

**The Effect of War- and Flight-related Stressful and Traumatic Experiences on the
Emotion Regulation of Young Refugees – A Review of the Literature**

Noah Tapper

S3941965

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group 2a-10

Supervisor: prof. dr. Peter de Jonge

Second evaluator: Rinske Vermeij

In collaboration with: Andreea Jiman, Mirthe Kievit, Joris Kunst, Kayla O'Shea, Nina Schmees

July 1, 2022

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.

Abstract

Background: Motivated by the substantial displacement of young individuals from their home countries to Europe in recent years, the present review aimed to investigate and synthesize the current evidence regarding the link between war- and flight-related stressors and problems in emotion regulation in young refugees of non-Western origin. The investigation was embedded in an attempt to validate aspects of a Stress-Response Network model.

Methods: A systematically derived search string was used to identify and retrieve relevant studies from the APA PsycInfo and Medline databases. 105 papers were initially identified and after eliminating unsuitable and duplicate papers according to predetermined inclusion and exclusion criteria, 13 were included for final review.

Results: Results of the review were inconclusive with two papers indicating mixed findings, four indicating a significant relationship, and seven indicating a non-significant relationship between the constructs.

Discussion: The results of this review do not conclusively support the widely published idea that the exposure of young refugees to traumatic stress increases emotion dysregulation. The validation of aspects of the SRN was not successful. The reviewed results were subject to a variety of limiting and alternative factors that might explain the duality between the observed and expected results. Future studies are advised to strive for a sound clarification of this relationship to enable adequate understanding and treatment of young refugees.

Keywords: young refugees, stress, trauma, emotion regulation, emotion dysregulation, stress response network model

The Effect of War- and Flight-related Stressful and Traumatic Experiences on the Emotion Regulation of Young Refugees – A Review of the Literature

While the horrors of war have just recently returned to Europe, humanitarian crises have long been plaguing and causing the displacement of people outside Europe. Refugees are individuals that cross international borders in search of safety from violence, war, or persecution (UNHCR, n.d.). The UNHCR (2022) has estimated around 26.6 million refugees worldwide around mid-2021, among them 4.4 million asylum seekers. In 2020 alone, the Netherlands registered 13.637 first-time asylum seekers, around 31% of these registrations are from, not seldomly unaccompanied, children below the age of 18 (AIDA, 2021). War-related violence, loss, and demanding situations on the path to safety are well-documented traumatic stressors that play a role in the mental state, health, and care needs of these refugees (Miller & Rasmussen, 2016).

In their systematic review on the prevalence of depressive and PTSD symptoms in newly arrived refugees in Germany, Hoell and colleagues (2021) have found that on average 29.9% of refugees show signs of PTSD and 39.8% report depressive symptoms. In their review of clinical and sub-clinical symptoms in younger refugee populations, Garcia and Birman (2021) report that overall distress, PTSD, depression, risk behaviors, anxiety, and loneliness can be observed in the current literature. At the same time, a central topic in the literature is the lack of access and barriers to healthcare that refugees experience. Qualitative investigations found that refugees experience a lack of continuity and time pressure during care, language and literacy barriers, low trust toward service providers, and overall insufficient resources on the host country's side (Loenen et al., 2017). Taking better care of and making efforts to understand the young traumatized individuals looking for safety in Europe and the processes that contribute to their experience of symptoms can be essential to improving their well-being and improving the outlook of healthy integration (Garcia &

Birman, 2021). Not only do we have a responsibility to take care of children looking for refuge in European nations, but better knowledge of pathological processes and healthcare needs seems to be essential for ensuring a healthy future of a diverse European society.

Many of these forcefully displaced children began their journey in Syria, Afghanistan, Yemen, or other unknown countries that are haunted by war, armed conflicts, and other forms of violence and persecution (AIDA, 2021). These contexts produce many detrimental experiences like assault, destruction of one's home, disappearance or loss of loved ones, poverty, material loss, malnutrition, ostracism, as well as the destruction of social networks and loss of support (Miller & Rasmussen, 2009). What unites these traumatic experiences, is their stressful nature.

Traumatic Stress and its Effects on Young Refugee Mental Health

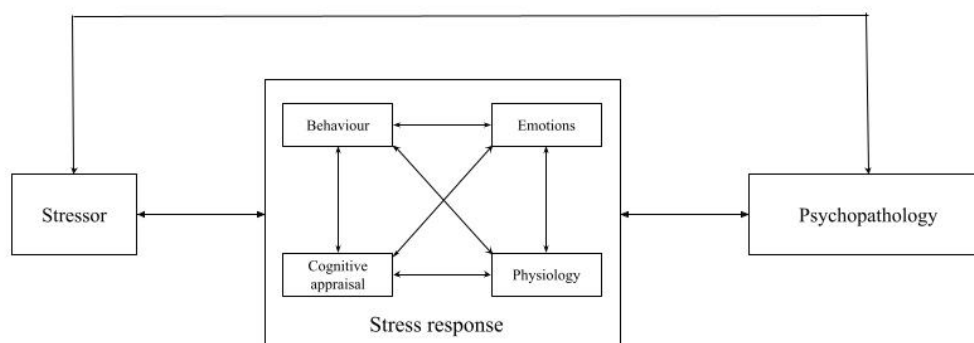
Miller and Rasmussen (2009) derive two implicit models from their review of literature, using different approaches to capture the impact of war-related stressors on mental health. The Direct Effects Model, a more trauma-focused approach, and the Daily Stressors Model, a more psychosocial approach. The more traditional Direct Effects Model proposes that the experience of war-related violence and loss directly results in changes in mental health. The newer Daily Stressors Model proposes a full mediation of war-related violence or loss and mental health outcomes through stressful social and material conditions caused by war and conflict. They conclude that neither of the models could fully account for the effects observed in the literature, rather, they propose, that a combination of both trauma-focused and psychosocial explanations is more appropriate (Miller & Rasmussen, 2009). What can be taken away from this is that there seem to be a variety of factors that account for negative mental health outcomes in refugees, but also that the larger concept of stress seems to be at the center of them.

The Stress Response Network Model

To investigate the role of stress in the complex initiation of problems of young refugees, the present systematic review will rely on and simultaneously investigate the Stress Response Network Model (SRN). It presents a general account of stress that is based on a broad synthesis of main stress response factors that have been proposed in the literature to mediate between the experience of stressors and the occurrence of psychopathological symptoms (Figure. 1). The model proposes that after exposure to a stressor a stress response is triggered that manifests itself in cognitive, physiological, behavioral, and emotional responses that can facilitate and attenuate each other in a related network. The individual stress response is then proposed to be either bearable without pathological consequences or resulting in psychopathological symptoms. Although the broadness of this model makes it suitable for many applications and a detailed explanation of the role of stress responses in the development of disorders, it currently lacks validation. One goal of this review is to find partial evidence in favor of the SRN model, therefore the existence of a link between stressors and emotional responses is investigated with a relevant real-world example of the effect of war- and flight-related stressors on the emotional regulation of young refugees. The other mediating factors of this model and how they are affected by stress could certainly be translated to this example and evaluated as well, but this goes beyond the scope of this paper.

