources (Clement et al., 2021). Children are heavily over-represented among the world's refugees (1/3 of global population, 1/2 of all refugees; UNICEF, 2022) and one in six children in the world live in conflict zones (452 million; Save the Children, 2021). However, there is a striking discrepancy between the importance of

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understanding the effects of war-related experiences on child development and the availability of data (Burgund Isakov et al., 2022). In this paper, we review the psychological literature that focuses on refugee children and youth (age 0–18 years). The selected age group is particularly vulnerable to stress due to their ongoing cognitive, sociocognitive, and neurological development. It is well-documented that early life stress (ELS) puts children at risk of non-optimal development, which can have prolonged effects on life outcomes (Barrett et al., 2019; Del Giudice et al., 2011; Nelson and Gabard-Durnam, 2020; Samara et al., 2020; Tu et al., 2021). However, this literature is, to a large extent, based on Western Educated Industrialized, Rich, and Democratic (WEIRD; Henrich et al., 2010) samples and family trauma (e.g., violence, neglect, or low socioeconomic status [SES]). An up-to-date review of how children's psychological development is affected by war-related traumatic events is currently missing (Hall et al., 2022).

As cultures, armed conflicts, and migration patterns vary between conflicts (Vossoughi et al., 2018), we focus on refugee children from a single conflict—the Syrian war. To put the results from this review in a larger context, however, we will relate the Syrian war to other conflicts during the same time period (2011–2022) by doing a short comparison at the end of this article. The Syrian war accounts for the highest number of refugees in modern history (27% of refugees in the world; UNHCR, 2021a, 2021b, 2021c) and has caused the displacement of more than 13 million Syrians within and outside the country, with more than 6.5 million people having fled the country (UNHCR, 2022c). Approximately 2.6 million children are displaced internally in Syria and more than 2.5 million refugee children are registered in other countries (UNICEF, 2019). The devastatingly long duration (starting with the Arabic uprising in 2011 and still ongoing at the time of writing during the fall of 2023) and vast number of refugees motivates a focused review. It needs to be acknowledged that refugees from Syria are not a homogeneous group and diversity exists between individuals and groups with respect to culture, religion, and educational and socioeconomic background (Damen et al., 2022). However, by focusing on a single conflict, we hope to strike a balance between overgeneralizations across cultures and contexts (universalism) and a too-narrow focus on experiences and consequences for particular groups of individuals (relativism).

In order to review how Syrian refugee children are affected by war and migration, we take a family approach, meaning that refugee families are viewed as a system in which parents and children are both independently affected by war-related experiences but also impacting each other (e.g., a mother's war-related experiences may have negative consequences on her mental health, which in turn impact her rearing practices and the psychological development of her children). Numerous interventions have been carried out to help Syrian refugees, but few are supported by research (Abu-Kaf et al., 2021), and some interventions may even have negative effects on some specific groups (Ertl and Neuner, 2014). A better understanding of how war-related traumatic events impact child development among Syrian refugee children will allow research-informed intervention work in the future to support this vulnerable group (Fig. 1).

The first part of the review will focus on potentially traumatic events (PTEs) occurring during different stages of the displacement process: premigration, perimigration, and postmigration (Pieloch et al., 2016), see Table 1A–C for a summary of these phases. This division is mostly created for practical reasons, allowing us to structure available evidence into a coherent narrative. In reality, these phases are dynamic and inter-relational rather than linear. The experiences in each phase of displacement are part of a cumulative process (without category boundaries), interacting and jointly impacting child development.

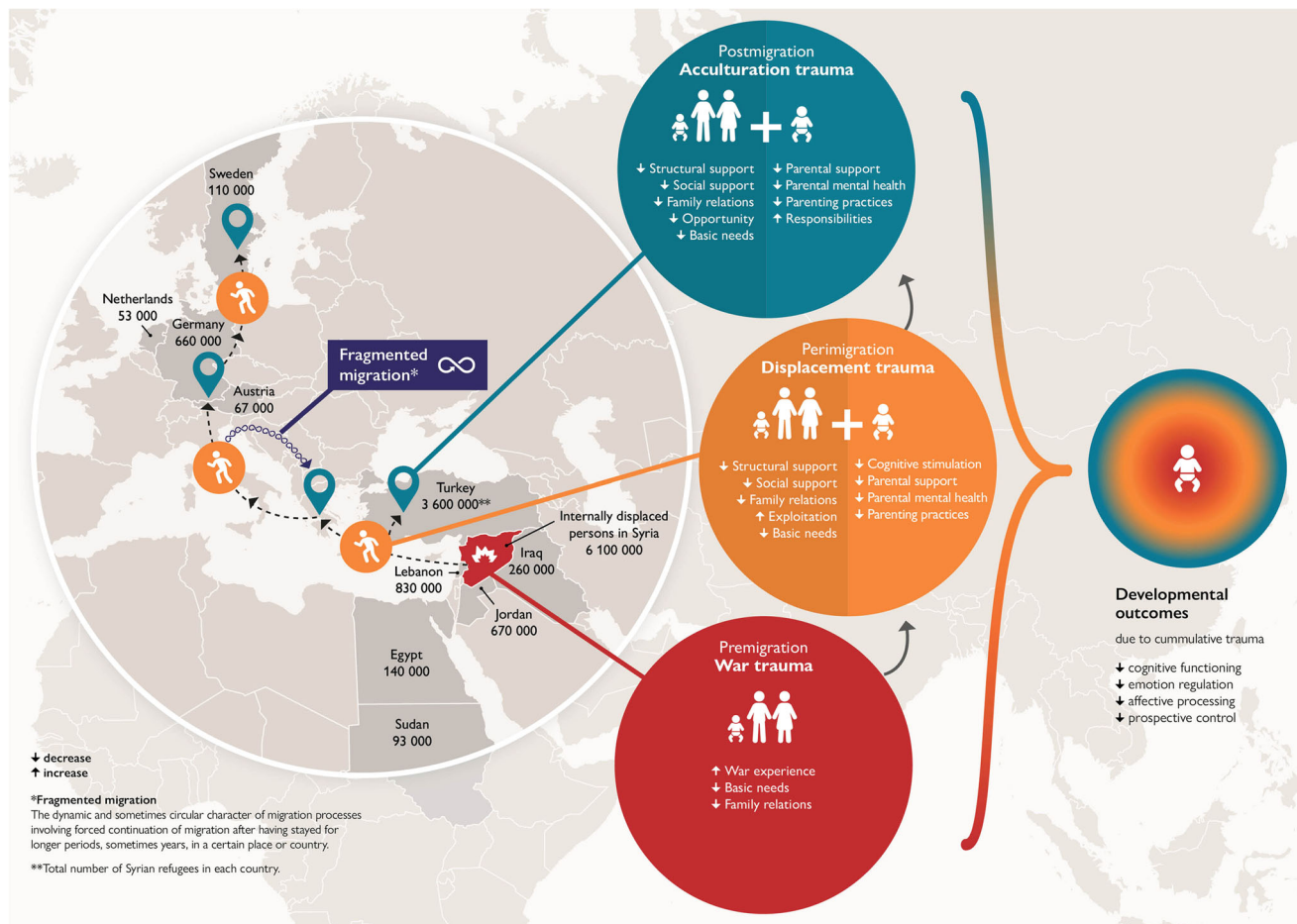
Furthermore, refugee families and refugee children may develop complex trauma as a result of their experiences of multiple traumatic events (Pieloch et al., 2016). The cumulative burden of stress and traumatic events, the allostatic load, may result in allostatic overload, something that occurs when the sum of stressors exceeds the individual's coping skills, resulting in physiological, psychological, and psychosocial symptoms (Guidi et al., 2021). The second part of the review will discuss how war-related PTEs affect mental health among Syrian refugee families, with a specific focus on the children that grow up in this context, as well as risks and protective factors in the postmigration setting. The third part will focus on how war-related experiences influence child development by reviewing the effect of the child's own trauma and parental practices. We will assess the cumulative effects of war, migration, and the entire family's mental health on the psychological development of children, focusing on important psychological capacities, such as intelligence, social cognition, and attention regulation, as well as cognitive functions needed to successfully navigate school and later labor markets, which are capacities needed to (re)integrate into society and establish independence and sustainable life (Deming, 2022). Primarily, work that targets Syrian refugees is reviewed but, on some occasions, when critical evidence is missing for this group, other reference groups are included. Before diving into this literature, we take a brief look at the Syrian conflict and the migration process that followed.

### Brief overview of the Syrian war and migration process

The Syrian war was initiated in March 2011 with anti-regime protests in Aleppo and Damascus. The protests were inspired by similar actions in the Middle East and North Africa, later referred to as the Arabic Spring (Hove and Mutanda, 2015). The tension between the regime and civilian protesters quickly increased and by April the protests had spread throughout the country, which induced violent responses from the regime (Grant and Kaussler, 2020). By the end of 2011, the regime's repressive tactics resulted in the formation of the Free Syrian Army (FSA), an armed opposition group formed by previous officers of the Syrian Armed Forces (Khan and Khan, 2017). The conflict was further intensified as global and regional actors interfered.

