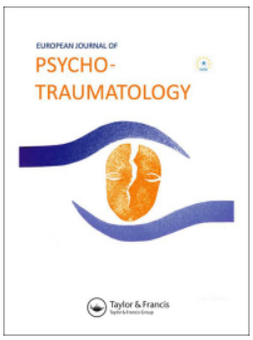

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CLINICAL RESEARCH ARTICLE

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PTSD and complex PTSD in adolescence: discriminating factors in a population-based cross-sectional study

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ABSTRACT

Background: Chronic and repeated trauma are well-established risk factors for complex posttraumatic stress disorder (CPTSD) in adult samples. Less is known about how trauma history and other factors contribute to the development of CPTSD in adolescence.
Objective: The aim of this study was to assess the potential contribution of trauma history and social factors to CPTSD in adolescents.
Method: In a cross-sectional community study of 1299 adolescents aged 12–16 years, PTSD (n = 97) and CPTSD (n = 108) was assessed with the Child and Adolescent version of the International Trauma Questionnaire (ITQ-CA). Trauma exposure, family functioning, school problems, and social support as potential discriminating factors between the PTSD and CPTSD groups were investigated.
Results: Cumulative trauma exposure did not discriminate between PTSD and CPTSD in this sample. CPTSD was associated with family problems (such as financial difficulties and conflicts in the home), school problems (bullying and learning difficulties), and lack of social support.
Conclusions: Our study indicates that factors other than cumulative trauma are important for the development of CPTSD in adolescence. Interventions targeting adolescent's social environment both at home and at school may be beneficial.

TEPT y TEPT complejo en la adolescencia: factores discriminantes en un estudio transversal de base poblacional

Antecedentes: Los traumatismos crónicos y repetidos son factores de riesgo bien establecidos para el trastorno de estrés postraumático complejo (CPTSD) en muestras de adultos. Se sabe menos acerca de cómo la historia del trauma y otros factores contribuyen al desarrollo de TEPT-C en la adolescencia.
Objetivo: El objetivo de este estudio fue evaluar la potencial contribución de la historia de trauma y los factores sociales al TEPT-C en adolescentes.
Método: En un estudio comunitario transversal de 1299 adolescentes de 12 a 16 años, se evaluó el PTSD (n = 97) y CPTSD (n = 108) con la versión para Niños y Adolescentes del Cuestionario Internacional de Trauma (ITQ-CA por sus siglas en ingles). Se investigaron la exposición al trauma, el funcionamiento familiar, los problemas escolares y el apoyo social como posibles factores de discriminación entre los grupos de TEPT y TEPT-C.
Resultados: La exposición acumulada al trauma no discriminó entre TEPT y TEPT-C en esta muestra. El TEPT-C se asoció con problemas familiares (como dificultades financieras y conflictos en el hogar), problemas escolares (acoso escolar {bullying} y dificultades de aprendizaje) y apoyo social.
Conclusiones: Nuestro estudio indica que otros factores además del trauma acumulativo son importantes para el desarrollo de TEPT-C en la adolescencia. Las intervenciones dirigidas al entorno social de los adolescentes tanto en el hogar como en la escuela pueden resultar beneficiosas.

青少年中的PTSD和复杂性PTSD:基于群体的横断面研究中的区分因素

背景: 慢性和反复创伤是成人样本中复杂性创伤后应激障碍 (CPTSD) 的公认危险因素。关于创伤史和其他因素如何导致青春期CPTSD的发展知之甚少。
目的: 本研究旨在评估青少年创伤史和社会因素对CPTSD的潜在贡献。
方法: 在一项针对1299名12至16岁青少年的横断面社区研究中，使用儿童和青少年版国际创伤问卷 (ITQ-CA) 对PTSD组 (n = 97) 和CPTSD组 (n = 108) 进行了评估。考查了创伤暴露, 家庭功能, 学校问题和社会支持作为PTSD组和CPTSD组之间的潜在区分因素。

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PALABRAS CLAVE
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关键词
创伤; PTSD; 复杂性PTSD; 青少年; ICD-11; 立陶宛

HIGHLIGHTS

- Social factors, such as family problems, school problems, and lack of social support are important predictors of complex posttraumatic stress in adolescence following traumatic events.

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Supplemental data for this article can be accessed here.