Figure 1.

The Stress Response Network Model (SRN)



Emotion (Dys-)Regulation in Young Refugees

The investigated outcome, Emotion regulation (ER), is a broad concept that relates to the process that regulates the timing and strength that emotion is experienced and consequentially motivationally and behaviorally expressed with (Anderman & Lynley, 2009). It is closely tied to the concept of effortful control, an executive attention process that inhibits automatic dominant responses to enable and maintain planning and is in development throughout childhood and into early adulthood (Anderman & Lynley, 2009). Functional Emotion regulation has been connected to the ability to efficiently evaluate, experience, manage, and express emotions in a way that facilitates adaptive emotional function (Khamis, 2019). Emotion dysregulation (EDR) on the other hand has been linked to negative outcomes in student populations, among them a low acceptance of emotional experiences, a lack of emotional clarity, limited capability to use emotion-regulation strategies, and difficulty acting goal-directed while suppressing impulses (Tull et al., 2007). More importantly, Tull and colleagues (2007) have observed a positive association between levels of emotional dysregulation and PTSD symptom severity. ED could therefore also play an important role in the common pattern of PTSD and other emotion-related symptoms experienced by young refugees that still experience ER development.

Aims of the Review

To better understand what drives the development of pathological symptoms in young refugees, the present systematic literature review will focus on examining the effect of these stressful situations on emotion regulation. On a broader scope, it aims to verify the presumed effect of stressful experiences on emotion regulation. Its possible mediating role between war- and flight-related stressors and psychopathological symptoms makes it a construct central to improving our comprehension of the situation and mental health care of young refugees.

Although the literature suggests that traumatic and stressful events often precede emotional dysregulation, the current literature lacks a clearly established link between the two. The present systematic review aims to investigate and potentially validate just this proposed link. Therefore, the first hypothesis is that the experience of traumatic stress is related to an increase in EDR in young refugees.

Additionally, the present review aims to validate the SRN model's link between stressors and emotional responses to further collect evidence for or against the model that could in the following be used to comprehend experiences like exposure to war and flight and how they result in the development of clinical psychological symptoms. Therefore, the second hypothesis is that a link between the experience of stressors and an emotional stress response can be observed in the current literature.

Methods

The methodology of the present systematic review follows the guidelines for systematic reviews described in Page and colleague's (2021) PRISMA 2020 statement.

Eligibility Criteria

Studies were included based on criteria that ensured that the identified papers fit the relevant population and concepts of interest. Studies that used non-Western refugee samples like Iranian, Afghan, Syrian, and similar samples were included to ensure a comparable quality of experience and stress. Further, studies were included when they used and reported appropriate and validated measures of Trauma (Harvard Trauma Questionnaire, Cumulative Trauma Scale, Refugee Trauma Experience Scale, etc.) and ER (Difficulties in Emotion Regulation Scale, Emotion Regulation Questionnaire, etc.).

Since they would go beyond the earlier described relationship of interest between stress and emotional responses in the SNR model, exclusions of studies followed when physiological and task performance measures of ER were applied. Further, intervention

studies, book chapters, opinion papers, and studies labeled as dissertations and theses were excluded.

For the conducted syntheses, all studies were grouped for the employed study design and the respective format of results the studies yielded based on their statistical analyses.

Information Sources

To identify and retrieve relevant studies, the APA PsycInfo and MEDLINE databases have been searched via the EBSCOhost platform. Both databases have been consulted last on 16.06.2022.

Search Strategy

Both databases were searched with a predetermined search string that was based on the review's population of interest, the relevant concept, as well as relevant contexts (PCC-method). To perform an exhaustive search, all initially identified parts of the search string were extended by related and relevant concepts identified through the APA Thesaurus of Psychological Index Terms (APA Thesaurus of Psychological Index Terms, n.d.). No additional filters were used. The search string for both databases was: Refugee or asylum seek* or human displacement or political asylum or displaced people or political refugee* AND stress or environmental stress or psychological stress or posttraumatic stress or traumatic loss or family separation or death or trauma or emotional trauma or adverse experiences or war or war experiences or combat experience or violence AND emotion regulation or emotion dysregulation or regulation of emotion or emotional regulation.

Selection Process

The final studies included in the review were determined by a manual two-step screening process after the initial identification. Every identified entry was transferred into a Microsoft Excel sheet in which the inclusion and exclusion of papers with the respective reasoning was tracked. In a first selection step, all titles and abstracts of the identified papers

were screened for a fit with the eligibility criteria and topic of the review. In a second step, the remaining reports were then retrieved and their full text assessed for a fit with the predetermined eligibility criteria. After identifying all relevant records, duplicates from the databases were removed.

Data Collection Process

The relevant data from the ten studies was manually identified and extracted by the author of this review. No additional reviewers and automation tools were used due to specified instructions in the academic context the present review is conducted in. For each study, the sample characteristics, the study design, relevant measures, and operationalizations were identified, and the corresponding results extracted (See Table 1).

Data Items

To investigate the present hypothesis, all selected studies have been searched for results on trauma and/or stress, as well as results on ER function. In terms of trauma and stress, every study was assessed for measures relating to overall stress, war experiences, combat experience, migration stress, trauma, traumatic loss, and violence. To determine ER problems, each study was assessed for measures relating to EDR and any relevant related or subordinate constructs. EDR has hereby been defined as any consciously or unconsciously deployed strategy used to monitor or manipulate one's emotions and consequently results in negative psychological outcomes.

Further, data on the characteristics of the sample were collected and evaluated. The samples were assessed for country of origin, mean age, and refugee, or asylum seeker status of participants to ensure the external validity of the results of the present review. Compatible results for all intended data items could be identified and collected across the selected studies, a minority of studies had inconclusive reports on sample age range and mean age.

Study Risk of Bias Assessment

No risk of bias was methodologically assessed for the selected studies. All included studies are publications in peer-reviewed journals. Most studies self-disclosed limitations of the conducted research.

Effect Measures

The majority of investigated studies investigated correlations (r) between measures of trauma/stress and a measure of ER/EDR. One study used regression analysis to predict ER from refugee-specific trauma and yielded unstandardized beta coefficients (B). Two other studies used comparisons between classes or profiles established through latent class analysis and latent profile analysis, these studies yielded odds ratios for trauma and being classified as a member of one of the ER classes or profiles.

Synthesis Methods

Synthesis of results was performed by grouping all extracted results by different effect measures (r , B , OR , *qualitative*, *other*). No statistical synthesis of results was performed, meta-analytical methods would go beyond the scope of this paper.

All results were grouped, if necessary standardized, and included in a forest plot for visual presentation of the synthesized results (see Fig.3).

Reporting Bias Assessment

No methodological assessment of bias was applied for the present review.