In civil wars, the conventional knowledge appears to be that third parties monitor conflicts and interfere strategically to affect the conflict's trajectory or outcome (Gent, 2008). As Syria was an important military power in the Middle East, both regional and global actors had a strong interest in affecting its outcomes and actively intervened (Hove and Mutanda, 2015). As local and global actors put pressure on cities and local communities, civilians were immensely impacted, not only by the acute threat of living in war zones, but also by the collapse of the economy, infrastructure, healthcare systems, and other crucial social structures, forcing millions of Syrians to leave their homes (Khan and Khan, 2017).

For many Syrians, their displacement was initiated by being internally displaced, making them internally displaced persons (IDPs) (Valenta et al., 2020). Currently, approximately 6.1 million IDPs reside in Syria (UNHCR, 2021b).<sup>1</sup> However, for many Syrians, the internal displacement was followed by migration to another country, making them refugees: "persons outside their country of origin who are in need of international protection because they fear persecution or a serious threat to their life, physical integrity or freedom in their country of origin as a result of persecution, armed conflict, violence or serious public disorder" (WHO, 2022b). The majority of Syrian refugees, approximately 5.6 million people, have been resettled in neighboring countries, mainly in Turkey, Lebanon, Jordan, Egypt, and



**Fig. 1 Illustration of the main results of the review.** A potential migration path of a Syrian refugee family (left). Summary of effects on families and children divided into three temporal distinct phases: war exposure, displacement, and acculturation (middle). Summary of impacts on children (right). Downward arrows indicate a decrease in this phenomenon on family/child, and upward arrows indicate an increase.

Iraq (UNHCR, 2022d). Moreover, most Syrians have been relocated to urban areas of neighboring countries (only 6% of Syrian refugees live in refugee camps; Yassin, 2019). Apart from Syria’s neighboring countries, the most Syrian refugees are hosted by Western Europe (Germany, Sweden, Austria, and the Netherlands being the top four); the U.S. hosts the 20<sup>th</sup> most Syrian refugees globally (UNHCR, 2022b).

Due to different, and sometimes changing, migration policies in transit and host countries, the migration status of Syrian refugees is not static (Noureddine et al., 2015). Factors in the transit and host country that may be affected by the migration status are a type of accommodation provided (e.g., private accommodation or refugee camp<sup>2</sup>), type of protection offered (e.g., permanent or temporary), reception standards in the receiving country (high or low), refugee’s socioeconomic position (e.g., offered opportunity to work or not), and overall living conditions (Ostrand, 2015; Valenta et al., 2020). Thus, different migration statuses come with different rights and protections (Ostrand, 2015; Silove et al., 1997), affecting a refugee’s vulnerability. In this review, we use the term ‘refugee’ to collectively refer to these various statuses.

The Balkan Route has been the main pathway for refugees from South, Central, and Western Asia, including Syrian refugees, and is part of the Eastern Mediterranean Route towards Western and Northern Europe. The countries in the Balkan Route are part of the European Union (EU) and typically considered transit countries amongst refugees (Burgund Isakov et al., 2022). The

number of refugees arriving to Europe through the Balkan Route peaked in 2015, with more than 760,000 illegal border crossings by migrants, a majority of whom were Syrian refugees (Frontex European Border and Coast Guard, 2022). The EU-Turkey Statement of 2016 (European Council, 2016) reduced, but did not stop, the arrival of refugees.

Previous studies have indicated that governments’ migration and anti-smuggling policies, including the EU-Turkey Statement, harm rather than help refugees (Burgund Isakov et al., 2022; Mandić, 2017). One main reason is that it shifts the risks from smugglers to refugees. When refugees reside irregularly in a country, they are breaking the law while simultaneously being victims. This creates a paradox where refugees exercise extreme caution when talking to government officials and representatives, as well as avoid contact with authorities in fear of being deported and, consequently, are (indirectly) forced to rely on smugglers because it may be their only way out of harm (Mandić and Simpson, 2017).

Most countries in Western Europe, as well as the U.S., do not offer any legal ways for Syrians to enter and reside in the country, making Syrians who enter these countries irregular migrants (Valenta et al., 2020). In 2017 and 2018, Syrian migration to the U.S. steeply decreased due to new travel bans targeting mainly Muslim countries, whilst migration from Northern and Western Europe was prioritized. This limited Syrian refugees’ possibility of family reunification, the main channel for migration in the U.S. (Ugurel Kamisli, 2021; Zong, 2015). However, these bans were

**Table 1 (A) Stressors and potentially traumatic events (PTEs) associated with the premigration phase of displacement. (B) Stressors and potentially traumatic events (PTEs) associated with the perimigration phase of displacement. (C) Stressors and potentially traumatic events (PTEs) associated with the postmigration phase of displacement.**

Phase	Category	Stressor/PTE experienced by Syrian refugees in general	Stressor/PTE experienced specifically by refugee children	Source
Pre	War experience	<ul style="list-style-type: none"> <li>● Being in a region affected by war</li> <li>● Witnessing combat situations</li> <li>● Shelling or bombing</li> <li>● Being close to death</li> <li>● Forced evacuation</li> <li>● Death of family or friend</li> <li>● Having seen and touched dead bodies</li> <li>● Experienced or witnessed abduction or being taken hostage</li> <li>● Experienced or witnessed violence</li> </ul>		Gredebäck et al. (2021); Alpak et al. (2015); Rizkalla & Sagal (2018); Yassin (2019); Sirin & Rogers-Sirin (2015); Veale et al. (2020)
	Basic needs	<ul style="list-style-type: none"> <li>● Lack of food and water</li> <li>● Lack of shelter</li> <li>● Economic impoverishment</li> </ul>		
	Family relations	<ul style="list-style-type: none"> <li>● Forced separation from family</li> </ul>		
<ul style="list-style-type: none"> <li>● War trauma; ● Social and structural trauma; ● Interpersonal trauma; ● Non-interpersonal trauma</li> </ul>				

revoked in 2021 (The White House, 2021). Furthermore, the majority of Syria’s neighboring countries only provide temporary protection, have low reception standards, and offer scarce access to basic services (İcduygu and Sert, 2019). This is partly because these countries face their own political, economic, and strategic challenges (Hawamdeh et al., 2018), putting refugee families in a very vulnerable position.

The majority of Syrian refugee families in Syria’s neighboring countries have reported that they thought they would be able to return home within a month, indicating that many refugees perceived the conflict to be temporary (d’Abreu et al., 2021; Yassin, 2019). Thus, the prolonged conflict has forced many refugee families to re-adapt to new conditions in a novel environment where many Syrian families lack their social, economic, and structural safety net.

During the period 2017–2019, more than 2 million children in Syria, two-thirds of Syria’s child population, were deprived of education, and 1.3 million children were at risk of dropping out of school (UNICEF, 2019; Yassin, 2019). Moreover, during the 2017/2018 school year, 150,000 teachers in Syria left their positions, resulting in a substantial lack of educators and reduced quality of education (Yassin, 2019). Regarding refugee children in neighboring countries, more than 800,000 children did not have access to schools (UNICEF, 2019). One of the first studies of literacy among Syrian refugee children showed that Syrian children living in Jordan (4–9 years) had low literacy- and expressive

language skills, despite the fact that most of the children had positive attitudes toward reading and were enrolled in school (Hadfield et al., 2022)<sup>3</sup>.

Depending on migration policies, reception standards, and future prospects in the host or transit country, the probability of refugees staying or continuing their migration varies (Janmyr, 2016). Furthermore, redirected trajectories and multiple relocations may lead to so-called *fragmented migrations*, meaning that refugees must continue their migration after having stayed for longer periods, sometimes years, in a certain place or country (Valenta et al., 2020), illustrating the dynamic and sometimes circular character of migration processes. Due to the potentially long process, migration may comprise a large part of childhood for refugee children (Burgund Isakov et al., 2022; Devictor and Do, 2016). Fragmented migration puts refugee families at risk of re-traumatization and accumulating stress, increasing with each additional displacement (Miles et al., 2019). These are processes that shape the context in which Syrian refugees find themselves and what type of PTEs to which they may be exposed.