结果: 此样本中, 累积创伤暴露没有区分PTSD和CPTSD。 CPTSD与家庭问题 (例如经济困难和家庭冲突), 学校问题 (欺凌和学习困难) 以及社会支持相关。
结论: 我们的研究表明, 除累积创伤外的其他因素对于青少年CPTSD的发展也很重要。针对家庭和学校的青少年社交环境进行干预可能有益。

1. Introduction

The *International Classification of Diseases* 11th version (*ICD-11*) includes an updated diagnosis of post-traumatic stress disorder (PTSD) and a new diagnosis of complex PTSD (CPTSD; World Health Organization, 2018a). Three core clusters of symptoms constitute PTSD including re-experiencing of the traumatic event, avoidance, and sense of threat. CPTSD includes three additional symptom clusters commonly referred to disturbances in self-organization (DSO) and these include affect dysregulation, negative self-concept, and disturbances in relationships. While the type of trauma is not a prerequisite for being diagnosed with CPTSD or PTSD, CPTSD is more likely associated with multiple and chronic types of trauma, including those commonly experienced during childhood such as sexual or physical abuse (Brewin et al., 2017; Cloitre, 2020; Karatzias et al., 2017). Our study is based on the ICD-11 conceptualization of PTSD, which showed excellent fit among adolescents in recent studies (Elliott et al., 2020; Haselgruber, Sölva, & Lueger-Schuster, 2020b, 2020a; Kazlauskas et al., 2020).

Recent findings in adult samples have indicated that cumulative childhood trauma (Cloitre et al., 2019; Hyland et al., 2017), particularly childhood sexual or physical abuse (Cloitre et al., 2019; Hyland et al., 2017; Karatzias et al., 2017) is more strongly related to CPTSD than PTSD. Repeated or chronic trauma is a risk factor, especially if related to the situations where escape is difficult or not possible such as in child sexual or physical abuse within the family (Brewin et al., 2017; Cloitre et al., 2020). While trauma history impacts the differential risk for and development of CPTSD compared to PTSD, a number of additional risk factors have been identified for each disorder. Studies in adult samples showed that CPTSD is related to sociodemographic variables such as belonging to a minority group, lower education, relationship status and lower reported socioeconomic status (SES) (Perkonigg et al., 2016). The results for gender effects on CPTSD are mixed (Brewin et al., 2017) with most but not all studies indicating that females have a greater risk for both PTSD and CPTSD compared to men (Cloitre et al., 2019; Karatzias et al., 2019).

The majority of CPTSD studies have been conducted in adult samples, and to date, only three studies have explored rates of CPTSD and its correlates in children and adolescents. They have reported that compared to PTSD, CPTSD was associated with higher rates of cumulative interpersonal violence (Sachser, Keller, & Goldbeck, 2017), domestic violence (Haselgruber et al., 2020b), and physical abuse outside the family (Kazlauskas et al., 2020). Furthermore, compared to PTSD, CPTSD in children was associated with higher levels of comorbid psychopathology such as depression, anxiety, and behaviour problems (Eilers et al., 2020; Haselgruber et al., 2020b; Sachser et al., 2017).

CPTSD symptoms have been shown to be associated with a substantial psychological burden. For CPTSD prevention and effective treatment purposes, there is a need to identify factors other than trauma exposure that may contribute to CPTSD development in adolescence. Previous research shows that family attitudes or behaviour can help children successfully cope with adverse experiences or contribute to worse mental health outcomes (Carbone, Holzer, & Vaughn, 2019; Guerra, Farkas, & Moncada, 2018; Miller-Graff & Howell, 2015; Pinto et al., 2017). Factors related to school play an important role in the development of personality (Verhoeven, Poorthuis, & Volman, 2019). Understanding the role of social factors in the development and maintenance of CPTSD can inform prospective interventions targeting significant aspects of adolescent life. Therefore, the purpose of this study was to identify factors that discriminated between PTSD and CPTSD diagnostic status in adolescence. We hypothesized that CPTSD relative to PTSD would be characterized by a more severe trauma history as well as more social and family difficulties.

2. Method

2.1. Participants and procedure

Data for this study was extracted from the first wave of the ongoing longitudinal study *Stress and Resilience in Adolescence (STAR-A)*. The STAR-A study was implemented by the Center for Psychotraumatology at Vilnius University in Lithuania. Information on the procedures of the STAR-A study and analysis of PTSD and CPTSD profiles in an adolescent sample has been published previously (Kazlauskas et al., 2020). The study was approved by the Institutional Ethics Committee for Psychological Research.

The data was collected in 15 general schools from different regions across Lithuania, in March – June 2019.

All 12–16-year-old adolescents in the selected schools were informed about the study and were invited to participate. Before the start of data collection, the written informed assent was obtained from adolescents, participating in the study, and written informed consent at least from one parent of all adolescents. The study was designed to ensure the protection of participants' identities. Randomly generated IDs were assigned to all the participants of the study. Information about psychological counselling services was distributed to all study participants in the format of printed leaflets. The inclusion criteria for this study were: endorsing at least one traumatic event listed in the Child and Adolescent Trauma Screen (CATS) which was used in conjunction with the Child and Adolescent version of the International Trauma Questionnaire (ITQ-CA).