Certainty Assessment

No statistical or formal assessment of certainty or confidence was performed

Results

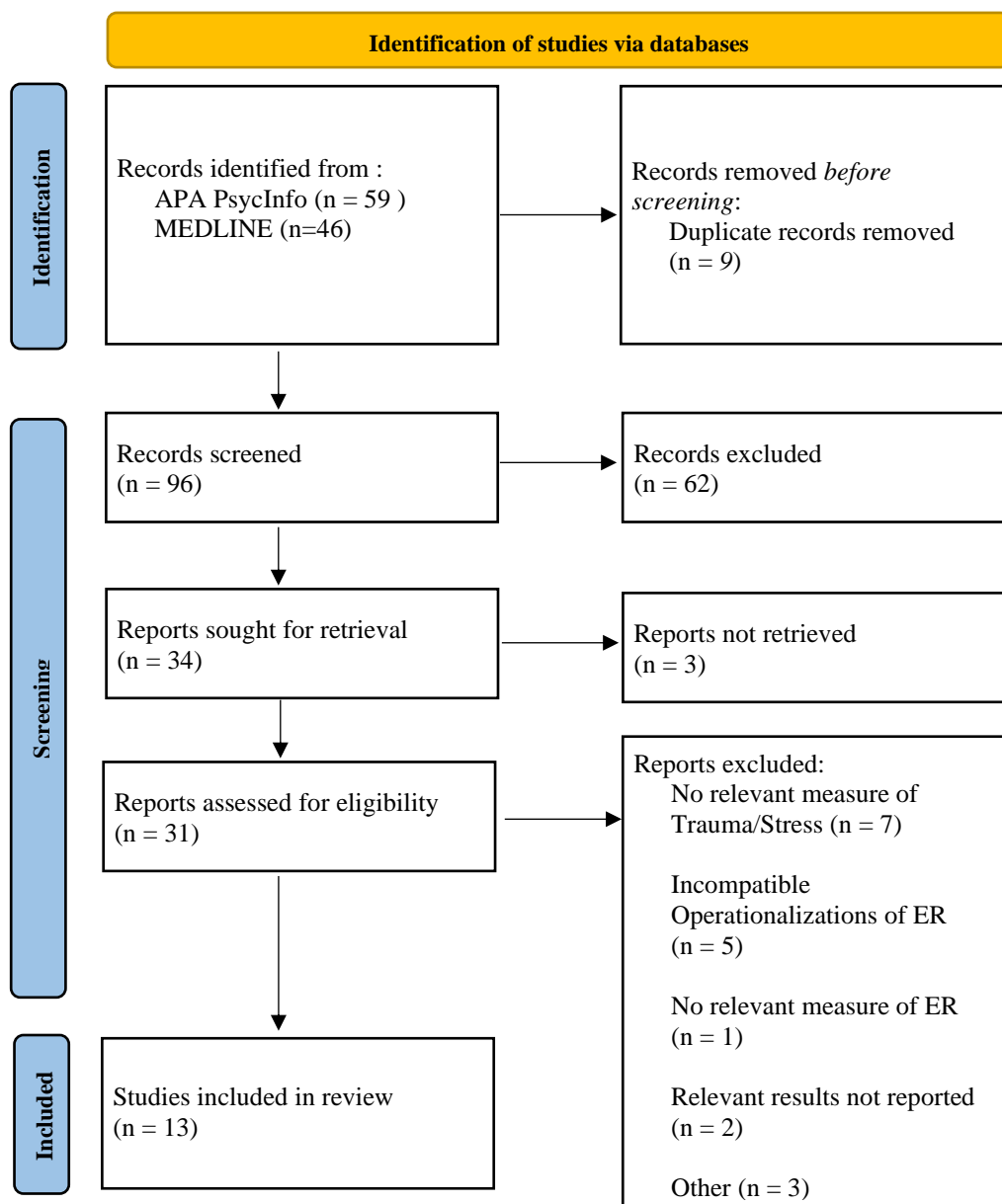
Study Selection

For the present review, 105 studies were initially identified on APA PsycInfo and MEDLINE. The initial removal of duplicate records and screening of titles and abstracts resulted in the exclusion of 71 records.

In the second step, of the remaining 34 papers, 31 papers were retrieved and fully assessed after three unretrievable reports were removed.

After 18 further reports were excluded due to a lack of relevant measures, unreported results, incompatible operationalizations of ER, incompatible qualitative or network assessments, and disclosed opinions as central topic, 13 studies were finally included for full review ($n=13$). The study selection process is depicted in Figure 2.

Figure 2.



PRISMA flowchart taken from Page et al. (2021)

Study Characteristics

The studies' sample characteristics, study design, measures, and operationalizations, as well as relevant results, can be found in Table 1.

Most included studies used scales that only measure patterns of EDR like the widely used DERS. This was not the case for studies using the ERQ, here only the suppression subscale was regarded, a measure of maladaptive ER that has been observed in connection to negative psychological outcomes (Kira et al., 2018). Similarly, from Hussain's and Bhushan's (2011) study only subscales that measured aspects of EDR, not adaptive ER, were included in the results. Since no information on the adaptiveness of each measured strategy is given, the self-blame, other-blame, rumination, and catastrophizing scales have been subjectively selected.

Risk of Bias in Studies

All included studies are publications in peer-reviewed journals. Most studies self-disclosed limitations of the conducted research. No formal assessment of the risk of bias was conducted.

Results of Individual Studies

The following results are seen in relation to the expectation that the experience of traumatic stress is related to an increase in EDR in young refugees (Hypothesis 1) and that a link between the experience of stressors and an emotional stress response can be observed in the current literature (Hypothesis 2).

Results from the individual studies are presented in Table 1. Overall, four of the studies containing correlational or regression coefficient results found significant results supporting the hypothesis. Seven studies found non-significant results that do not support the

posed hypothesis. Two of the investigated studies yielded mixed results that neither argue for nor against the hypothesis.

Correlations and Standardized Regression Coefficients

Among the hypothesis supporting results, Demir and colleagues (2020) found a significant small association between the experience of early life stress and the use of maladaptive ER strategies ($r=.18$) and a non-significant association between the experience of early life stress and the use of adaptive ER strategies. The study of Hussain and Bhushan (2011) has found significant weak associations between the experience of refugee-specific trauma and the CERQ subscales self-blame ($\beta=.18$), other-blame ($\beta=.21$), rumination ($\beta=.31$), and catastrophizing ($\beta=.28$). Khamis (2019) found a significant small association between the experience of war atrocities and the overall score of the DERS ($r=.12$) measuring the ER subscales Goals, non-acceptance, impulse, strategies, clarity, and awareness. Khamis (2022) found a significant medium-sized association between the experience of war atrocities and the overall score of the DERS ($r=.31$) measuring the ER subscales goals, non-acceptance, impulse, strategies, clarity, awareness, presumably on the same sample as Khamis (2019).