**War-related events experienced by Syrian refugees**

In the following discussion, we review the most commonly lived war-related PTEs among Syrian refugees during each phase of displacement. Notably, many events are experienced by the entire family, such as shelling and bombing or being separated from



**Table 1 (continued)**

Phase	Category	Stressor/PTE experienced by Syrian refugees in general	Stressor/PTE experienced specifically by refugee children	Source
Peri	Structural support	<ul style="list-style-type: none"> <li>● Uncertain prospects and prolonged migration process</li> <li>● Lack of protection</li> <li>● Low reception standards in transit or host country</li> <li>● Lack of humanitarian aid</li> <li>● Lack of resources and access to services</li> <li>● Economic hardship</li> <li>● Barriers to accessing information</li> <li>● Multiple relocations</li> <li>● Being held somewhere against one's will</li> <li>● Being forced to return across a border after crossing it</li> <li>● Being given false information by police, government officials, or smuggler companions by police or smuggler</li> <li>● Threats to safety</li> <li>● Perceived loss of control</li> <li>● Downward mobility and low socioeconomic status</li> <li>● Lost assets</li> </ul>	<ul style="list-style-type: none"> <li>● Disruption of education</li> </ul>	Mandic & Simpson (2017); U.S. Department of State (2022); Kindermann et al. (2020); Tinghög et al. (2017); Yassin (2019); Valenta et al. (2020); Hahn et al. (2019); Selmo et al. (2020); Gottvall et al. (2019); Rizkalla & Segal (2018); UNICEF (2019); Miles et al. (2019)
	Social support	<ul style="list-style-type: none"> <li>● Lack of social support</li> <li>● Hostile and dehumanizing conditions</li> <li>● Discrimination</li> </ul>	<ul style="list-style-type: none"> <li>● Exploitation, including sexual exploitation and forced marriage and child labor</li> <li>● Child maltreatment</li> <li>● Parental mental illness</li> </ul>	
	Exploitation	<ul style="list-style-type: none"> <li>● Exploitation, including commercial sexual exploitation, forced labor, forced begging, and forced criminalization</li> </ul>		
	Family relations	<ul style="list-style-type: none"> <li>● Forced separation from family or traveling companion by police or smuggler</li> </ul>		
	Basic needs	<ul style="list-style-type: none"> <li>● Poor living conditions</li> <li>● Lack of food and water</li> </ul>		

● War trauma; ● Social and structural trauma; ● Interpersonal trauma; ● Non-interpersonal trauma

**Table 1 (continued)**

Phase	Category	Stressor/PTE experienced by Syrian refugees in general	Stressor/PTE experienced specifically by refugee children	Source
Post	Structural support	<ul style="list-style-type: none"> <li>● Lack of long-lasting support</li> <li>● Language and communication difficulties</li> <li>● Uncertainty regarding legal status</li> <li>● Lack of psychological support</li> <li>● Lack of medical care</li> <li>● Lack of control</li> <li>● Fear of being forced to return to unsafe environment</li> </ul>	<ul style="list-style-type: none"> <li>● Major life changes during sensitive developmental periods</li> <li>● Disruption of education</li> </ul>	Safdar et al. (2021); Ugurel Kamisli (2021); Tinghög et al. (2017); Darawsheh et al. (2022); Ghumman et al. (2016); Sijbrandij et al. (2017); Kazour et al. (2017); Solmaz et al. (2021); Hamdan-Mansour et al. (2017); Eruyar et al. (2018); Sirin & Rogers-Sirin (2015); Gredebäck et al. (2021); d'Abreu et al. (2021); El Khani et al. (2016); Veale et al. (2020); DeJong et al. (2017)
	Social support	<ul style="list-style-type: none"> <li>● Lack of social support</li> <li>● Discrimination</li> </ul>	<ul style="list-style-type: none"> <li>● Loneliness</li> <li>● Family- and peer-related adversity (e.g., lack of family integration and social exclusion)</li> </ul>	
	Family relations	<ul style="list-style-type: none"> <li>● Separation from family</li> <li>● Changing family dynamics</li> <li>● Increased family conflicts</li> <li>● Fear for relatives who stayed behind</li> </ul>	<ul style="list-style-type: none"> <li>● Parental mental illness</li> <li>● Negatively changed parental behaviors</li> <li>● Increased use of harsh parenting</li> <li>● Impaired parent-child interactions</li> <li>● Increased responsibilities exceeding age-normative responsibilities</li> <li>● Role confusion</li> </ul>	
	Opportunity	<ul style="list-style-type: none"> <li>● Difficulties finding employment</li> <li>● Difficulties with educational accreditation</li> <li>● Economic challenges and downward mobility</li> <li>● Loss of status</li> </ul>	<ul style="list-style-type: none"> <li>● Early marriage</li> <li>● Child labor</li> </ul>	
	Basic needs	<ul style="list-style-type: none"> <li>● Food insecurity</li> <li>● No access to private accommodation</li> </ul>		

● War trauma; ● Social and structural trauma; ● Interpersonal trauma; ● Non-interpersonal trauma

one's home community (Alpak et al., 2015; Pieloch et al., 2016). However, some experiences are unique to the children, such as maltreatment (defined as acts of sexual, physical, and emotional abuse, and neglect; Scharpf et al. (2021); Enlow et al. (2012)) and inadequate cognitive stimulation (Engle et al., 2007; Walker et al., 2007), each adding to the massive general exposure to PTEs and stressors in war-affected families (Table 1A–C). Table 1A–C describes PTEs during each phase of displacement divided into thematic categories.

**Premigration: war trauma.** The premigration process is characterized by a high risk of being exposed to war trauma, such as shelling, bombing and forced evacuation, and it takes place in the country of origin (Pieloch et al., 2016). During the premigration phase, war-exposed parents need to handle extreme danger, threats, lack of safety, and reduced material and mental resources (Alpak et al., 2015; Eltanamly et al., 2021; Kaya et al., 2019) while simultaneously having to attend to their children's needs (El-Khani et al., 2016).

Among Syrian refugee families, the most common PTEs during the premigration phase that have been reported in the literature are the experience of being in a region affected by war (92%), indiscriminate shelling or bombing, and experiencing combat situations (75–88%), forced evacuation (75–86%), economic impoverishment (76%), lack of food and water (75%), being close to death (75%), lack of shelter (75%), forced separation from family (50–75%), death of family or friend (25–75%), having seen and touched dead bodies apart from funerals (51%), and experienced or witnessed the abduction or hostage-taking of a close friend or family member (25–48%) (Alpak et al., 2015; Gredebäck et al., 2021; Rizkalla and Segal, 2018).

In many cases, Syrian refugee families have experienced a large array of different PTEs. A recent study reported an average of seven different categories of PTEs in a sample of 100 Syrian refugee families living in Turkey, with the number of PTEs ranging from 0 to 15, suggesting a large diversity of experiences across the population (Gredebäck et al., 2021). To put these numbers into perspective, in a review of torture and other war-related PTEs among adult refugees resettled in high-income countries, only 27% of the studied population had similar levels of PTEs (Sigvardsson et al., 2016). Similarly, Veale (2020) reported an average of four to five PTEs among Syrian refugee children.

Sirin and Rogers-Sirin (2015) reported devastatingly high prevalence rates of PTEs among Syrian refugee children. Among surveyed children, 79% reported having experienced someone in their family dying, more than 60% reported a stressful event in which they thought someone was in great danger, approximately 60% had witnessed someone being kicked, shot at, or physically hurt, and approximately 30% of the children reported being kicked, shot at, or physically hurt themselves. Similar to adult refugees, multiple PTEs were common within this group. Approximately 44% had experienced five or more PTEs, and 19% had experienced seven or more. Similarly, a recent review revealed that more than 90% of Syrian refugee children had experienced armed conflicts in Syria, including shooting or bombings, 72% had been mistreated by others, 60% had witnessed someone being physically hurt, 60% had experienced events that were perceived as threatening to themselves or others, and 52% had lost a loved one (Veale, 2020).

**Perimigration: displacement trauma.** The perimigration phase poses a large array of novel risks (Mandić and Simpson, 2017). Instead of having to handle the threat of armed conflict, refugees are forced to make decisions on where to go, how to transport

themselves, who to trust, and what information is reliable. Moreover, experiences such as lack of shelter and forced separation from friends and family are common during this phase. This mainly takes place when traveling through transit countries (Pieloch et al., 2016).

In their systematic review of the experiences associated with perimigration and its effects on Syrian caregivers and children, Miles and colleagues (2019) identified six main domains affecting refugee families. Seventy-five percent of the included studies reported poor living conditions as a central stressor, including crowding, lack of food and water, high chaos, feelings of isolation and entrapment, and particular hardship during the winter months. Seventy-one percent of the studies documented decreased opportunities and limited resources and services as influential factors. These include economic hardship, lost assets, and barriers to accessing information. Sixty-eight percent reported various forms of trauma and threats to safety being significant stressors, including violence and killing of family members before and during flight, as well as health-related concerns. In 56% of the studies, ongoing migration and family separation were identified as highly stressful. Twenty-six percent reported discrimination as a central stressor. Lastly, 21% of the studies reported detention and asylum-seeking as a significant source of stress. This includes hostile and dehumanizing conditions, fear of deportation or detention, and delays in asylum applications. Due to these traumatic experiences and suboptimal conditions, Syrian refugee parents experience extreme stress. According to the authors, this results in an increase in harsh parenting, child maltreatment, and substance use among caregivers. These assumptions go well in line with the broader literature on parental stress and child outcomes and child mental health (Burgdorf et al., 2019; Davis and Carter, 2008; Fonseca et al., 2020; Masarik and Conger, 2017).

