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ORIGINAL CONTRIBUTION

Alone, but protected? Effects of social support on mental health of unaccompanied refugee minors

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Abstract

Unaccompanied refugee minors (URM) are the most vulnerable group of refugees suffering from higher levels of mental health problems. Yet, there is also a group of URM with little or no symptoms or disorders. A major predictor for positive mental health outcomes is the social support network in the post-flight period which has rarely been investigated for the group of URM. The present study analyzes differences between perceived social support from family, peers, and adult mentors in URM, with subgroup analyses of peer and mentor support in URM with and without family contact. Furthermore, we investigate whether social support from each of the three sectors moderates the relationship between stressful life events (SLE) and mental health of URM with family contact. Questionnaire data were collected from 105 male URM from Syria and Afghanistan aged 14–19 years who were living in group homes of the Child Protection Services in Leipzig, Germany, in summer 2017. URM receive most social support from their families, followed by peers and adult mentors. URM without family contact received less peer and mentor support compared to URM with family contact. Lower social support from mentors increased the risk for PTSD, depression and anxiety symptoms after SLE, whereas lower social support from peers increased the association between SLE and anxiety symptoms. Mentor and peer support in the host country is relevant for the processing of SLE. URM without family contact represent a "double burden" group, as they might feel less supported by other social networks.

Keywords Adolescents · Stressful life events · Posttraumatic stress disorder · Depression · Anxiety · Somatic symptoms

Introduction

From the 65.6 million people worldwide who are on the run or in flight-like situations, around 50% are children and adolescents [1]. Germany received the largest number of asylum applications (35,939) from unaccompanied refugee minors (URM) in 2016 [2]. Most of them came from Afghanistan, Syria, Eritrea, or Somalia without their family members or have lost them during the journey. Of these, 91% (32,741) were male. In December 2017, a total of 54,962 minor or young adult refugees (usually up to the age of 21) were in the care of the German child and youth welfare services. The majority (81%) of them were accommodated in regular youth welfare facilities (residential groups or shared flats) and less frequently in alternative places such as hostels, hotels or foster/host families [2]. In previous research, it has often been noted that URM might be at greater risk for distress or suffering from mental health disorders due to separation from family members as well as cumulative stressful life events (SLE) associated with experiences before, during and after the flight and during the process of acculturation in the host country [3–6]. In a review on mental health of URM, Witt and colleagues (2015) report increased prevalence rates of (particularly internalizing) symptoms with 23–82% in self-reports, 20–71% in caregiver reports and 42–56% in clinical interviews. Post-traumatic stress disorder (PTSD) was the most common disorder of URM, with prevalence rates between 17 and 71%, followed by depression (between 12 and 44%), and anxiety disorders (between 18 and 38%). In addition, URM reported somatic symptoms, sleep disorders, attention problems, social withdrawal, and problems with peers [7–9].

Despite their increased vulnerability, a considerable number of URM develops little or no symptoms or disorders [6,

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7]. Studies have identified social support as a major protective factor in traumatized populations, and specifically in young refugees [3, 7, 10–12]. Social support can buffer the development of symptoms and support mental health among individuals from conflict zones and with multiple SLE [13–16]. Only few studies on the relationship between social support and mental health of URM in the post-flight period have been conducted [3, 17]. Existing social networks of URM are often lost or have changed because of the flight. Thus, networks outside the family may play an important role for URM's mental health.

Social support

Social support is understood as a complex and multidimensional construct [18, 19]. In his theory of social provision, Weiss [20] divided social support into six dimensions that are, on the one hand, relevant for coping with SLE and, on the other hand, refer to the maintenance of life satisfaction irrespective of an individual's stress level. The dimensions *guidance* (i.e., giving advice and information) and *reliable alliance* (i.e., reliability on support from others) are important for problem-solving in stressful periods of life. Guidance, according to Weiss [20], is often given by teachers, mentors and parent figures, while reliable alliance is primarily provided by family members. The other dimensions are *reassurance of worth* (i.e., appreciation; recognition of competence and abilities by others), *attachment* (i.e., connectedness; emotional closeness that conveys a feeling of security), *social integration* (i.e., the feeling of belonging to a group that shares the same interests, concerns and leisure activities), and *opportunity for nurturance* (i.e., the feeling that the well-being of others can be caused by oneself). Layne and colleagues [19] adapted Weiss' social provision theory for war-torn youths and added the two aspects *physical assistance* (e.g., support during official visits) and *material support* (e.g., money, food, clothing).

Sectors of social support and mental health

Social support can be offered and obtained from various social networks or sectors [18, 19]. These networks give individuals a sense of stability, predictability in their life situation, and a sense of appreciation [21]. In a review on protective factors of young refugees, Sleijpen and colleagues [10] discovered that social support as one of the main protective factors was largely provided by the family, people from the same cultural context, peers, and professionals (e.g., social workers, teachers). Based on a study with Bosnian youths, Layne and colleagues [19] divided the social support networks of young people into the four sectors *nuclear family* and *extended family members*, *friends at the same age (peers)*, and *adult friends/mentors*.