Looking at studies that give non-supporting evidence, Elsayed and colleagues (2019) found a non-significant association between pre-migratory life stressors and anger or sadness regulation. Similarly, Kira and colleagues (2018) found a non-significant association between cumulative stress and trauma and the use of suppression ER strategies. Koch and colleagues (2019) found a non-significant association between trauma and the total score of the DERS measuring the ER subscales goals, non-acceptance, impulse, strategies, clarity, and awareness. Lee and colleagues (2020) found a nonsignificant relationship between the experience of adverse childhood experiences and the use of maladaptive ER ($r=-.02$). Similarly, Speidel and colleagues (2021) found a non-significant relationship between the pre-migratory experience of stressful life events and EDR ($r=-.01$).

Summarizing the mixed results, the study of Doolan and colleagues (2017) found that the non-acceptance ($r=.18$) and impulse ($r=.22$) subscales of the DERS showed significant weak correlations to trauma experience. The subscales goals, strategies, clarity, and awareness were non-significantly associated. Nickerson and colleagues (2015) found significant weak associations between trauma and the DERS non-acceptance ($r=.04$), goals ($r=.06$), and strategies subscale ($r=.06$). The subscales impulsivity and clarity were non-significantly related to trauma.

Odds Ratios

The two studies investigating odds ratios both yielded non-supportive evidence. Specker and Nickerson (2019) found non-significant odds ratios between trauma and the likelihood of being in adaptive or maladaptive regulation and high or maladaptive regulation classes. Opposite of this study's hypothesis, they also found a significant odds ratio ($OR=1.24$) indicating a higher likelihood of showing adaptive use of ER strategies than an overly high use of ER after exposure to trauma. In a later, similar investigation, Specker and Nickerson (2022) found that experiencing potentially traumatic events was non-significantly related to the likelihood of being in a class that is low or high in ER strategy use.

Table 1

Studies investigating the link between traumatic experiences and stress in war- and flight-related contexts on emotion regulation

Study	Sample characteristics	Age	Study design	Trauma/ Stress Measure	Trauma/ Stress operationalization	EDR Measure	EDR operationalization	Results
Demir et al., 2020	n=89, Syrian refugees	10 - 41, $M_{age}=34$	Cross-sectional design	Childhood Trauma Questionnaire (CTQ)	Early life stress	Cognitive Emotion Regulation Questionnaire (CERQ)	Maladaptive (CERQ-M) and adaptive (CERQ-A) strategies	$r=.18^*$, $r=.08$
Doolan et al., 2017	n=147, Refugees and asylum seekers from Iran, Afghanistan, Sri Lanka, and other countries	18+	Cross-sectional design	Harvard Trauma Questionnaire (HTQ)	Potentially traumatic events	Difficulties in Emotion Regulation Scale (DERS)	Goals, non-acceptance, impulse, strategies, clarity, awareness	$r=.12$, $r=.18^*$, $r=.22^*$, $r=.06$, $r=.14$, $r=-.09$
Elsayed et al., 2019	n=103, Syrian refugee children and their mothers	5-13, $M_{age}=8$	Cross-sectional design	Traumatic Stress Questionnaire, Social Readjustment Rating	Pre-migratory life stressors	Children's Emotion (Anger and Sadness) Management Scales	Anger regulation, sadness regulation	$r=-.16$, $r=0.04$
Hussain & Bhushan, 2011	n=226, Tibetan refugees	$M_{age}=44$ ($SD=15.5$)	Cross-sectional design	Refugee Trauma Experience Inventory (RTEI)	Refugee-specific trauma	CERQ	Self-blame, other-blame, rumination, catastrophizing	$\beta=.18^{***}$, $\beta=.21^{**}$, $\beta=.31^{***}$, $\beta=.28^{***}$,

Note. Statistically significant results are denoted in bold.

* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .0001$.

Table 1 (continued)

Studies investigating the link between traumatic experiences and stress in war- and flight-related contexts on emotion regulation

Study	Sample	Age	Study design	Trauma/ Stress Measure	Trauma/ Stress operationalization	EDR Measure	EDR operationalization	Results
Khannis, 2019	$n=1000$, Syrian refugee children and adolescents	7-18, $M_{age}=11.3$ ($SD=2.7$)	Cross-sectional design	Trauma Exposure Scale	War atrocities experienced	DERRS Short Form (DERRS-SF)	Goals, non-acceptance, impulse, strategies, clarity,	$r=.12^{****}$
Khannis, 2022	$n=1000$, Syrian refugee children and adolescents	7-18, $M_{age}=11.3$ ($SD=2.7$)	Cross-sectional design	Trauma Exposure Scale	War atrocities experienced	DERRS-SF	Goals, non-acceptance, impulse, strategies, clarity,	$r=.31^{**}$
Kira et al., 2018	$n=502$, Syrian internally displaced persons and refugees	17-78, $M_{age}=35.8$ ($SD=11$)	Cross-sectional design	Cumulative Trauma Scale short form (CTS-S)	Collective identity trauma, personal identity trauma, survival trauma	Emotion Regulation Questionnaire (ERQ)	Suppression	$r=.09$

Note. Statistically significant results are denoted in bold.

* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .0001$.

Table 1 (continued)

Studies investigating the link between traumatic experiences and stress in war- and flight-related contexts on emotion regulation

Study	Sample characteristics	Age	Study design	Trauma/ Stress Measure	Trauma/ Stress operationalization	EDR Measure	EDR operationalization	Results
Koch et al., 2019	<i>n</i> =74, Afghan refugees	15-47, $M_{age}=20.5$ ($SD=11$)	Cross-sectional design	Selected items from HTQ and Posttraumatic Stress Diagnostic Scale	Trauma	DERRS	Goals, non-acceptance, impulse, strategies, clarity, awareness	<i>r</i> =-0.13
Lee et al., 2020	<i>n</i> =157, North Korean refugee youths	6-26, $M_{age}=18.7$ ($SD=2.8$)	Cross-sectional design	Adverse Childhood Experiences (ACE)	Adverse childhood experiences and dysfunctional family relations	ERQ	Expressive suppression	<i>r</i> =-0.02
Nickerson et al., 2015	<i>n</i> =134, Treatment-seeking refugees and asylum seekers from Turkey, Iran, Sri Lanka, Bosnia, Afghanistan, and other countries	18+	Cross-sectional design	Selected items from HTQ and Posttraumatic Diagnostic Scale	Trauma	DERRS	Goals, non-acceptance, impulse, strategies, clarity, awareness	<i>r</i> =.04, <i>r</i>=.04* , <i>r</i>=.06* , <i>r</i> =.02, <i>r</i>=.06*

Note. Statistically significant results are denoted in bold.

p* < .05. *p* < .01. ****p* < .001. *****p* < .0001.