Out of 100 surveyed adult Syrian refugees in Jordan, Turkey, Greece, Serbia, and Germany, 49% had experienced being held somewhere against their will, 46% had experienced being forced to return across a border after crossing it, 37% had been given false information about their transit by police, soldiers, or any government officials, 27% had been given false information by a smuggler, 18% had experienced forced separation from family or traveling companions against their will by a government official, 12% had experienced forced separation by a smuggler, and 8% had experienced the smuggler asking them to engage in labor before or after their trip (Mandić and Simpson, 2017). Notably, these refugees had more negative experiences with government officials than with smugglers, which is an alarming indicator that existing anti-smuggling policies may, in fact, not help refugees (See Dandurand and Jahn, 2020, for a discussion of the consequences of migration policies and the connection to human trafficking).<sup>4</sup>

Refugee smuggling is a huge catalyst for human trafficking and, as a result of their economic and social vulnerability and lack of protection, refugees are at great risk of exploitation (Dandurand and Jahn, 2020; Miles et al., 2019). In neighboring countries, Syrian refugees are at particular risk of commercial sexual exploitation, including forced marriage and child marriage; forced labor, including child labor; forced begging; and forced criminalization. Many states, both globally and regionally, have failed to decrease the risk of human trafficking among refugees and, in the cases of Syria's neighboring countries, restrictions on a refugee's ability to work has even increased their vulnerability to being exploited (U.S. Department of State, 2022; see Turner, 2015, for an example of how labor policies in Jordan affect the vulnerability of Syrian refugees). In regard to Europe, there is a lack of knowledge of the frequency of trafficking among Syrian refugees (Forin and Healy, 2018). For this review, no literature

was found on the frequency of trafficking among Syrian refugees in the U.S.

**Postmigration: acculturation trauma.** The postmigration phase is characterized by acculturation processes (e.g., the process of cultural, social, and psychological changes within groups and individuals that take place as a consequence of contact between two or more cultural groups and their individual members; Berry, 2015). Certain experiences, such as discrimination, lack of social support, and low SES, increase the risk of acculturation trauma (Pieloch et al., 2016). This process takes place in resettlement countries but, as a result of fragmented migrations, this process may be experienced several times and in different cultural settings (Valenta et al., 2020).

Commonly lived stressors among Syrian refugee families during the postmigration phase are obstacles or delays in processing refugee applications, uncertainty regarding legal status, fear of being forced to return to a still unsafe environment (i.e., Syria), difficulties finding employment, fear for relatives who stayed behind, loss of status (Safdar et al., 2021; von Haumeder et al., 2019), lack of medical care or non-accessible healthcare services (Kazour et al., 2017; for general refugee population see further: World Health Organization. Regional Office for Europe, 2018), language and communication difficulties, obstacles with educational accreditation, changing family dynamics, changes in identity and role confusion, lack of social support, loneliness and boredom, and increased family conflicts (DeJong et al., 2017; Tinghög et al., 2017; Ugurel Kamisli, 2021; von Haumeder et al., 2019). For commonly reported PTEs among the general refugee population, see Chen et al. (2017) and Silove et al. (1997). Economic challenges, downward mobility, no access to private accommodation, and non-satisfactory housing conditions are common stressors, particularly in Syria's neighboring countries (Yassin, 2019). For example, in Lebanon, 98% of Syrian refugees live in makeshift tents, 74% experience food insecurity, particularly households with a female head, and 55% of refugees are unemployed (Veale, 2020).

Many Syrian refugees in European countries and the U.S. report having experienced discrimination because of their ethnicity or religion (Kindermann et al., 2020; Tinghög et al., 2017; Ugurel Kamisli, 2021; von Haumeder et al., 2019) and describe stereotypes and discrimination as the biggest obstacle for integration (von Haumeder et al., 2019). Moreover, many Syrian refugees in Western countries report having perceived the integration efforts to be one-sided and that they are expected to assimilate the host country's cultural values and ways without being given room to manifest their own culture (Safdar et al., 2021). In Syria's neighboring countries, economic and political challenges within the receiving country may induce tension between local communities and refugees, as well as cause discrimination against refugees, despite cultural and religious similarities (Yassin, 2019). Uncertain prospects, feelings of loss of control, and lack of security and social support are stressors that put a lot of weight on refugee families and may serve as PTEs (Hahn et al., 2019; Valenta et al., 2020; Yassin, 2019).

Among Syrian refugee children, common postmigration stressors are increased responsibilities exceeding what is normally perceived as age-appropriate, changed family dynamics and roles forcing children to mature earlier, negatively changed parenting behaviors towards the child, increased use of harsh parenting, and impaired parent-child interactions (see Table 1C). As a result of economic impoverishment, children are at risk of child labor, particularly in Syria's neighboring countries, as well as early marriage, especially among girls (DeJong et al., 2017; Veale, 2020). Disrupted education and difficulties accessing or

completing education are very common among Syrian refugee children, particularly in Syria's neighboring countries, and among refugees living in camp settings, a phenomenon particularly prominent among girls (Sirin and Rogers-Sirin, 2015). Loneliness and family- and peer-related adversities, such as lack of family integration and social exclusion, have also been reported among Syrian refugee children (Erucar et al., 2018; Salem, 2021; Solmaz et al., 2021).

In summary, Syrian refugee children and adults are exposed to a large array of different PTEs during each phase of displacement accumulating over time. Characteristic for this group is that they are exposed to both acute stressors, such as shelling and bombing, and stressors that extend over long periods of time, such as living with uncertainty during, and after, migration. This put refugee families under a lot of stress, impacting their mental health, family dynamics, and parent-child interactions, all of which will be discussed further below.

### **The effect of war-related PTEs on refugee families' and refugee children's mental health**

The effect of war-related experiences and PTEs on refugees' mental health has been well studied. Post-traumatic stress disorder (PTSD), depression, and anxiety are some of the most common and frequently studied forms of mental illness within the general refugee population (Kazour et al., 2017; Tinghög et al., 2017). However, the prevalence varies substantially across studies (PTSD 4–86%, depression 2–80%, unspecified anxiety disorder 20–88%; Kazour et al., 2017). Below, the prevalence of PTSD, depression, and anxiety among Syrian refugees in general will be covered, followed by the prevalence of war-related mental illness among Syrian refugee children.

**Prevalence of war-related mental illness among Syrian refugees.** Psychiatric disorders are very common among Syrian refugees in general, with PTSD (prevalence 11–83%), anxiety (19–40%), depression (14–48%), and psychosomatic symptoms (12–55%) being the most common and affecting their everyday life (see Table 2). To put this into perspective, 13% of the total world population suffers from mental disorders, out of which depressive disorders are prevalent in 4%, and anxiety disorders, including PTSD, in 4% of the world's population (WHO, 2022a).

PTSD and psychiatric comorbidity are more common among internally displaced adult Syrians and refugees resettled in Syria's neighboring countries than in adult refugees resettled in Western countries (Peconga and Høgh Thøgersen, 2020). Notably, almost 11% of Syrian refugees (18–65 years) in Lebanon report having had their main traumatic experience after displacement (Kazour et al., 2017). Nevertheless, adult Syrian refugees in Western countries have been reported to have significantly higher prevalence rates of PTSD and other psychiatric disorders than the general population in these countries (Ahmad et al., 2021; Javanbakht et al., 2019; Peconga and Høgh Thøgersen, 2020).