Family support is considered to be one of the most important sources of support for young people in terms of belonging, appreciation, and the feeling of being loved [21, 22]. Family cohesion and the perception of parental support are negatively associated with mental health problems in children and adolescents, and act as protective factors against stress [7, 23]. Studies have also found that family cohesion before and after migration serves as a strong predictor of mental health in refugee children [24, 25]. Layne and colleagues [19] highlighted the relevance of family support in Bosnian youth compared to mentor or peer support. The greatest (negative) association was found for family support and depression, while mentor or peer support could not reduce this negative effect. Little attention has been paid so far on URM's supporting family alliances from abroad. Although the family system of URM seems broken after migration with a lack of emotional and instrumental support from their parents, the parents remain present in the narratives of URM [26]. In a study by Oppedal and Idsoe [17], 51% of the URM stated that they still had contact with family members abroad, and those who received social support from their families had lower levels of depression. Heptinstall, Sethna, and Taylor [27] also identified the loss of contact with family members as a risk factor that can increase the risk of mental disorders in refugee minors. Family members in the country of origin can therefore be a major source of social support for URM. Furthermore, contact to family members may allow URM to maintain a cultural continuity including ethnic identity as well as cultural norms and values [17, 28].

While peers are becoming increasingly relevant in adolescence, they may serve as a crucial resource for URM's mental health, particularly in cases of limited support from their family of origin. In the host country, URM usually live in flat-sharing communities in which they meet youths with similar cultural background and flight experiences, offering a sense of understanding and maintaining cultural continuity [29, 30]. According to Mels and colleagues [26], most URM are primarily in contact with peers from the same cultural context. They often have the function of distracting from unpleasant topics and memories and also reducing the perceived threat of abrupt changes in life and cultural loss [10]. In contrast, contact to peers from the host country can facilitate the process of acculturation [17]. Longitudinal studies have shown that increased peer support in adolescence predicts lower levels of depression and fosters mental health [31, 32]. Morley and Kohrt [33] found increased PTSD symptoms in Nepalese child soldiers with lower peer support during post-war reintegration.

Adult friends or mentors such as teachers, coaches, or caregivers in residential groups can act as another source of social support for URM. In a study on URM in Belgium, caregivers in asylum shelters were described as the closest

and most important persons, and the only source of emotional support [26]. Another study from Sujoldzic, Peternel, Kulenovic, and Terzic [34] showed an increase in depressive symptoms in Bosnian refugees with little social support from teachers. Moreover, refugees from Bosnia mentioned that they turned less to teachers and received the greatest support from adult neighbors and friends [19]. According to Galbo [35], mentors can help youths with advice or serve as compensation for the absence of another adult, especially in episodes of conflict.

Given the lack of research on the role of different social support sectors for URM's mental health, the first aim of the present study is to analyze differences between social support from family members, peers, and mentors in URM with family contact. Second, it should be examined to what extent the quality of social support from networks outside the family (peers and adult mentors) differs in URM with or without family contact. Third, it should be analyzed in URM with family contact if the quality of social support from each of the three sectors moderates the relationship between SLE and mental health problems. We expect that a high level of social support diminishes the relationship between the number of SLE and mental health, whereas a low level of social support intensifies this association.

Methods

Procedure

After approval by the Ethics Committee of the Medical Faculty of the University of Leipzig, the study was conducted in residential group homes of the Youth Welfare Office in Leipzig. Inclusion criteria were comprehension and speaking Arabic, Farsi, or German language as well as the legal guardian's written consent. Appointments were made with caregivers in the group homes, URM, and interpreters working for the study. Prior to the assessments, the URM were fully informed about the content and objectives of the study, and written consent was obtained if youths were interested in study participation. Emphasis was placed on the voluntary nature of participation, the possibility of queries and interruptions, the exclusively anonymous processing of data without passing on information to authorities, and that the questionnaire has no influence on the asylum procedure and residence status. The questionnaires were available in Arabic, Farsi, and German and were completed with the help of interpreters (Arabic, Dari, and Farsi). The questionnaire included general socio-demographic information (i.e., age, education, flight experiences, and current living situation) as well as questions on social support, SLE, and current mental health.

Sample

From June to August 2017, a total of 142 Arabic- and Persian-speaking male URM were addressed in 13 of the largest group homes ($n > 5$ URM) to invite them for study participation, with $N = 107$ (75.0%) participating in the study. A total of 35 URM (25.0%) were not available at the time of the survey and/or were not interested in the study. Two URM terminated their participation prematurely due to comprehension problems and current distress. The final sample consisted of $N = 105$ male participants between 14 and 19 years with an average age of 17.3 years. Detailed sample characteristics including information about the family of origin, flight experiences, education, and current living situation are presented in Table 1.