Table 1 (continued)

Studies investigating the link between traumatic experiences and stress in war- and flight-related contexts on emotion regulation

Study	Sample characteristics	Age	Study design	Trauma/ Stress Measure	Trauma/ Stress operationalization	EDR Measure	EDR operationalization	Results
Specker & Nickerson, 2019	n=93, Refugees and asylum seekers	$M_{age}=34.5$ ($SD=10$)	Cross-sectional design, Latent Profile Analysis	HTQ	Potentially traumatic events	DEERS	Adaptive regulators vs high regulators, adaptive regulators vs. regulators	OR=1.24* , 95% CI [1.036, 1.486]; OR=1.17
Specker & Nickerson, 2022	n=82, Refugees and asylum seekers	$M_{age}=34.1$ ($SD=9.5$)	Cross-sectional design, Latent Profile Analysis	HTQ	Potentially traumatic events	Six items for reappraisal and suppression based on past experimental research	High ER variability vs. low ER variability	OR=0.86, 95% CI [0.715, 1.032]
Speidel et al., 2021	n=124, Refugee children	5-12 $M_{age}=8$ ($SD=2.3$)	Cross-sectional design	Traumatic Stress Questionnaire	Pre-migratory Stressful life events	Holistic Student Assessment	EDR	r=.01

Note. Statistically significant results are denoted in bold.

* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .0001$.

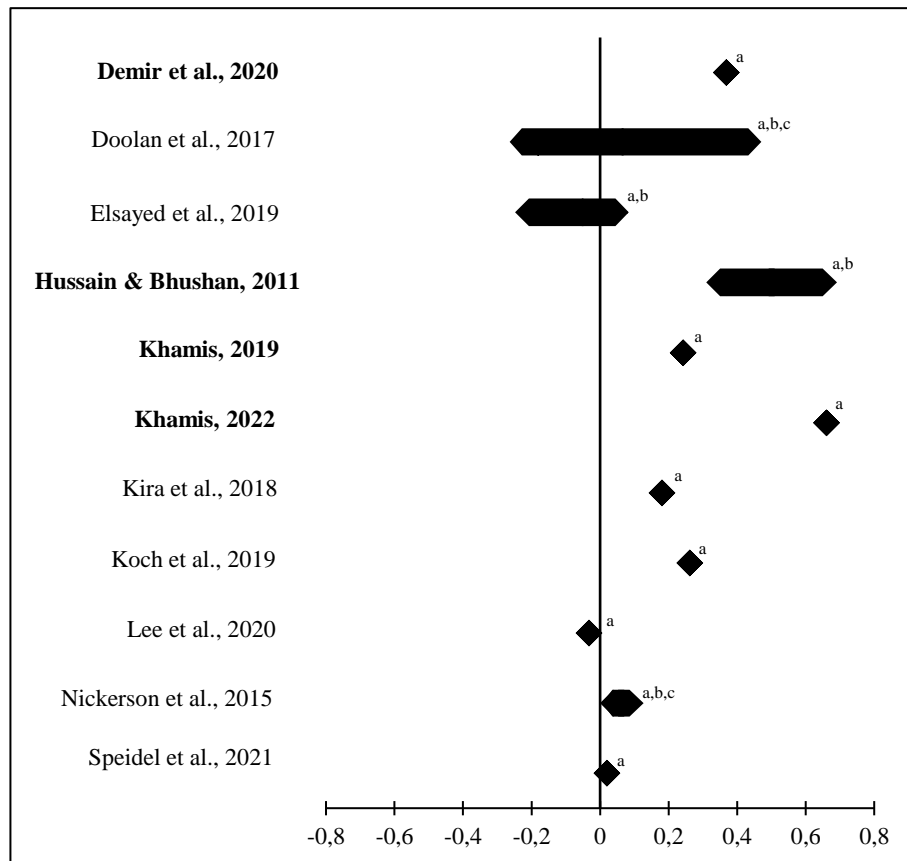
Results of Synthesis

For a visual synthesis of the studies' data, correlation and standardized beta coefficients were transformed into Cohen's d and then included in a forest plot (Fig. 3). Studies have been weighted equally.

Looking at the combined pattern of standardized effect sizes, two main findings can be observed. First, we see that the overall pattern of effect sizes is very mixed. As described above, while most studies found non-significant results, about a third found significant effects, and few found a range of mixed results. Also, it is important to note that we can observe a large range of significant effect sizes, ranging from $d=-.04$ to $d=.66$, the effect of traumatic stressors on EDR seems to vary widely. But secondly, the visual display of data underlines how some of the significant results obtained in different studies and on different samples have substantial small to medium effect sizes ($d=.45$, $d=.66$, $d=.66$). This shows how, if statistically significant, multiple results showed a substantial influence of traumatic stress on EDR.

Figure 3.

Forest plot – Effect of exposure to trauma and stress on EDR



Note. All correlation and standardized beta coefficients converted into Cohen's *d*. Statistically significant studies are denoted in bold.

^aNo CI was presented in the study; ^bBar represents range of results of multiple reported effect sizes of relevant scales; ^cIncluded results are partially statistically significant

Reporting Biases

All exclusion and non-assessment of reports was guided by the predetermined method or unsystematic unavailability of reports.

Certainty of Evidence

The certainty of the evidence was not formally assessed in the present review.

Discussion

Summary of Results

The present review included the results of 13 cross-sectional studies, retrieved from 2 databases that investigated the relationship between the experience of war- or flight-related potentially traumatic stressors and the disability to effectively regulate emotions in samples of young refugees of non-Western origin. The review yielded a pattern of very mixed results. Overall, two studies found partially nonsignificant and partially significant aspects of the relationship between the concepts of interest, four studies found a significant relationship, and seven studies found insignificant relationships. No clear conclusion about whether the experience of traumatic stress in the context of war or flight can influence a young refugee's ability to regulate their emotions can be drawn based on this pattern of results. The study's first hypothesis could not be supported, in that no positive relationship between the experience of traumatic stress and EDR could be derived from the data. In the same way, the second hypothesis about the existence of a link between stressors and an emotional stress response could neither be supported nor argued against based on the synthesized data.

Interpretation of Results

Due to the hypotheses' foundation in and reflection of the current state of the literature, the large observed deviation from the anticipated results and overall mixed pattern was not expected. The outcomes bear the question of to what degree the observed pattern reflects the non-significance of the relationship between traumatic stress and EDR and to what degree they reflect the presence of other factors in the literature or applied methodology. To critically reflect the unexpected results in the face of the gravity of the claim of a non-significance of the investigated relationship, the following section will consider alternative factors that might have contributed to the present results.

Looking at the characteristics and results of the reviewed literature, it is worth mentioning that some of the significant correlations and regression coefficients range into a medium effect size ($r=.36$, $\beta=.31$), these results give considerable evidence that the investigated sample showed EDR as a response to stressful experiences. Similarly, the largest included study by Khamis (2019) sampled 1000 Syrian refugees and found a small significant positive relationship. The size and use of good measures give much credibility to the results found in this study.

At the same time, some of the studies that produced non-significant results can be criticized for suboptimal measures for the target concepts. Speidel and colleagues (2021), in a study yielding a non-significant almost non-relationship ($r=0.01$), used three items to measure ER while many other studies used the DERS, a measure of ER comprised of 6 full subscales. The DERS specifically resulted in at least partially significant results in four out of seven investigated studies it has been used in, still, judging whether the DERS is a more adequate measure of EDR than alternative measures would go beyond the scope of this paper.