Similar to the case of PTSD, prevalence rates of depression are generally higher among adult Syrian refugees residing in Syria's neighboring countries than those residing in Western countries (Naal et al., 2021). For example, depression was reported among 44% of Syrian refugees in Lebanon, 37% in Turkey, 30% in Egypt, and 29% in Jordan, compared to 14% in Germany (Ahmad et al., 2021; Naal et al., 2021). However, other studies have shown that depression, but not PTSD, is more common in refugees living in the Netherlands compared to IDPs in Syria (Peconga and Høgh Thøgersen, 2020), and other studies have reported prevalence rates of depression as high as 44% in Syrian refugees in Greece and 40% in Sweden (Ahmad et al., 2021). In other words, both PTSD and depression seem to be more common among adult



**Table 2 Prevalence of psychiatric disorders among adult Syrian refugees.**

Mental health issue	Prevalence rate	Country/region	Source
PTSD	11-83%	Multiple countries	Acarturk et al. (2017); Al Ibraheem et al. (2017); Alpak et al. (2015); Borho et al. (2020); Georgiadou et al. (2018); Gredebäck et al. (2021); Kazour et al. (2017); Peconga and Høgh Thøgersen (2020); Sagaltici et al. (2020)
Depression	15-48%	Multiple countries	Ahmad et al. (2021); Javanbakht et al. (2019); Naal et al. (2021); Naja et al. (2016); Peconga and Høgh Thøgersen (2020)
	14%	Germany	Ahmad et al. (2021); Naal et al. (2021)
	37%	Turkey	
	44%	Lebanon	
	29%	Jordan	
	30%	Egypt	
	44%	Greece	Ahmad et al. (2021)
Anxiety	40%	Sweden	
	19-40%	Multiple countries	Javanbakht et al. (2019); Peconga and Høgh Thøgersen (2020)
Comorbid psychiatric disorders	39% <sup>a</sup>	U.S.	Javanbakht et al. (2019)
Psychosomatic symptoms	Headaches, 54.5%	Turkey	Jefee-Bahloul et al. (2014)
	Dizziness, 46.7%		
	At risk of somatic distress (SOD), 49.1%	Germany	Borho et al. (2020)
	Back pain, 22.4%		
	Pain in arms, legs, or joints, 17.2%		
	Nausea, flatulence, or indigestion, 13.8%		
	Trouble sleeping, 12.1%		

<sup>a</sup>Two or more possible psychiatric disorders.

refugees resettled in non-WIERD countries, however, varying results across studies make it difficult to draw any firm conclusions.

A longitudinal study reported that depressive symptoms were prevalent in 15% of adult refugees in Canada at baseline and 18% one year later (Ahmad et al., 2021). Although these numbers are much lower than what has been reported for refugees resettled in Syria’s neighboring countries (Ahmad et al., 2021; Naal et al., 2021), they indicate that postmigration factors may result in an elevated risk of depression. In line with this, a retrospective study of Syrian refugees in Lebanon (18 → 65 years) (Naja et al., 2016) reported prevalence rates for depression postmigration to be almost 44%, whereas the rate of past depression (lifetime depression, prior to the war) was 27% and pre-war depression (prior to the war with no recurrence during the 4 years of the conflict) only ~7%, suggesting a steep incline in prevalence after war exposure and displacement. At the same time, other studies have not found an association between the period of staying in a host country and depression in refugees residing in Lebanon (Naal et al., 2021; Peconga and Høgh Thøgersen, 2020).

As in the adult refugees, Syrian refugee children have been shown to have an elevated risk of psychopathology and psychosomatic problems compared to non-war-exposed children (Kandemir et al., 2018; Sirin and Rogers-Sirin, 2015). As shown in Table 3, the prevalence rates of depression are 32–48%, PTSD 45–50%, anxiety >50%, and psychosomatic symptoms 33–75%. A recent study on surveyed Syrian refugee children and adolescents resettled in Lebanon and Jordan reported a high prevalence of PTSD and an elevated risk of emotion dysregulation, with PTSD symptoms and emotion dysregulation being associated with social withdrawal, self-criticism, and resignation (Khamis, 2019). Moreover, Syrian children who had been relocated multiple times were more likely to report feeling panic, mental distress, and overall mental health issues, increasing with each additional displacement

(Miles et al., 2019). To put the numbers in Table 3 into perspective, the prevalence of PTSD is estimated to be 10-times higher among Syrian refugee children than in children in general across the globe. Moreover, the prevalence of depression among non-war-exposed children and adolescents in the U.S. is 1–2% in children and 3–8% in adolescents (Sirin and Rogers-Sirin, 2015).

Research has suggested that women and girls have an elevated risk of developing PTSD and depression compared to men and boys (Acarturk et al., 2017; Alpak et al., 2015; Brewin et al., 2000; 2020; Eruyar et al., 2018; Hameed et al., 2018; Johnson and Thompson, 2008; Kindermann et al., 2020; Naal et al., 2021; Nemeroff et al., 2006; Sagaltici et al., 2020; Selmo et al., 2021) despite the fact that men are exposed to a higher number of PTEs on average (Breslau et al., 1999; For a discussion on potential gender-based contributors to differences in PTSD see; Christiansen and Berke, 2020; Kimerling et al., 2021). Among Syrian refugees, however, several studies have not found an association between gender and PTSD (Chung et al., 2017; Javanbakht et al., 2019; Kazour et al., 2017; Naja et al., 2016). This may be attributed to a ceiling effect caused by exposure to severe and multiple traumata by Syrian refugees, affecting all who have a vulnerability to develop these symptoms, resulting in an absence of gender effects (Javanbakht et al., 2019; Naja et al., 2016). Moreover, much research has focused on internalizing symptoms, such as PTSD and depression, which are more common among girls and women. Yet, fewer studies have targeted externalizing problems, which are more prevalent in men and boys (Kandemir et al., 2018), creating uncertainty about the overall distribution of mental health problems across genders.

In general, the large variation in results reported above suggests the presence of factors in the postmigration setting that impact postmigration mental health, factors that we do not yet fully understand. Although the literature presents varying results across studies and cultural settings, it is clear that war-exposed

**Table 3 Prevalence of psychiatric disorders among Syrian refugee children.**

Mental health issue	Prevalence rate	Country/region	Source	Age
PTSD	45–50%	Multiple countries	Eruyar et al. (2018); Sirin and Rogers-Sirin (2015); Veale (2020)	8–18
	45.6%	Jordan & Lebanon	Khamis, 2019	12 <sup>a,b</sup>
Depression	47.9%	Turkey	Kandemir et al. (2018)	11 <sup>a</sup>
	44%	Multiple countries	Sirin and Rogers-Sirin (2015)	12 <sup>a</sup>
	32–48%	Multiple countries	Veale (2020)	b
Anxiety	53.3%	Turkey	Kandemir et al. (2018)	11 <sup>a</sup>
Comorbid psychiatric disorders	28.7%	Turkey	Kandemir et al. (2018)	11 <sup>a</sup>
Psychosomatic symptoms	Unspecified psychosomatic symptoms, 33%	Multiple countries	Eruyar et al. (2018)	8–18
	Pain in arms and legs, daily or weekly headaches, 75% of girls and 44% of boys	Multiple countries	Sirin and Rogers-Sirin (2015)	12 <sup>a</sup>

<sup>a</sup>Only mean age is reported in the article.  
<sup>b</sup>Review article. Age range not reported.

Syrians are particularly vulnerable compared to the general world population. Previous research has identified some influential postmigration factors that will be discussed more in-depth below.

**Postmigration risks and protective factors for mental health outcomes.** As defined above, acculturation involves psychosocial and sociocultural adaptation, which requires affective, behavioral, and cognitive changes within groups and individuals (Ugurel Kamisli, 2021). Such changes can be stressful and overwhelming, and previous trauma and mental illness may decrease mental resilience to stress (Chen et al., 2017; Tinghög et al., 2017), adding to the postmigration challenges that many refugees face.

A qualitative study of adult Syrian refugees in the U.S. reported that loneliness and lack of social support are influential postmigration stressors. Studies on war-affected adult refugees, including but not limited to Syrians, have reported prevalence rates of loneliness of 18–46% (Belau et al., 2021; Chen et al., 2017). Among Syrian refugee adolescents in Turkey, 65% reported loneliness (Solmaz et al., 2021), and among Syrian refugee children in Jordan, the prevalence was 25% (Hamdan-Mansour et al., 2017). Discrimination has been shown to be associated with worse mental health in Syrian refugees, both adults, and children, across different cultures (Barron et al., 2021; Çelebi et al., 2017; Demir and Ozgul, 2019; Kandemir et al., 2018; Tinghög et al., 2017; Walker and Zuberi, 2020). Religious alienation, in this case being Muslim, seems to increase the risk of discrimination (Kandemir et al., 2018; von Haumeder et al., 2019). Moreover, some studies have indicated that low education is a risk factor associated with psychiatric disorders (Ahmad et al., 2021), but opposing results indicate that high education is a risk factor, as it may be associated with greater loss in status and identity (Sonne et al., 2016). Lack of psychological support has been reported repeatedly among Syrian refugees across different cultural settings (Darawsheh et al., 2022; Ghumman et al., 2016; Sijbrandij et al., 2017). For example, Kazour et al. (2017) reported that only 2% of Syrian refugees with PTSD in Lebanon received psychiatric consultation and none had any professional psychological support. Lack of psychoeducation, stigma, difficulties expressing traumatic experiences due to cultural and language obstacles, and mistrust of service systems are commonly experienced barriers to accessing mental health services (Bunn and Betancourt, 2022; Kazour et al., 2017; Peconga and Høgh Thøgersen, 2020), which is evident in both camp and urban settings in neighboring countries, as well as in Western communities (Kazour et al., 2017; Naal et al., 2021; Peconga and Høgh Thøgersen, 2020; Ugurel Kamisli, 2021).