Instruments

Perceived social support of the URM in the three sectors, family, peers, and mentors, was assessed with the *Multi-Sector Social Support Inventory* (MSSI; [19]). The MSSI is a self-report measure capturing the quantity and quality of social support networks of youths in the last 4 weeks. It was specifically developed for adolescents in war-torn regions. Upon presence of contact with the respective sector, the number of supporting persons (quantity) and the subjective intensity of support (quality) were recorded. Regarding quality of support, seven items cover dimensions of the theory of social provision (i.e., guidance, reliable alliance, reassurance of worth, attachment, social integration, and opportunity for nurturance [20]), and four items include physical and material support, rated on a five-point Likert scale (0 = "never", 1 = "rarely", 2 = "sometimes", 3 = "frequently", 4 = "almost always"). In the present study, quality of support in the three sectors provided good to very good internal consistencies (Cronbach's alpha) (family, $\alpha = 0.86$; peers, $\alpha = 0.90$; mentors, $\alpha = 0.92$).

Number of SLE was assessed using the *Life Event Checklist for DSM-5* (LEC-5; [36]). The LEC-5 is a frequently used self-report instrument recording lifetime SLE in accordance with the DSM-5 A criterion of PTSD [37]. It consists of 17 items: 16 items recording the experience of predetermined events that are likely to lead to PTSD (including natural disasters, accidents, physical/sexual assaults, war experiences, illnesses, injuries, or death experiences) and another item offering the possibility of listing a further SLE not mentioned before. With a five-point scale, subjects can indicate in what way they were involved in the events (4 = "happened to me"; 3 = "witnessed it"; 2 = "learned about it"; 1 = "not sure"; 0 = "does not apply"). The original version contains an additional answer option ("part of my job") that was excluded with respect to the target group. In

Table 1 Socio-demographic characteristics and SLE of URM

	M (SD, Min–Max)	*N* (%)
Age	17.3 (1.2, 14–19) years	
Language in questionnaire		
Farsi		63 (60.0)
Arabic		40 (38.1)
German		2 (1.9)
Country of origin		
Afghanistan		62 (59.0)
Syria		36 (34.3)
Others (i.e., Iran, Iraq, Libya, Eritrea)		7 (6.7)
Household members in the country of origin		
Mother		94 (89.5)
Father		83 (79.0)
Siblings		80 (76.2)
Grandparents		15 (14.3)
Uncle/aunt		14 (13.3)
Friends		12 (11.4)
Others		6 (5.7)
Flight duration	0.7 (1.1, 0–5) years	36 (34.3) with family
		32 (30.5) with strangers
		24 (22.9) alone
		13 (12.4) friends
Length of stay in Germany	1.7 (0.6, 0.2–3.6) years	
Education in the country of origin	6.6 (3.1, 0–12) years	45 (42.9) school leaving certificate
Education in Germany	1.1 (0.5, 0.2–2.6) years	99 (94.3) German school
Housemates in group homes[a]	14.3 (6.2, 0–40) persons	
Caregivers per group home	10.8 (2.8, 1–18) persons	
Contact with social support sectors		82 (78.1) family
		79 (75.2) peers; 25 (23.8) with same cultural background
SLE		99 (94.3) at least one
Personal	3.1 (2.3)	53 (50.5) violent attack
		42 (40.0) attack with weapons
		39 (37.1) traffic accident
Witnessed	3.4 (2.9)	44 (41.9) fire or explosion
		40 (38.1) violent death
		29 (27.6) sudden accidental death

M scale mean value, *SD* standard deviation, *SLE* stressful life events

[a]*N* = 102 (97.1%) the URM lived in group homes, one (1%) in an accommodation facility, and two (1.9%) alone in their own living space

this study, the number of personally experienced and witnessed SLE are reported.

PTSD symptoms were measured using the *Posttraumatic Stress Disorder Checklist* (PCL-5; [38]). It is one of the most frequently used self-assessment tools to assess PTSD within the last month. Its 20 items cover the four symptom clusters of PTSD according to DSM-5 [37], rated on a five-point Likert scale (0 = "not at all"; 1 = "a little bit"; 2 = "moderately"; 3 = "quite a bit"; 4 = "extremely"). Sum scores of 33 and more indicate the presence of PTSD [39]. In the present study, the internal consistency of the overall scale was $\alpha = 0.92$, and internal consistencies of the four symptom clusters ranged between $\alpha = 0.71$ and $\alpha = 0.84$.

Symptoms of depression were measured with the *Patient Health Questionnaire*, 9-item module (PHQ-9; [40]). This is a widely used self-report instrument for recording the frequency of depressive symptoms within the last 2 weeks, based on the DSM-IV criteria [41]. Items are rated on a four-point Likert scale (0 = "not at all", 1 = "several days", 2 = "on more than half of the days", 3 = "nearly every day").