Further, it has to be mentioned that many studies investigated emotion regulation, not as the main construct of interest, and therefore might have devoted less emphasis on measuring the concept very precisely. Most of the studies included in the present review focused on ER as an aspect or mediator of PTSD and other trauma/stressor-related disorders.

Both concepts involved in the investigated relationship have been operationalized in very different ways leading to studies that might assess experiences at very different points on the spectrums of stressful traumatic experiences or problems in the regulation of emotion. Trauma and stress have been operationalized as both pre-migratory life stressors but also experienced war atrocities. EDR has been operationalized both as problems with anger and sadness regulation as well as a profile of adaptive or maladaptive emotion regulation strategies. This could partially account for the mixed pattern of results.

After considering multiple aspects of the included literature, it can be argued that the unexpected results of the review could be compromised by the inclusion of studies that use very heterogeneous definitions of traumatic and stressful experiences and suboptimal assessments of ER and EDR.

Connection to Other Evidence

Since the studies included in the present review only contained cross-sectional self-report data, a more diverse investigation of evidence that looks at the relationship between traumatic stress and EDR through different perspectives might add to the interpretability of the results. Based on the current state of the literature, it seems unlikely there would be no effect of stress on the ER of the individual, other operationalizations of ER and research designs might give more perspectives on the relationship of interest.

A higher ecological validity for example might be established by looking at studies that included physiological operationalizations of ER that resemble the real-world application of ER more closely but have been excluded due to their connection to other stress response factors of the SRN. In their experimental study, Spiller and colleagues (2019) exposed refugees with a probable PTSD diagnosis to a sequence of trauma-inducing stimuli to then measure their heart rate variability (HRV) before, during, and after exposure. A high HRV shows the ability to return to a baseline heart rate after a significant increase during exposure and therefore resembles high ER, the opposite goes for low HRV. Their physiological data suggests, that not only does the low HRV group indeed struggle with returning to baseline heart rate after anger was induced, but they also show that the exposure to trauma and resulting probable PTSD is significantly related to reduced fear recovery. Operating from a physiological perspective, this study gives strong evidence for an increase in aspects of EDR as an effect of (re)exposure to traumatic stress.

Other study designs that can add confidence to claims about the relationship of interest but were not included are longitudinal and qualitative studies. Although longitudinal data could give much insight into the development of ER problems in response to stressful experiences, presumably due to practical and ultimately ethical limitations, there are no studies that collected time-series data or measurements of ER before and after exposure to stressors. Qualitative studies on the other hand do exist and give a lot of insight into how young refugees regulate emotions and why they do so. In his interviews with young refugees that suffered abuse as child soldiers, Zito (2016) suggests that the subjects showed avoidance of and dissociation from emotions as a protective measure from threatening situations that could not be escaped from otherwise. These strategies could be compared to the maladaptive suppression ER strategy measured by the ERQ. These findings suggest that a maladaptive adaptation of ER strategies follows the exposure to inescapable traumatic circumstances, a finding that supports the existence of a link between (extreme) stressors and EDR based on first-hand qualitative data.

Although these studies did not fit the criteria of the present review, their methodological approach and measures still give very solid evidence that argues for the effect of refugees' traumatic stressful experiences on the ability to regulate emotions. While these two examples should not be given more weight than the initial review, their significant and qualitative results help the interpretation of the results by underlining the concerns with the pattern of results described earlier.

Validation of SRN

A larger-scale goal of the present literature was to find initial evidence around the SRN model and more specifically its proposed link between the experience of the initial stressor and the emotional stress response. The chosen real-world example of ER changes in young refugees seemed very fit to verify this relationship. Due to the extreme nature of the

stress, strong measurable effects were expected, which makes the mixed results that put the existence of this link in question an important subject of further investigation. Based on the review of evidence, such a link was not supported by the majority of studies. In ways similar to the previously discussed problematic characteristics of the studies, the investigated evidence does not convincingly argue against the existence of this link either. Although the majority of results were non-significant, many of the studies leave alternative explanations for yielding results non-supportive of the SRN. Further, it is important to relativize that the present review only partially investigates the spectrum of emotional responses. The experience of a stressor can lead to emotional responses that don't result in measurable post-migratory changes in ER, the link in question should therefore be investigated more broadly in the future. A rejection of the relationship between stressors and emotional stress responses based on the present data can not be advised. Put into perspective, the present review solely argues that the real-world relationship between the experience between war- and flight-related stressors and the development of EDR is not clearly reflected in the majority of the selected literature.

Limitations and Strengths

Limitations of the Review

The present review's results have to be seen in the context of its limiting factors, one of which is the derived search string. Although it has been comprised to encompass the relevant population, it did not sufficiently reflect the target age of the young population of interest and could be used for a review of adult refugees as well. This resulted in the identification and inclusion of some studies with a mean age that indicates that most but not all participants fit the target population of young refugees. A clear exclusion of these studies did not seem advisable due to there being almost no identified studies that limit their investigations to young refugees only. This tradeoff limits the review's external validity and

generalizability to the target population and can only be counteracted by a growth of the body of literature that targets these important populations exclusively. Further, replications of this review should use a search string that clearly includes the target population's age.

Further, the present study is limited in its reliability due to its limited resources in an educational context and the resulting reliance on a single reviewer which is not common practice. Subjective judgments were inevitably made in the creation of the search string and screening of identified studies. Replications should minimize subjective bias by using multiple independent reviewers.

All included studies used a cross-sectional design based on self-report assessments which made the collected data very unidimensional. Cross-sectional investigations of convenience or local samples as were used in some of the studies might have resulted in systematic variance in the experiences, origins, and other characteristics of participants that create bias in a respective study's results and reduce generalizability. Considering this, parts of the mixed results could be reflecting initial differences between the potentially shared experiences (e.g. country of origin, similar flight routes, mode of transportation during flight, etc.) of the locally available samples a study was conducted on.

While this review assumed good generalizability of the studies to the general young refugee population, it is worth considering to what degree such a population can be clearly defined. In reality, the refugee status just describes a cornucopia of detrimental experiences and environmental circumstances that motivated migration, it is not an intrinsic property of the individuals. Future studies might benefit from restricting their target population to similar regions of origin or in some way control for the different forms of war and flight experiences.

A strength of the review that sets it apart from the few comparable investigations of affective outcomes in young refugees, is its integration of the SRN as a theoretical superstructure. The interpretation in terms of the SRN embeds this study's results into a larger

relevant context, making its outcomes translatable into practice and contributing to the possibility of better etiological understanding.

Limitations of Reviewed studies

Fundamental to the integrity of the review's results is that of the individual included studies. Since in the present review no system for study quality assessment, weighting of studies by quality, or formal assessment of bias could be performed, an objective assessment of the risk for bias and inclusion of low-quality studies can not be given, a limiting factor in itself. Looking at the studies less systematically, as discussed, some studies show large limitations to their results.

Although previously mentioned as a contributor to the diffuse results, the different operationalizations of trauma and EDR could present as a strength of the review, in that the constructs are investigated from a broad perspective. Synthesizing results from multiple operationalizations and partial aspects of the same construct will increase the certainty with which it is adequately assessed and therefore the construct validity of this review and its claims.