In total, 1299 adolescents participated in the study and filled the self-report printed measures. Of these, 934 adolescents (71.9%) reported exposure to at least one potentially traumatic event during their lifetime. Data from two participants were excluded from the later analysis because of missing data on all ITQ-CA items. From 932 participants reporting trauma experience, 205 (22.0%) met the criteria for a diagnosis of either ICD-11 PTSD (97, 47.3%) or CPTSD (108, 52.7%). This subgroup with PTSD and CPTSD was used for the study investigation. The sample included in the analysis was 205 adolescents, mean age 14.4 (*SD* = 1.2) years, 69.8% girls (*n* = 143). The majority of participants were born in Lithuania (98.5%, *n* = 202) and were of Lithuanian nationality (91.2%, *n* = 187). More than two-thirds of the sample (73.2%, *n* = 150) were from two-parent families. All demographic characteristics and comparison between PTSD and CPTSD groups are presented in Table 1 (see Table 1).

2.2. Measures

2.2.1. Lifetime trauma exposure

Lifetime trauma exposure was measured using a potentially traumatic events checklist adopted from the Child and Adolescent Trauma Screen (CATS: Sachser et al., 2017). The 14-item CATS trauma checklist includes the experience of physical and sexual abuse, domestic violence, traumatic loss, stressful medical procedure, accident, etc. (see Table 2 for the list of all items). Participants were asked to indicate if they experienced any of the listed traumatic experiences using a binary 'yes/no' response. An accumulative lifetime trauma exposure was a sum of all indicated traumatic experiences ranging from 0 to 14. In this study, all participants experienced at least one traumatic event, and the range was 1–11.

2.2.2. PTSD and complex PTSD

Child and Adolescent version of the International Trauma Questionnaire (ITQ-CA) was used to measure ICD-11 PTSD and CPTSD in adolescents (Kazlauskas et al., 2020). The structure of ITQ-CA resembles the ITQ adult version. The ITQ-CA includes 12 items indicating symptoms of PTSD and disturbances in self-organization (DSO): two symptoms for each PTSD cluster (re-experiencing, avoidance, sense of threat) and two symptoms for each DSO cluster (affective dysregulation, negative self-concept, disturbances in relationships). Respondents were asked to indicate the extent each symptom bothered them during the past month using a five-point Likert scale from 0 ('Never') to 4 ('Almost always'). Furthermore, five functional impairment items are listed following a set of PTSD symptoms and a set of DSO symptoms. Respondents indicate if the symptoms disturbed their functioning using a binary yes/no scale for each of these areas including friends, family, school, other important areas (hobbies or other relationships), and general happiness.

For the diagnosis of PTSD and CPTSD, we used the same scoring scheme as for the ITQ adult version in the study. The symptom was scored as clinically significant if it was ≥2 in each of the symptom items. The presence of at least one symptom from each PTSD cluster and at least one indicator of functional impairment was required for a PTSD diagnosis. The presence of at least one symptom from each PTSD and DSO cluster and at least one indicator of functional impairment, related to both PTSD and DSO symptoms, is required for a CPTSD diagnosis. If participants met the criteria for CPTSD, PTSD diagnosis was excluded. The factor validity of the Lithuanian version of the ITQ-CA was supported in the previous study (Kazlauskas et al., 2020). The internal reliability of the ITQ-CA was sufficient for the total ITQ-CA scale (α = .87), PTSD symptoms (α = .79), and DSO symptoms (α = .86) in the total sample (Kazlauskas et al., 2020). Descriptive statistics of the ITQ-CA scores and bivariate correlations are presented in Supplementary materials (Tables S1 and S2).

2.2.3. Family functioning

Family functioning was measured using four items, measuring difficulties in participants' parental family life: 1) financial difficulties, 2) alcohol abuse in the family, 3) mental illness in the family, and 4) constant conflicts in the family. Financial difficulties in the family were assessed by asking participants to indicate if their family can buy what is needed by using a 4 point Likert scale, from 0 ('Totally agree') to 3 ('Totally disagree'). The answers were coded as 'no financial difficulties' if the respondent agreed with the item ('Totally agree' or 'Agree'), and 'financial difficulties' if the respondent did not agree ('Totally disagree' or 'Disagree'). Alcohol and mental

Table 1. Characteristics of study participants.