Sum scores of 10 or more indicate the presence of a major depression [42]. In the present sample, the internal consistency of the scale was good ($\alpha = 0.88$).

Anxiety symptoms were assessed with the *Generalized Anxiety Disorder Scale* (GAD-7; [43]). The GAD-7 is a self-report questionnaire to assess the frequency of anxiety symptoms within the last 2 weeks comprising seven items based on the DSM-IV criteria [41]. Items are rated on a four-point Likert scale (0 = "not at all", 1 = "several days", 2 = "on more than half the days", 3 = "nearly every day"). Sum scores of 10 or more indicate the presence of a generalized anxiety disorder. In the present sample, the internal consistency of the scale was good ($\alpha = 0.81$).

Somatic symptoms were measured using the *Somatic Symptoms Scale* (SSS-8; [44]). The SSS-8 is based on the DSM-5 criteria [37] for somatic stress disorder and consists of eight items rated on a five-point Likert scale measuring the impairment by the listed symptoms (0 = "not at all", 1 = "a little bit", 2 = "somewhat", 3 = "quite a bit", 4 = "very much"). Sum scores of 12 and more indicate a clinically relevant disorder. In the present study, the internal consistency of the scale was good ($\alpha = 0.83$).

Behavioral problems in the last 6 months were assessed with the *Strength and Difficulties Questionnaire* (SDQ; [45]). The SDQ is an internationally established self-report questionnaire for children and adolescents between the ages of 11 and 17 years. It includes 25 items covering emotional symptoms (e.g., "I worry a lot"), conduct problems (e.g., "I fight a lot"), hyperactivity/inattention (e.g., "I am easily distracted"), peer relationship problems (e.g., "I have one good friend or more), and prosocial behavior (e.g., "I often offer help to others) rated on a three-point Likert scale indicating the degree of consent (0 = "not true", 1 = "somewhat true", 2 = "certainly true"). Sum scores of 20 or more indicate a clinical relevance of problems [45]. The total problem score provided sufficient internal consistency in the present sample ($\alpha = 0.66$).

Statistical analyses were performed using SPSS version 24 with a two-sided test level of $\alpha = 0.05$. In addition, moderator analyses were performed with the Process Makro for SPSS [46].

Results

SLE and mental health problems

Participants reported on average three different personal (i.e., violent attacks, attack with weapons, and traffic accidents) and witnessed (i.e., fire or explosion, violent death, sudden accidental death) traumatic events, and almost all participants ($n = 99$, 94.3%) had experienced at least one SLE in their lifetime (see Table 1). These numbers are in line with results from a previous study on URM in Germany [47]. A majority of URM ($n = 52$; 59.8%) reported mental health problems above the clinical cutoff, with depression ($n = 42$; 40.0%) and PTSD ($n = 32$; 30.5%) as most frequently occurring disorders (Table 2). In comparison with

Table 2 Mental health problems of URM and comparison with the reference samples

	UMR		Reference sample
	M (SD)	*N* (%) in clinical range	*M* (SD)
PTSD (PCL-5)[a]	24.99 (16.16)	32 (30.5)	15.42 (14.72)[b]
Intrusions (B-criterion)	1.44 (1.05)		
Avoidance (C-criterion)	1.44 (1.20)		
Negative alterations in cognition and mood (D-criterion)	1.11 (0.89)		
Hyperarousal (E-criterion)	1.19 (0.80)		
Depression (PHQ-9)[a]	7.96 (6.44)	42 (40.0)	8.37 (6.08)[c]
Anxiety (GAD-7)[a]	6.97 (4.79)	25 (23.8)	6.44 (5.26)[c]
Somatic symptoms (SSS-8)[a]	7.78 (6.68)	26 (24.8)	8.78 (6.07)[d]
Behavioral problems (SDQ)[a]	14.22 (4.97)	15 (14.3)	10.0 (4.6)[e]

M scale mean value, *SD* standard deviation, PTSD posttraumatic stress disorder, *PCL-5* PTSD checklist for DSM-5, *PHQ-9* Patient Health Questionnaire-9 items, *GAD-7* Generalized Anxiety Disorder-7 items, *SSS-8* Somatic Symptom Scale-8 items, *SDQ* Strengths and Difficulties Questionnaire total problem score

[a]Sum scores

[b]$N = 278$ trauma-exposed, undergraduate college students [48]

[c]$N = 328$ undergraduate college students [49]

[d]$N = 10{,}324$ students of the ninth grade [50]

[e]$N = 6{,}726$ children and adolescents aged 11–17 years [51]

adolescent samples from the general population of Western countries [48–51], URM had higher mean scores of PTSD symptoms ($t_{376} = -5.43$, $p < 0.001$, $d = 0.619$) and behavioral problems ($t_{6824} = -9.10$, $p < 0.001$, $d = 0.881$).