Identified risk factors for children are multiple and recurrent stressful events (Höhne et al., 2022); being exposed to long-lasting stressors, such as the family’s socioeconomic adversity; social exclusion; family- and peer-related adversities, such as lack of family integration and social support; and lack of education (Eruyar et al., 2018; Sirin and Rogers-Sirin, 2015). Moreover, parental psychopathology has been reported to be linked to child psychopathology and maladjustment (Mattelin et al., 2022; Scharpf et al., 2021; Veale, 2020; See further; Apsley and Padilla-Walker, 2020; Masarik and Conger, 2017; for literature on the link between parental psychopathology and child psychopathology in the general population). In contrast, the use of social support, cognitive restructuring, and free expression of emotions within the family is associated with lower levels of PTSD symptoms and emotion dysregulation among Syrian children (Khamis, 2019). Factors such as age, gender, origin, time spent in the host country, and former education have demonstrated ambiguous or non-inclusive results (Höhne et al., 2022; Mattelin et al., 2022).

In summary, both Syrian refugee children and adults have an elevated risk of psychopathology compared to the general world population, a finding that is consistent across a large range of host countries. Maybe more importantly, this group seems to have higher prevalence rates of mental health issues compared to other traumatized groups. While the reason behind this remains unclear, one possible explanation is that this group on average has experienced a very large array of different PTEs during an extended period of time. Varying results across studies with regard to the effect of gender, time spent in the host country, education, and host country region, on mental health amongst Syrians, point to the need for further research to understand how to efficiently help this group.

### **The effect of cumulative war-related experiences on child development**

As illustrated above, Syrian refugee children and youth often experience traumatic events and suboptimal conditions. In the following section, we review the existing literature on how war-related experiences affect child development in this context. From the broader developmental literature, we know that severe stress early in development is associated with poor developmental outcomes (Hanson et al., 2016; Tottenham and Galván, 2016). On the one hand, the literature points to the fact that an accumulation of stressors over time is detrimental to development, referred to above as allostatic load and overload (Guidi et al., 2021). On the other hand, the child goes through several *sensitive periods*—temporal windows in development in which experiences exert great influence on brain development and behavior (Siehl et al., 2022; Weder and Kaufman, 2011). During these sensitive periods, trauma-related stress can cause maladaptive developmental outcomes, as early experiences of stress may be consolidated over time (Murphy et al., 2022). Both processes, one temporally distinct and one in which stressors accumulate over time, negatively impact child development and effects are likely to persist into adulthood even after conflict stops (Samara et al., 2020).

The ways in which children are impacted by war and refugee status can be divided into two interconnected parts. First, Syrian refugee children are affected by direct war-related experiences, such as shelling and bombing, violence, and forced evacuation (Gredebäck et al., 2021). There is broad literature focusing on the effects of direct war-related experiences on mental health among Syrian refugee children (Jabbar and Zaza, 2014; Karam et al., 2019; Oppedal et al., 2018; Sim et al., 2018), but the literature on how these experiences affect child development is very limited. Second, in war-situations, parenting, social networks, and relations with teachers and other important adults are often also impacted by trauma and prolonged stress, and may be less protective or even have direct negative effects on child development (Samara et al., 2020). Refugee children are therefore exposed to a large array of secondary trauma, such as parental psychopathology, maltreatment, and inadequate cognitive stimulation. From the broader literature, we know that infants and children are at risk of non-optimal development when their caregiver suffers from mental health problems, which include many aspects of child development, including intelligence, attention, motor development, language, and social and emotional development (Astor et al., 2020; Grace et al., 2003; Juvrud et al., 2021; Kingston et al., 2012; Mughal et al., 2018; Quevedo et al., 2012; Tu et al., 2021; Van Niel et al., 2020). A recent systematic review of the pathways of risk from maternal depression to their children's functioning shows that there are small, but consistent, effects of maternal depression on developmental outcomes in children across cultures, ethnicities, SES, age (the child's), and gender (Goodman et al., 2020). Risk factors for reduced maternal mental

health include economic stress, low social support, domestic violence, large family sizes, lack of participation in decision-making, and low control, particularly in low- and middle-income countries (Wachs et al., 2009). Other studies point to low levels of parental self-efficacy (Jones and Prinz, 2005), with trauma reducing one's sense of agency (Miles et al., 2019; Veale, 2020), and risk factors associated with low levels of social support and low SES (Böge et al., 2020; Gottvall et al., 2019; Selmo et al., 2021; Yassin, 2019). Interactions between these factors and parents' behaviors increase the risk of vicious cycles of low support and poor developmental trajectories that strengthen over time (Wu et al., 2019). Moreover, studies from different contexts indicate that interpersonal trauma, including maltreatment, correlates with prolonged negative effects on children's cognitive functioning, attention, emotion regulation, and social cognitive abilities (Ainamani et al., 2021; Crawford et al., 2022; Enlow et al., 2012; Goltermann et al., 2021; Gould et al., 2012; Irigaray et al., 2013; Manousiadou, 2022; Musicaro et al., 2020; Rokita et al., 2018).

There may be two separate, but interacting, processes that drive the association between parental mental health and child development. On the one hand, parental stress and mental health problems (including psychopathology) increase the risk of harsh parenting, less optimal rearing practices, and child maltreatment (El-Khani et al., 2016; Eltanamly et al., 2021; Enlow et al., 2012; Peltonen et al., 2022; Scharpf et al., 2021, 2021; Veale, 2020; Wachs et al., 2009). This creates a situation in which parental, particularly maternal, psychopathology increases the risk of insecure attachment between parent and child. This, in turn, increases the risk of recurrent maltreatment, which has been associated with negative effects on children's mental health and may jeopardize children's normal development (Scharpf et al., 2021). Here, the presence of negative parent-child relationships is the driving factor affecting developmental outcomes in children. On the other hand, war-related trauma and postmigration adversities negatively affect the quality of parent-child interactions (Gredebäck et al., 2021), as increased parental stress may lead to a reduction in positive parental practices (e.g., less parental warmth and support, less engagement, and increased parental withdrawal) (Eltanamly et al., 2021). Here, an absence of the positive, rather than the presence of the negative, is the key explanatory factor.

One study (Punamäki et al., 2018) suggested that it is not only the relationship between parent and child that is detrimental to child outcomes in war-exposed families, but family structure also seems to play an important role. More specifically, in families with moderately secure or insecure attachments, a high level of sibling conflict, and a high level of negative parenting practices, children had symptoms of heightened aggression, anxiety, and depression and had difficulties processing traumatic experiences compared to families with secure attachment, warm sibling relationships, and positive parenting practices. Children in secure attachment families had lower levels of mental health issues and demonstrated robust processing of traumatic experiences. These results suggest that strengthening family relationships may promote mental health and developmental outcomes in war-exposed children. It is likely that both the increase in negative parental behavior, the absence of positive parenthood, and family structure affect child development, but evidence-based research that can inform us on how these processes interact in Syrian refugee families is currently missing.

A few studies have attempted to map out the link between parents' experiences, their mental health, and child development using experimental and correlational approaches. In one study, a difference in affective processing was found between Syrian refugee children and non-refugee children (7–11 year-olds) living

in Jordan, indicating that war-related trauma has a differential impact on initial orienting versus sustained attention to emotional stimuli (Michalek et al., 2022). Namely, refugee children showed greater initial avoidance of angry and happy faces compared to non-refugee children as well as increased sustained attention to angry stimuli. These results suggest that early trauma might result in disengagement difficulties, meaning that traumatized children might have difficulties disengaging from social threat cues. In another recent study, 100 Syrian families currently living in Turkey were invited to take part in a study in which all family members (174 adults, 233 children aged 6–18 years) played a series of digital games on computers assessing emotion processing, intelligence, risk-taking, proactive control, and attention. The parents also answered questionnaires about their current living situation and history. Children's emotional processing (their ability to detect emotional expressions in faces; Gredebäck et al. (2021)) has been established to be impacted by their mother's, but not father's, post-traumatic stress (PTS) symptoms, with more symptoms and worse mental health being associated with poorer performance among children. The effect is rather profound, with a 4% change in the mental health of mothers having the same statistical effect on children's performance as 1 year of development of the child (Gredebäck et al., 2021). A recent follow-up study demonstrated that this association can be attributed to harsh parenting skills among vulnerable mothers, who are young, experiencing discrimination, downward mobility, and low religiousness (Peltonen et al., 2022). Similarly, maternal, but not paternal, PTSD, anxiety, and depression symptom severity has been associated with anxiety symptom severity in Syrian refugee children (6–17 years) (Javanbakht et al., 2018). Syrian refugee children (6–18 years) also suffer from poor prospective control (i.e., a diminished ability to take the current context into account when predicting future events) and it, again, is the mother's mental health that impacts how children develop these abilities (Gredebäck et al., 2023).