Implications of Results

Clinical implications

As mentioned beforehand, the construct of ER could show implications for practice in two ways. The unclear pattern of results could indicate that EDR is not part of the average presentation of a young stressed or traumatized refugee and that teaching adaptive ER strategies should not be a central priority of interventions designed for this population. Evidence on ineffective treatment options can be valuable to find more efficient treatments for a population that overall is faced with very limited assigned healthcare resources (Loenen et al., 2017). The opposite interpretation of the results would suggest focusing on reducing EDR and providing support for the learning and use of adaptive ER. For the same

aforementioned reasons, finding effective interventions for this population is crucial to ensure their well-being in the long term. The present body of evidence can not be interpreted confidently to favor each of the presented options, future studies should investigate this question further.

Policy Implications

An implication of this unclear state of evidence for policymakers is the need to support research in finding valid results that point toward evidence-based decisions and interventions that will improve the currently suboptimal state of care for young refugees that settle in Europe. The responsibility for this young and vulnerable population is in the hands of the countries that grant asylum to these individuals, they are new members of the receiving society and should be treated as such to be able to become integrated citizens of these countries.

Future Studies

Concluding based on the previous discussion of results, future studies should focus on investigating the basic link between trauma or stress and EDR more clearly and in methodologically sound ways. EDR is often assumed to be a crucial aspect of disorders like PTSD or mental health outcomes of young refugees in general, but based on the present review doubt about the accuracy and foundation of this assumption can be raised. To make valid recommendations for clinical practice and policymakers in regards to young refugees based on EDR research, this fundamental preceding link needs to be firmly established in future studies. Concerning the future of the SRN, although not sufficiently validated, a possible utility of the model could be to further analyze and investigate the development of psychopathology in young refugees. The SRN could be applied to map profiles of different initial stressors, and various combinations of the response network factors to identify individual etiological profiles of certain psychopathological symptoms. If future research

deems this approach valid, this could be a new path to finding appropriate minimalistic treatments that can be funded and administered easily and on a large scale.

Conclusion

The present review of evidence concludes that, although there are sporadic solid traces of the relationship between the experience of traumatic stressors and an increase in EDR in young refugees, the majority of the literature does not suggest its existence to a significant degree. The same goes for the link between the experience of stressors and emotional stress responses proposed by the SRN that could not be validated in this real-world example.

This review yielded surprising results about a widely accepted relationship that has to be relativized in consideration of the suboptimal state of the current literature. The unclear results more than anything else reveal an understudied relationship that seems crucial to the understanding of the etiology of young refugees' psychopathologies and the treatment of disorders with high morbidity in this population. Future efforts for research should be guided by the necessity to underpin this relationship with a solid methodology.

Although the young body of research around the SRN will only minorly advance through the findings of this review, its unique dynamic network of multiple stress response factors and integration of feedback loops shows much promise for the future study of individual stress responses. Especially for a range of typical stressors and resulting psychopathological symptoms as wide and clearly defined as that of young refugees', a model that allows investigation of their mediating mechanisms is of high value.

In the end, finding clearer answers to these relevant questions is not only in the interest of the suffering young refugees in need of support and good interventions but also the society at large that will benefit from more well-adjusted young individuals that adaptively manage their emotions.

References

- Abi Zeid Daou, K. R., Abi Zeid Daou, L. R., & Cousineau-Pérusse, M. (2022). The Experiences of Syrian Mothers Who Are Refugees in Canada: An Exploration of Emotion Work and Coping. *Women & Therapy*, 1–20.
<https://doi.org/10.1080/02703149.2021.2008520>
- Anderman, E. M., & Anderman, L. H. (2009). *Psychology of classroom learning : an encyclopedia*. Gale.
- APA Thesaurus of Psychological Index Terms*. (n.d.). Web.p.ebscohost.com. Retrieved May 25, 2022, from <https://web.p.ebscohost.com/ehost/thesaurus?vid=3&sid=d3848062-40e5-4864-ae90-1c1906b5855a%40redis>
- Arnold-Fernandez, E. (2016). Making Human Rights a Reality for Refugee Children: A Prerequisite to Local Integration as a Durable Solution. *Children and Forced Migration: Durable Solutions During Transient Years*, 227–247.
https://doi.org/10.1007/978-3-319-40691-6_10
- Demir, Z., Böge, K., Fan, Y., Hartling, C., Harb, M. R., Hahn, E., Seybold, J., & Bajbouj, M. (2020). The role of emotion regulation as a mediator between early life stress and posttraumatic stress disorder, depression and anxiety in Syrian refugees. *Translational Psychiatry*, 10(1), 1–10. <https://doi.org/10.1038/s41398-020-01062-3>
- Doolan, E. L., Bryant, R. A., Liddell, B. J., & Nickerson, A. (2017). The conceptualization of emotion regulation difficulties, and its association with posttraumatic stress symptoms in traumatized refugees. *Journal of Anxiety Disorders*, 50, 7–14.
<https://doi.org/10.1016/j.janxdis.2017.04.005>
- Ehlers, A., Maercker, A., & Boos, A. (2000). Posttraumatic stress disorder following political imprisonment: The role of mental defeat, alienation, and perceived permanent change.

Journal of Abnormal Psychology, 109(1), 45–55. <https://doi.org/10.1037/0021-843X.109.1.45>

Elsayed, D., Song, J.-H., Myatt, E., Colasante, T., & Malti, T. (2019). Anger and Sadness Regulation in Refugee Children: The Roles of Pre- and Post-migratory Factors. *Child Psychiatry & Human Development*, 50(5), 846–855. <https://doi.org/10.1007/s10578-019-00887-4>

European Council on Refugees and Exiles. (n.d.). *Statistics*. Asylum Information Database. <https://asylumineurope.org/reports/country/netherlands/statistics/>

Garcia, M. F., & Birman, D. (2022). Understanding the Migration Experience of Unaccompanied Youth: A Review of the Literature. *American Journal of Orthopsychiatry*, 92(1), 79–102. <https://doi.org/10.1037/ort0000588>

Gratz, K. L., & Roemer, L. (2008). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale (Journal of Psychopathology and Behavioral Assessment (2004) 26, (41-54) DOI: 10.1023/B:JOBA.00000007455.08539.94). *Journal of Psychopathology and Behavioral Assessment*, 30(4), 315. <https://doi.org/10.1007/S10862-008-9102-4>

Hoell, A., Kourmpeli, E., Salize, H. J., Heinz, A., Padberg, F., Habel, U., Kamp-Becker, I., Höhne, E., Böge, K., & Bajbouj, M. (2021). Prevalence of depressive symptoms and symptoms of post-traumatic stress disorder among newly arrived refugees and asylum seekers in Germany: systematic review and meta-analysis. *BJPsych Open*, 7(3), e93. <https://doi.org/10.1192/bjo.2021.54>