Differences between sectors of social support

For the group of URM with family contact ($n = 82$; 78.1%), a single factor variance analysis with repeated measurements on the factor quality of social support (family, peers, mentors) showed a significant main effect (social support: $F_{2;\,150} = 29.83$, $p < 0.001$, $\eta_p^2 = 0.285$). The results are presented in Table 3. Bonferroni-corrected post hoc tests showed significant differences between all three MSSI sectors (family vs. peers: $\delta = 0.62$, $p < 0.001$; family vs. mentors: $\delta = 0.99$, $p < 0.001$; peers vs. mentors: $\delta = 0.37$, $p = 0.014$). Accordingly, the URM with family contact received the most amount of support from the family, followed by peers and mentors.

Differences between URM with and without family contact

A two-factor variance analysis with repeated measurement was performed to test for mean differences in quality of social support from peers and mentors in URM with and without family contact. Results provided two significant main effects of social support on the two sectors ($F_{1,\,96} = 11.01$, $p = 0.001$, $\eta_p^2 = 0.103$) and family contact ($F_{1,\,96} = 8.05$, $p = 0.006$, $\eta_p^2 = 0.077$). Bonferroni-corrected post hoc tests showed a significant group difference between URM with family contact and URM without family contact ($p = 0.006$, $\delta = 0.62$). Accordingly, URM with family contact received more social support from peers and mentors than URM without family contact (see Table 3). A significant difference was also found between peers and mentors ($p = 0.001$, $\delta = 0.447$). Accordingly, URM received more social support from peers than from mentors. There was no significant interaction between the two factors.

Social support as moderator between SLE and mental health problems

Prior to moderation analyses, associations between social support from family, peers, and mentors, and mental health problems were examined using Pearson correlation analysis. As shown in Table 4, there was a significant negative association between family support and hyperarousal ($r = -0.27$, $p = 0.017$), a significant negative correlation between peer support and intrusions ($r = -0.25$, $p = 0.015$), as well as between peer support and hyperarousal ($r = -0.21$, $p = 0.036$).

Moderation analyses were conducted to test whether the relationship between SLE and mental health problems was moderated by social support in URM with family contact. The results are presented in Table 5. There were no significant interaction effects between the number of SLE and family support. The interaction between the number of SLE and peer support is significant ($\beta = -0.24$, $p = 0.017$) in the prediction of anxiety symptoms. Furthermore, the interaction effects between the number of SLE and mentor support on PTSD symptoms ($\beta = -0.32$, $p = 0.001$), depression symptoms ($\beta = -0.23$, $p = 0.029$), anxiety symptoms

Table 4 Pearson correlations between perceived social support and mental health problems

Symptoms	Social support		
	Family (*n*)	Peers (*n*)	Mentors (*n*)
PTSD	− 0.19 (79)	− 0.19 (97)	− 0.18 (98)
Intrusions	− 0.16 (80)	− 0.25* (98)	− 0.16 (98)
Avoidance	− 0.00 (76)	0.00 (93)	− 0.08 (94)
Negative alterations in cognition and mood	− 0.14 (78)	− 0.11 (96)	− 0.19 (97)
Hyperarousal	− 0.27* (79)	− 0.21* (99)	− 0.14 (100)
Depression	− 0.11 (79)	− 0.15 (98)	− 0.09 (98)
Anxiety	− 0.13 (76)	− 0.17 (96)	− 0.05 (96)
Somatic symptoms	− 0.05 (76)	− 0.17 (94)	− 0.05 (94)
Behavioral problems	− 0.21 (80)	− 0.19 (101)	− 0.13 (100)

PTSD posttraumatic stress disorder

*$p < 0.05$

Table 3 Perceived social support across different sectors in URM with and without family contact

Family contact	*n*	Social support					
		Family		Peers		Mentors	
		M	SD	*M*	SD	*M*	SD
Yes	76	2.66	0.95	2.04	0.95	1.67	1.08
No	22			1.5	1.23	0.97	1.19
Total	98			1.92	1.04	1.51	1.14

M scale mean value, *SD* standard deviation

Table 5 Moderation of the relationship between the number of SLE and mental health problems by perceived social support

	Symptoms				
	PTSD	Depression	Anxiety	Somatic	Behavior
SLE × family support	$\beta = -0.11$ ($p = 0.244$)	$\beta = -0.10$ ($p = 0.330$)	$\beta = -0.06$ ($p = 0.548$)	$\beta = -0.07$ ($p = 0.508$)	$\beta = 0.04$ ($p = 0.724$)
SLE × peer support	$\beta = -0.18$ ($p = 0.082$)	$\beta = -0.14$ ($p = 0.194$)	$\beta = -0.24$ ($p = 0.017$)[3]	$\beta = -0.19$ ($p = 0.068$)	$\beta = -0.02$ ($p = 0.858$)
SLE × mentor support	$\beta = -0.32$ ($p = 0.001$)[1]	$\beta = -0.23$ ($p = 0.029$)[2]	$\beta = -0.27$ ($p = 0.011$)[4]	$\beta = -0.23$ ($p = 0.030$)[5]	$\beta = -0.19$ ($p = 0.057$)