At this point, it is not clear why fathers' mental health does not impact child development, but traditional gender roles and the need to find work outside the home, often far away, are likely contributing factors (El-Khani et al., 2016; Yaylaci, 2018). At the same time, children's intelligence appears to be less affected by their parents' experiences and/or mental health. A recent study of Syrian refugee families demonstrated that maternal education and the extent to which mothers read to their children impacts intelligence, but that parents' mental health and experience of war do not impact intelligence in children. A large degree of heritability and the fact that many of the children had experienced several years of relative peace (children were 6–18 years old when participating in the study) prior to the war may have contributed to creating a robustness in this regard (Gredebäck et al., 2022).

Importantly, families are different, and their unique experiences and dispositions impact their mental health, their child-rearing practices, and the development of their children. For example, when it comes to parents, it is known that it is not only *how many* different PTEs refugee families have experienced, but also *what* they experienced and *in which context* the PTEs took place that shape parenting practices (Kazour et al., 2017; Selmo et al., 2021). When living in extreme danger (e.g., displacement), war-exposed parents tend to use harsh parenting styles, inconsistent discipline, and controlling behavior, as well as providing less warmth and support for their children. Living under threat (e.g., living under the possibility of an attack), on the other hand, can create a context of overprotection and more warmth. Moreover, bereaved parents have been reported to show greater sympathy for their children and tolerance of their child's misbehaviors, and mothers with internalizing symptoms caused, for example, by sexual violence, are at risk of developing a lower

degree of sensitivity to their children's needs and less engagement during interactions with their children (Eltanamy et al., 2021; Miles et al., 2019). Similar findings have been reported for depressed mothers across the globe (Slomian et al., 2019), so this is not a phenomenon specific to refugee populations in general or Syrian families in particular.

With all of these general negative associations, it is important to keep in mind that these potentially traumatic events experienced during childhood cannot in isolation determine the outcome of the developmental process (Murphy et al., 2022; Enlow et al., 2012). Even though these negative experiences and stressors assert a large impact on development, later events can impact the trajectory of development in a different direction. Early potentially traumatic experiences may have a negative impact on an individual's life, but the impact that these experiences have is not irreversible. Many interventions have been carried out to help Syrian refugees, but there is a discrepancy between the need for evidence-based interventions and the availability of such interventions<sup>5</sup> (Betancourt et al., 2013; Bosqui and Marshoud, 2018; Jordans et al., 2016; Peltonen and Punamäki, 2010; Wessells, 2017). In general, review articles and meta-analyses about the effectiveness of different interventions have reported mixed results. For example, one review article (Betancourt et al., 2013) suggested that psychoeducation has a positive effect on decreasing traumatic stress. Similarly, a meta-analysis (Purgato et al., 2018) focused on psychosocial interventions that reported positive effects on reducing PTSD symptoms, increasing hope, coping, and social support. However, this effect was strongest among older children (age 15–18 years), non-displaced children, and children living in small households, which may indicate that the results are not applicable to Syrian refugee children. Another meta-analysis (Morina and Nicolai, 2019) demonstrated a lack of evidence of robust positive effects of psychotherapies on PTSD symptoms among refugee children. In other words, we know little of how to best support refugee children, particularly young children and infants.

Despite mixed results on the effectiveness of different interventions, there is hope as emerging literature shows positive effects of interventions that may be able to strengthen child development among Syrian refugee children. For example, a recent qualitative study of a family-based storybook intervention among newly resettled Syrian refugees in Canada showed a significant decrease in anxiety symptoms in children (7–11 years) (Abi Zeid Daou et al., 2022). The intervention comprised a storybook with characters and a storyline resembling the children and their experiences of arriving in a new place, which had a positive impact on the children. The study resulted in an increase in the children's sense of agency, family connectedness, and overall mental well-being. In their pilot study, Michalek et al. (2021) examined the effect of a reading-based program on emotion recognition and mental health through socialization in Syrian refugee children and Jordanian non-refugee children (7–12 years). The results suggest a positive effect on emotion recognition in Syrian children who were less biased toward sad faces when interpreting ambiguous facial expressions than they were prior to the intervention. However, two months after the end of the program participants had regressed to pre-intervention levels. Though more research is required to determine the long-term impacts of the program, these are promising results as such interventions may promote socio-emotional development in refugee children. An online game-based intervention (Sirin et al., 2018) for Syrian refugee children (9–14 years) resettled in Turkey resulted in a significant improvement in Turkish language acquisition, coding skills, executive functioning, and overall sense of hopefulness. Though preliminary, these results are hopeful, as the language barrier is one of the main reasons that Syrian



children in Turkey are not enrolled in school. Thus, overcoming the language barrier may have far-reaching benefits for child development among resettled children and youth. A group-based intervention study of forcefully displaced Syrian, Afghan, Iraqi, Lebanese, and Kurdish children (7–14 years) in Greece (Foka et al., 2021) resulted in improvements in well-being, self-esteem, and optimism as well as a decrease of depressive symptoms. Moreover, developing a sense of belonging and building one's strengths was highlighted by the participants during the intervention. In their article, Sirin and Aber (2018) summarized the literature identifying the needs of Syrian refugee families and children. The main factors identified are the need for and positive effects of social support (Oppedal et al., 2018), understanding children's conceptualization of war and peace (Özer et al., 2018), parent's desire for parenting advice and support (El-Khani et al., 2018), and barriers for children accessing and enrolling in education (Uyan-Semerici and Erdogan, 2018). This provides valuable insight and leaves future researchers, policy-makers, and advocates informed when designing interventions. As a way of handling overwhelming needs with limited resources, Samara et al. (2020) suggest implementing low-resource first-level interventions such as psychoeducation teaching recovering techniques, and promoting resilience in children. For children whose symptoms continue after a resilience-building approach, second-level interventions such as child-centered therapy can be implemented. This way, the majority of children can be helped even with low resources, whilst more resource-demanding interventions can be focused to those in most need.

**The Syrian war in a larger context: a comparison with the conflicts in Myanmar, Afghanistan, and Yemen.** In 2022, the conflicts in Myanmar, Afghanistan, and Yemen were three of the largest conflicts in the world with more than 10 000 conflict-related deaths in the year (SIPRI, 2022). In the following section, a brief description of each conflict will be presented, followed by a comparison with the Syrian war for reference and to put the above-mentioned literature into a bigger context.

Since the 1990's, over a million Rohingyas have fled the violence in Myanmar in waves, with the latest wave arising in August 2017. The Rohingyas are a stateless Muslim minority in Myanmar (UNHCR, 2022e) who have become victims of ethnic cleansing and genocide (Human Rights Watch, 2023). The largest numbers of Rohingya refugees are found in refugee camps in Bangladesh (960,000; USA for UNHCR, 2023a, 2023b), Malaysia (150,000; UNHCR, 2023c) and India (18,000; UNHCR, 2021c). In Bangladesh, the vast majority are women and children with more than 40% being under 12 years of age (UNHCR, 2022e). Though limited, recent research shows that discrimination, limited access to health services, lack of formal legal status, and interrupted and restricted access to education is common within this population (Rahman et al., 2023; UNHCR, 2021c). Among adult (18–59 years) Rohingya refugees in Bangladesh, 36% suffered from PTSD symptoms, 89% of depressive symptoms, and 49–67% from somatic symptoms (Riley et al., 2017). Children, particularly females, have reported mental stress regarding their safety (Save the Children International et al., 2018). Only one study on child development (Corbit et al., 2022) has been found for this review. Study results show that Rohingya refugee children living in a refugee camp in India had lower levels of prosocial responding compared to non-war-exposed Rohingya children living in Canada. The same study also showed that prosocial responding can be promoted by contextualized interventions.

A total number of 5.2 million Afghan refugees are currently residing in neighboring countries with 3.4 million residing in Iran, 1.8 million in Pakistan and 9 700 in Tajikistan, and

approximately 3.2 million being internally displaced in Afghanistan. Inside the country, the current situation is particularly severe for women and girls as their rights continue to deteriorate (UNHCR, 2023a). Uncertain asylum processes, limited access to education, separation from family, and economic challenges resulting in child labor and child marriage have been reported within this population (UNHCR, 2023b). There are wide knowledge-gaps with regard to mental health and overall health status among Afghan refugees (Rahimitabar et al., 2023). However, in their systematic review, Alemi et al. (2014) reported prevalence rates of depressive symptoms as high as 57% and 35–50% for PTSD diagnosis with participant age ranging from 12–75 years across studies. Postmigration factors that have been reported to be influential to mental health are cultural adjustment difficulties, including acculturation gaps between parents and children who adopt new values that contradict Afghan traditions and religion (Muslim), changes in gender roles, loss of multi-generational support and adaptation to the nuclear family structure in western communities. Language barriers, unemployment and economic hardship, feelings of isolation, and lack of knowledge about mental health services have also been reported (Alemi et al., 2014; Rosenberg et al., 2022). No literature has been found on postmigration stressors in neighboring countries.