Hussain, D., & Bhushan, B. (2011). Posttraumatic stress and growth among Tibetan refugees: the mediating role of cognitive-emotional regulation strategies. *Journal of Clinical Psychology*, 67(7), 720–735. <https://doi.org/10.1002/jclp.20801>

- Khamis, V. (2019). Posttraumatic stress disorder and emotion dysregulation among Syrian refugee children and adolescents resettled in Lebanon and Jordan. *Child Abuse & Neglect*, *89*, 29–39. <https://doi.org/10.1016/j.chiabu.2018.12.013>
- Khamis, V. (2022). Neuroticism as Mediator and Moderator Between War Atrocities and Psychopathology in Syrian Refugee Children and Adolescents. *Frontiers in Psychology*, *13*. <https://doi.org/10.3389/fpsyg.2022.811920>
- Kira, I. A., Shuwiekh, H., Al Ibraheem, B., & Aljakoub, J. (2018). Appraisals and emotion regulation mediate the effects of identity salience and cumulative stressors and traumas, on PTG and mental health: The case of Syrian's IDPs and refugees. *Self and Identity*, *18*(3), 284–305. <https://doi.org/10.1080/15298868.2018.1451361>
- Koch, T., Liedl, A., & Ehring, T. (2019). Emotion regulation as a transdiagnostic factor in Afghan refugees. *Psychological Trauma: Theory, Research, Practice, and Policy*. <https://doi.org/10.1037/tra0000489>
- Lee, M., Lee, E.-S., Jun, J. Y., & Park, S. (2020). The effect of early trauma on North Korean refugee youths' mental health: Moderating effect of emotional regulation strategies. *Psychiatry Research*, *287*, 112707. <https://doi.org/10.1016/j.psychres.2019.112707>
- Miller, K. E., & Rasmussen, A. (2010). War exposure, daily stressors, and mental health in conflict and post-conflict settings: Bridging the divide between trauma-focused and psychosocial frameworks. *Social Science & Medicine*, *70*(1), 7–16. <https://doi.org/10.1016/J.SOCSCIMED.2009.09.029>
- Miller, K. E., & Rasmussen, A. (2017). The mental health of civilians displaced by armed conflict: An ecological model of refugee distress. *Epidemiology and Psychiatric Sciences*, *26*(2), 129–138. <https://doi.org/10.1017/S2045796016000172>
- Nickerson, A., Bryant, R. A., Schnyder, U., Schick, M., Mueller, J., & Morina, N. (2015). Emotion dysregulation mediates the relationship between trauma exposure, post-

migration living difficulties and psychological outcomes in traumatized refugees.

Journal of Affective Disorders, 173, 185–192.

<https://doi.org/10.1016/j.jad.2014.10.043>

Nickerson, A., Garber, B., Liddell, B. J., Litz, B. T., Hofmann, S. G., Asnaani, A., Ahmed, O., Cheung, J., Huynh, L., Pajak, R., & Bryant, R. A. (2017). Impact of Cognitive Reappraisal on Negative Affect, Heart Rate, and Intrusive Memories in Traumatized Refugees. *Clinical Psychological Science*, 5(3), 497–512.

<https://doi.org/10.1177/2167702617690857>

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., & McGuinness, L. A. (2021). The PRISMA 2020 statement: an Updated Guideline for Reporting Systematic Reviews. *International Journal of Surgery*, 88(105906), 105906. <https://doi.org/10.1016/j.ijssu.2021.105906>

Roest, A. (2022, March 31). *Systematic reviews* [Microsoft PowerPoint].

Satinsky, E., Fuhr, D. C., Woodward, A., Sondorp, E., & Roberts, B. (2019). Mental health care utilisation and access among refugees and asylum seekers in Europe: A systematic review. *Health Policy*, 123(9), 851–863.

<https://doi.org/10.1016/J.HEALTHPOL.2019.02.007>

Sills, D. L. (1968). *International encyclopedia of the social sciences. Volume 13, PSYC-SAMP*. The Macmillan & The Free Press. Copyright.

Specker, P., & Nickerson, A. (2019). Investigating the relationship between distinctive patterns of emotion regulation, trauma exposure and psychopathology among refugees resettled in Australia: a latent class analysis. *European Journal of*

Psychotraumatology, 10(1), 1661814.

<https://doi.org/10.1080/20008198.2019.1661814>

Specker, P., & Nickerson, A. (2022). An experimental investigation of spontaneous emotion regulation variability, negative affect, and posttraumatic stress disorder among traumatized refugees. *Psychological Trauma: Theory, Research, Practice, and Policy*.
<https://doi.org/10.1037/tra0001217>

Speidel, R., Galarneau, E., Elsayed, D., Mahhouk, S., Filippelli, J., Colasante, T., & Malti, T. (2021). Refugee Children's Social–Emotional Capacities: Links to Mental Health upon Resettlement and Buffering Effects on Pre-Migratory Adversity. *International Journal of Environmental Research and Public Health*, 18(22), 12180.
<https://doi.org/10.3390/ijerph182212180>

Spiller, T. R., Liddell, B. J., Schick, M., Morina, N., Schnyder, U., Pfaltz, M., Bryant, R. A., & Nickerson, A. (2019). Emotional Reactivity, Emotion Regulation Capacity, and Posttraumatic Stress Disorder in Traumatized Refugees: An Experimental Investigation. *Journal of Traumatic Stress*. <https://doi.org/10.1002/jts.22371>

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., & Lewin, S. (2018). PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Annals of Internal Medicine*, 169(7), 467.
<https://doi.org/10.7326/m18-0850>

Tull, M. T., Barrett, H. M., McMillan, E. S., & Roemer, L. (2007). A Preliminary Investigation of the Relationship Between Emotion Regulation Difficulties and Posttraumatic Stress Symptoms. *Behavior Therapy*, 38(3), 303–313.
<https://doi.org/10.1016/J.BETH.2006.10.001>

UNHCR. (2021, November 10). *UNHCR - Refugee Statistics*. UNHCR.

<https://www.unhcr.org/refugee-statistics/>

United Nations. (2000). *What is a refugee?* UNHCR. <https://www.unhcr.org/what-is-a-refugee.html>

van Loenen, T., van den Muijsenbergh, M., Hofmeester, M., Dowrick, C., van Ginneken, N., Mechili, E. A., Angelaki, A., Ajdukovic, D., Bakic, H., Pavlic, D. R., Zelko, E., Hoffmann, K., Jirovsky, E., Mayrhuber, E. S., Dückers, M., Mooren, T., Gouweloos-Trines, J., Kolozsvári, L., Rurik, I., & Lionis, C. (2018). Primary care for refugees and newly arrived migrants in Europe: A qualitative study on health needs, barriers and wishes. *European Journal of Public Health*, 28(1), 82–87.
<https://doi.org/10.1093/eurpub/ckx210>

Zito, D. (2016). Kindersoldatinnen und -soldaten als Flüchtlinge in Deutschland. *Praxis Der Kinderpsychologie Und Kinderpsychiatrie*, 65(10), 763–780.
<https://doi.org/10.13109/prkk.2016.65.10.763>