SLE stressful life events (personally experienced), *PTSD* posttraumatic stress disorder, β standardized regression coefficient

Model 1: $F_{3,\ 94} = 10.488$, $p < 0.001$, $R^2_{corr} = 0.251$, $N = 98$; Model 2: $F_{3,\ 94} = 2{,}959$, $p = 0.036$, $R^2_{corr} = 0.086$, $N = 98$; Model 3: $F_{3,\ 91} = 3{,}923$, $p = 0.011$, $R^2_{corr} = 0.115$, $N = 95$; Model 4: $F_{3,\ 92} = 3{,}443$, $p = 0.02$, $R^2_{corr} = 0.101$, $N = 96$; Model 5: $F_{3,\ 90} = 2{,}376$, $p = 0.075$, $R^2_{corr} = 0.073$, $N = 94$

($\beta = -0.27$, $p = 0.011$), and somatic symptoms ($\beta = -0.23$, $p = 0.03$) were significant. Yet, the model predicting somatic symptoms was not significant ($p = 0.075$).

To examine the significant moderation effect of social support and SLE on mental health problems in more detail, the estimated conditional regression coefficients for the moderator were tested. For below-average perceived social support from peers (mean $M - 1$ standard deviation *SD*), the number of SLE was a significant predictor of anxiety symptoms ($\beta = 0.39$, $p = 0.0048$). For average (M) and above-average ($M + 1$ *SD*) social support from peers, the number of SLE was not a significant predictor of anxiety symptoms ($\beta = 0.15$, $p = 0.134$; $\beta = -0.09$, $p = 0.509$). For below-average perceived social support from mentors ($M - 1$ *SD*), the number of SLE was a significant predictor of PTSD symptoms ($\beta = 0.71$, $p < 0.001$), depression symptoms ($\beta = 0.42$, $p = 0.006$), and anxiety symptoms ($\beta = 0.48$, $p = 0.002$). For average perceived social support from mentors (M), the number of SLE was also a significant predictor of PTSD symptoms ($\beta = 0.39$, $p < 0.001$) and anxiety symptoms ($\beta = 0.21$, $p = 0.04$), but not of depression symptoms ($\beta = 0.19$, $p = 0.053$). For above-average perceived social support from mentors ($M + 1$ *SD*), the number of SLE was not a significant predictor of PTSD symptoms ($\beta = 0.07$, $p = 0.56$), depression symptoms ($\beta = 0.03$, $p = 0.813$), and anxiety symptoms ($\beta = -0.06$, $p = 0.662$). The significant moderations are illustrated in Fig. 1.

Discussion

The present study analyzed the quality of social support from multiple sectors (family of origin, peers, and mentors) and its association with mental health in URM in the post-flight period. URM's mental health problems are comparable to those of previous studies on URM [6, 8], with 24–40% self-reported internalizing symptoms (i.e., PTSD, depression, anxiety, and somatic symptoms) and 14% self-reported behavioral problems. Moreover, the mean scores of PTSD symptoms and behavioral problems of URM in the present sample were higher compared to adolescent samples in Western countries. A majority of URM (72.4%) had contact with their families abroad, which exceeds the numbers in previous studies (51 and 67.3%; [8, 17]).

Social support from different sectors

The first aim was to analyze differences between perceived quality of social support from family members, peers, and mentors in URM with family contact. Young refugees felt most supported by their families, followed by their peers and their mentors. These results correspond to the findings of Layne and colleagues [19], who found a similar pattern in Bosnian minors from war zones. Although the contact between URM living in Germany and their families abroad is limited to correspondence via telephone or social media, the family is still perceived as the most important source of social support. Thus, considering the dimensions of social provision, URM's perception of their family's support was probably more strongly based on attachment (i.e., emotional closeness) and social integration (i.e., the feeling of belonging) than on physical assistance or material support [19]. This result is also in line with the cultural values of collectivist societies characterized by strong family ties (referred to as family allocentrism) and a strong parental influence on important areas of life [52].