Yemen is currently facing one of the largest humanitarian crises in the world due to prolonged conflict (starting in 2015), economic collapse, and recurring natural disasters such as flooding and drought causing severe food and water shortages (SIPRI and NUPI, 2023). It has resulted in the internal displacement of 4.5 million Yemenis with multiple relocations being common. Even before the conflict, Yemen was the most vulnerable country in the Middle East with staggeringly high food insecurity (USA for UNHCR, 2023a). The economic crisis has resulted in an increased risk of child marriage, especially among girls (Ben Hamida et al., 2021; SIPRI and NUPI, 2023). It is estimated that more than one-fifth of the population in Yemen suffers from mental health issues such as depression, anxiety, and PTSD, however, no up-to-date research has been done to confirm this estimation (Shoib et al., 2021). For this review, no literature has been found on the psychological development of Yemeni war-exposed children.

While the Syrian conflict is characterized by prolonged armed conflict between multiple actors, the conflict in Myanmar is characterized by ethnic cleansing, the conflict in Afghanistan by deteriorating human rights, particularly for women and girls, and the conflict in Yemen by a severe food crisis. Despite different characteristics however, a common factor seems to be that women and children are particularly vulnerable in conflict situations (SIPRI and NUPI, 2023; UNHCR, 2023b, 2022e). Similar to the Syrian conflict, the majority of refugees from the above-mentioned conflicts are found in neighboring countries (with the exception of Yemen, in which most people are internally displaced). Contrary to the Syrian refugee situation, the majority of the above-mentioned populations are living in refugee camps. The refugee crises, including Syria, have impacted already existing political and economic instability in host countries causing a downward spiral that increases refugee vulnerability (SIPRI and NUPI, 2023; UNHCR, 2021c, 2023b). It is important to acknowledge that postmigration stressors seem to vary depending on the host country. What seems to be universal, however, is that refugees are exposed to a large array of PTEs as well as permanent stress even after having fled the conflict. Permanent postmigration stress such as impoverishment, social exclusion and lack of social support, limited access to health services, and uncertain prospects together with exposure to conflict-related PTEs is associated with a high prevalence of mental health issues across conflicts. Despite the lack of literature from Myanmar, Yemen, and Afghanistan, it is likely that this

affects parenting practices, parent-child relations, and ultimately child development. The lack of literature on the effects of war-related experiences on child development from these conflicts further strengthens the argument that this is a question in need of attention from future research.

**Summary.** In summary, even though few studies target child development, particularly in early childhood (<7 years old), there are plenty of reasons to be alarmed. We know from the larger field of developmental studies that children are negatively impacted by traumatic events and poor parental mental health (Fig. 1). Studies demonstrate that these effects are present in the population of Syrian refugee children, and similar effects are likely to be found in other contexts but literature is currently missing. However, the devastating severity of these families' experiences and the uncertainty that many of these families currently live in indicate that we have just scratched the surface of how war and the subsequent migration impact children today and in the future. Understanding the mechanisms underlying the effects of war, displacement, and trauma on child development is crucial to developing well-designed intervention and support programs with strong evidential value and documented effects. This is another challenge that deserves our utmost attention.

**Strengths and limitations.** A significant limitation of this review is that IDPs in Syria have been largely left out of the discussion, even though approximately 6.1 million Syrians are internally displaced in Syria (UNHCR, 2021a) (compared to 6.5 million Syrians who have fled the country; UNHCR, 2022b). This is mainly due to a lack of scientific literature on the effects of war-related experiences on child development within this population. As IDPs are a strikingly large group, we encourage future research to focus on this particular population, as the experiences, context, and adversities affecting child development may differ from those experienced by refugees. Furthermore, child-specific PTEs *during* migration have not been discussed in-depth in this review, which is a result of a limited amount of literature.

A possible influential postmigration factor that has not been discussed in this review is the effect of an absence of shared values between the family and host community. Culture conflict (i.e., the sense of tension experienced by people from a minority culture) has been suggested to be more common among refugee children than adult refugees. This may be the result of the parents' culture clashing with the majority culture, putting children in a position in which they are torn between the two, which may lead to an increased sense of alienation, isolation, and belonging to neither of the cultures (Bhugra and Ayonrinde, 2004). However, at the time of writing this review, no literature was found on this phenomenon among Syrian refugees.

Another factor that has not been discussed in-depth in this review is substance use disorder (SUD). SUD is comorbid with PTSD, but it has been largely overlooked in the scientific research on refugees, particularly in the Middle East, and previous studies indicate low prevalence rates of SUD among populations in the Middle East (Kazour et al., 2017). However, a recent review (Miles et al., 2019) indicated that poor living conditions and extreme family stress during perimigration increase the risk of substance use among caregivers. These are alarming results, as this may impede parenting practices and affect the parent-child relationship. Therefore, this is an important factor for future research to consider.

As discussed in the introduction, due to the limitations associated with focusing on one single conflict, there is a risk that the conclusions drawn in this review are not applicable to refugees from other conflicts, as experiences and trauma may differ. However, as the Syrian conflict has caused the displacement of the largest amount of people in modern history and diversity exists within this

group, a lot can be learned about the mechanisms underlying the effects of war, trauma, and displacement on child development.

**Conclusions.** This article reviewed the broad array of traumatic experiences that refugee families are exposed to during war, displacement, and resettlement, and the effects on child development. As a consequence of their traumatic experiences, both parents and children are at an elevated risk of mental health issues, including psychopathology and psychosomatic symptoms. Family structure and dynamics are commonly affected which, together with mental illness, has a negative impact on relations within the family. Additionally, refugee families are exposed to a number of environmental stressors. Presented in Table 1A–C, the most common PTEs during each phase of displacement are described in thematic categories. When looking at these categories, three central characteristics stand out. First, there seems to be a shift in the type of PTEs. During premigration, the majority of the reported PTEs are non-interpersonal, whilst interpersonal trauma (IPT) and social and structural trauma are the most common types of traumata during the peri- and postmigration phases. Second, more than half of the identified child-specific PTEs are of interpersonal character, many of which include the primary caregiver. These are worrying results as it is known from the broader literature that IPT involving the primary caregiver is correlated with negative developmental outcomes. Third, child-specific PTEs are characterized by being long-lasting, such as living with a parent with mental health issues, negative parenting practices, and maltreatment, associated with detrimental developmental outcomes. Supporting this, a growing body of research establishes that high-quality interventions, particularly *early* in childhood, have substantial effects on later developmental- and life outcomes amongst disadvantaged children (Heckman, 2006; Heckman et al., 2013; Rosholm et al., 2021). Taken together, these accumulating stressors put children at risk of not reaching their optimal developmental outcome. Developmental delays have been identified within several domains, including cognitive functioning, emotion regulation, affective processing, and prospective control. On the other hand, refugee children show high resilience to stress within other domains, such as intelligence. Currently, the number of evidence-based interventions for refugee children is low. This is a challenge that deserves our utmost attention in order to provide adequate support and, ultimately, promote optimal child development.

#### Data availability

Research does not involve the analysis or generation of any data. Only published papers are reviewed, no original data is collected or analyzed.

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#### Notes

- 1 Approximately 78% of people of concern to the UNHCR in the Middle East and North Africa are IDPs (UNHCR, 2021a, 2022a). People of concern include refugees, returnees, stateless people, IDPs, and asylum-seekers (UNHCR, 2023d).
- 2 A refugee camp can be defined as a temporally and spatially distinct site in which refugees resettle in a host country. See Turner (2016) for a thorough discussion about the dynamic characteristics of what a refugee camp is.
- 3 For studies looking more broadly at effective educational adaptations in refugee contexts see Cochran (2020); Salem (2021).
- 4 A recent report on migration experiences among refugee children on the Balkan Route revealed that every child who participated in the research had been exposed to violence, directly or indirectly. The surveyed children reported border officers, followed by smugglers and their assistants, to be the most common perpetrators of violence. They reported severe physical, sexual, and psychological violence, particularly

when crossing borders, as well as economic exploitation and child labor, especially when staying for longer periods in a specific location. The average duration of travel was 4 years, during which many refugee children lack access to education and opportunities to develop and maintain friendships, which is important for social development. The report also revealed that refugee children are often forced to make decisions exceeding their cognitive, emotional, and social maturity during migration, which makes them vulnerable to multiple forms of abuse (Burgund Isakov et al., 2022). Similar data for Syrian refugee children has not been found for this review.

5 See Panter-Brick et al. (2020) for a discussion on high-quality interdisciplinary measures of mental-health effects in refugee contexts, in this case Syrian refugees.

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## Informed consent

No original data was collected and no participants were involved in the preparation of this paper.

## Additional information

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