Social support and family contact

As a second aim, it should be examined to what extent the quality of social support from networks outside the family (i.e., peers and adult mentors) differs in URM with or without family contact. The present study showed that the lack of family contact was accompanied by less perceived social support in peers and mentors. This contradicts the assumption that in the absence of family, social support may be compensated by other sources of support [17, 19, 35]. The (more or less) involuntary loss of contact with URM's family members before or during the flight may have resulted in a general mistrust in social relationships and may have contributed to a less awareness of support offered by others. Furthermore, the lack of contact with the family abroad can

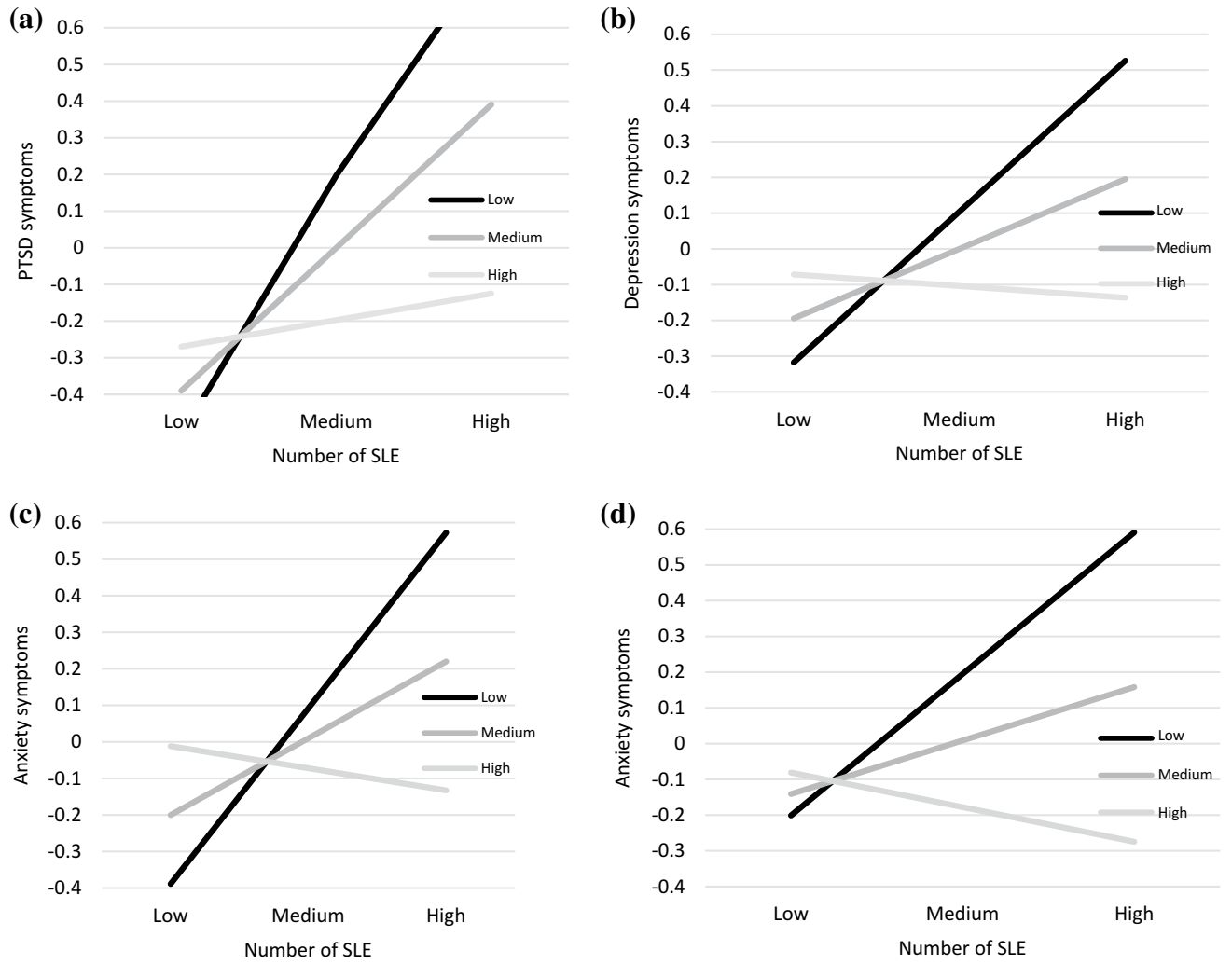

Fig. 1 Significant moderator effects of perceived social support by mentors on the relationship between the number of SLE and symptoms of **a** PTSD, **b** depression, and **c** anxiety. Moderator effect of perceived social support by peers on the relationship between the number of SLE and symptoms of **d** anxiety. SLE stressful life events (personally experienced), *PTSD* posttraumatic stress disorder. Low = mean (*M*) − 1 standard deviation (SD); medium = M; high = *M* + 1 SD; *z* standardized scores

be linked to an unclear situation regarding the possible death of family members. The disappearance of family members and the uncertainty about what happened to them represent a risk factor for the development of stress-related disorders such as PTSD and anxiety [53]. As a result, URM without family contact could be affected by feelings of loneliness, social isolation, and separation stress. To obtain a more precise picture of URM without family contact, it would be interesting to investigate the specific reasons for the lack of contact in future research.

Influences of social support on mental health problems

As a third aim, it was analyzed if the quality of social support from each of the three sectors moderates the relationship between SLE and mental health problems in URM with family contact. As expected, higher perceived social support from mentors buffered the negative effects of SLE on mental health of URM. Specifically, a high level of perceived mentor support diminished the association of the number of SLE with symptoms of PTSD, depression, and anxiety, whereas a low level of perceived mentor support intensified these associations. The results are in line with our assumptions and previous research findings on adults [16, 54]. Ozer and colleagues [16] found that low social support was a stronger predictor for PTSD when the initial trauma was linked to armed conflict. Likewise, as most URM have fled from war-affected regions, their traumatic experiences were strongly related to war. Thus, our results highlight the role of adult mentors (i.e., caregivers in group homes, coaches) in the processing of stressful or traumatic life experiences and

maintenance of mental health for URM during the post-flight period. Social support from mentors, which contains guidance (i.e., giving advice and information), but also physical assistance (e.g., during the asylum procedure), may initiate a functional coping with negative life experiences. There was also a moderating effect of peer support on the relationship between the number of SLE and anxiety symptoms. Specifically, a high level of perceived peer support diminished the association of number of SLE and anxiety symptoms, whereas a low level of perceived mentor support intensified this association. Likewise, according to Sleipjen and colleagues [10], peers often distract from problems or give advice, for example, when it comes to adaptation to the host country. Furthermore, people from the same cultural context can reduce the feeling of threat to cultural loss [10, 29]. In contrast to Mels and colleagues [26], a majority of URM in the present study reported contact with peers from Germany, and to a lesser extent to peers from the same cultural background (24%), which may reflect the URM's acculturation process [17].

Although previous research [17, 19, 24] identified family support as a protective factor for mental health in youth with war experiences, and despite the subjective value of family support in the present study, it did not moderate the relationship between the number of SLE and mental health problems. However, previous studies on social support and mental health included accompanied minor refugees, did not collect SLE, or used different instruments to assess social support. Moreover, URM may have overestimated the positive influence of their families on their current situation and well-being. Likewise, Mels and colleagues [26] found that although parents were a major part of URM's narratives, parents' emotional and instrumental support in the host country was lacking.

However, the negative associations of peer and family support with the PTSD symptom of hyperarousal seem noteworthy, as hyperarousal is linked to a reduced inhibitory control on emotions and behavior and therefore can foster aggressive outbursts, particularly in war-affected populations [55, 56]. In URM without family contact, hyperarousal stemming from separation of the family of origin may potentiate the additional hyperarousal of not being able to build up supporting relationships due to separation stress, resulting in a "double risk" condition for enduring mental health problems. The inability of building nurturing relationships is also a well-known phenomenon in children after chronic neglect or early experiences of loss [57].

Clinical implications

Considering the well-defined and described group of URM regarding its increased vulnerability—particularly in the subgroup of URM without family contact—there seems to be a window of opportunity for interventions in the post-flight period. This window should be utilized much more consequently in standardized paradigms, as research repeatedly underlined the necessity for structured interventions such as evidence-based trauma-focused psychotherapy [58]. Limited evidence for treatment effectiveness of those interventions for traumatized URM exists so far for narrative exposure therapy for children (KIDNET [59]) and trauma-focused cognitive behavioral therapy (TF-CBT) approaches in individual or group format [60–63] including components to strengthen social support networks and build trustworthy relationships in the host country [64].

Limitations

The present sample consists (with a few exceptions) of male URM from Syria and Afghanistan, which limits the generalizability of the findings to URM from other countries and regions, e.g., Africa. Nevertheless, the higher percentage of URM from the Nearer East was representative of the population of URM in summer 2017 [2]. Furthermore, the results may be distorted by selection bias, as participation in the study was voluntary. As a result, URM with extreme symptom load may have avoided the participation, so the mean values of mental health problems presented in this study might not be representative of the entire URM population. This is common for groups with a high level of stigmatization concerning mental disorders [65]. Moreover, social desirability may have influenced the responses of URM, which is a common problem in refugee populations [66, 67], particularly regarding self-report on possible deficiencies in social functioning.

Conclusion

Contact with the family in the country of origin has a highly relevant subjective value for URM and influences the reception of social support from other networks. Notably, the capability of URM without family contact to seek support in the host country seems limited by separation stress. Thus, based on our results, we can refute the hypothesis that young refugees who are on their own feel more protected by support sectors outside the family of origin. However, our results highlight the importance of social support from peers and, above all, from mentors in the post-flight period to strengthen functional coping with stressful experiences and fostering mental health. Especially in the case of lacking social support from mentors, trauma-related mental health problems seem to intensify. As a result, special attention should be paid to URM without family contact, who appear as a particularly vulnerable "double burden" group in terms

of separation from and lack of contact with family members abroad.

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Compliance with ethical standards

Conflict of interest The authors declare no conflict of interest.

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