Variable	Total sample (N = 205) *n (%)*	PTSD (n = 97) *n (%)*	CPTSD (n = 108) n (%)	Significance statistics	*p*
Gender					
Male	62 (30.2)	30 (30.9)	32 (29.6)	$\chi^2(1) = 0.02$	.880
Female	143 (69.8)	67 (69.1)	76 (70.4)		
Age					
Mean (*SD*)	14.40 (1.21)	14.34 (1.31)	14.45 (1.34)	$t(188.501) = -0.67$	.507
Range	12–16	12–16	12–16		
Family structure					
Two-parent	150 (73.2)	71 (73.2)	79 (73.1)	$\chi^2(1) = 0.00$	1.000
Other	55 (26.8)	26 (26.8)	29 (26.9)		
University education of parents					
No	20 (9.8)	8 (8.3)	12 (11.1)		
One/both of parents	148 (72.5)	71 (74.0)	77 (71.3)	$\chi^2(2) = 0.45$	.799
Don't know	36 (17.6)	17 (17.7)	19 (17.6)		
Place of birth					
Lithuania	202 (98.5)	96 (99.0)	106 (98.1)	*F*	1.000
Other	3 (1.5)	1 (1.0)	2 (1.9)		
Nationality					
Lithuanian	187 (91.2)	90 (92.8)	97 (89.8)	$\chi^2(1) = 0.82$	.665
Other	14 (6.8)	5 (5.2)	9 (8.3)		

Note: *F* = Fisher's Exact Test.

health problems in the family were evaluated using the yes/no/don't know scale. Answers 'yes' were coded as problem manifestation. To measure the experience of conflicts in the family respondents were asked to indicate if they experienced constant conflicts over the last year using a binary yes/no scale.

2.2.4. Problems at school

School functioning was measured by two questions, related to adolescent's school life: 1) bullying at school, and 2) learning difficulties at school. Respondents were asked to indicate if they experienced each of these difficulties during the last year using a binary yes/no scale.

2.2.5. Social support

Social support was measured by a single question 'If you are having a serious issue which is difficult to talk about, whom would you talk to?' with multiple response options for social support sources listed. Participants could choose one or more options from eight possible social resources provided: father, mother, another family member, friend, school nurse, teacher, or other adults at school, other adults, nobody. If a participant indicated at least one resource of social support, it was coded as 'social support', if none of the social support sources were indicated it was coded as 'no social support'.

2.3. Data analysis

The Statistical Package for the Social Sciences IBM SPSS version 25.0 was used for the analyses of data. All binary data in the dataset was coded as '0' for 'No' responses, and '1' for 'Yes' responses. The risk factors of PTSD and CPTSD were assessed using a multivariable binary logistic regression, to provide the unique effects of each factor while controlling for other variables in the model.

3. Results

3.1. Characteristics of the sample

There were no significant differences between the CPTSD and PTSD groups in sociodemographic characteristics including gender, age, country of birth, nationality, education of parents, and family structure (two-parent vs. single-parent/foster care, coded as other) (Table 1).

3.2. Trauma exposure

The average number of traumatic experiences in total was 3.58 (SD = 2.04); in the PTSD group 3.35 (SD = 2.19) and 3.78 (SD = 1.89) in the CPTSD ($t(203) = -1.50$, p = .135). Significantly more participants in the PTSD, compared to the CPTSD group, reported single traumatic experiences (χ^2 (1, n = 41) = 4.55, p = .033), although the proportion of participants with single trauma was low. The majority in both groups were exposed to multiple traumatic experiences (see Table 2).

The most commonly reported experiences were a serious accident or injury 62.4% (n = 128), stressful or scary medical procedures 55.1% (n = 113), and seeing someone in the community get slapped or punched 52.7% (n = 108). Physical abuse, witnessing domestic violence and traumatic loss were also prevalent in the sample ranging from 29.8% to 36.8%. Analysis of differences in trauma exposure across various types of

Table 2. Prevalence of lifetime traumatic experiences.

	Total (N = 205)	PTSD (n = 97)	CPTSD (n = 108)	Significance statistics	
Trauma exposure	*n (%)*	*n (%)*	*n (%)*	$\chi^2(1)$	*p*
1 Serious natural disaster like a flood, tornado, hurricane, earthquake, or fire	32 (15.6)	15 (15.5)	17 (15.7)	0.00	1.000
2 Serious accident or injury like a car/bike crash, dog bite, sports injury	128 (62.4)	63 (64.9)	65 (60.2)	0.31	.576
3 Robbed by threat, force or weapon	17 (8.3)	8 (8.2)	9 (8.3)	0.00	1.000
4 Slapped, punched, or beat up in your family	62 (30.2)	23 (23.7)	39 (36.1)	3.16	.075
5 Slapped, punched, or beat up by someone not in your family	75 (36.8)	28 (28.9)	47 (43.9)	4.34	.037
6 Seeing someone in your family get slapped, punched or beat up	61 (29.8)	30 (30.9)	31 (28.7)	0.04	.846
7 Seeing someone in the community get slapped, punched	108 (52.7)	48 (49.5)	60 (55.6)	0.53	.466
8 Someone older touching your private parts when they shouldn't	20 (9.8)	8 (8.2)	12 (11.1)	0.21	.650
9 Someone forcing or pressuring sex, or when you couldn't say no	9 (4.4)	5 (5.2)	4 (3.7)	*F*	.738
10 Someone close to you dying suddenly or violently	64 (31.2)	29 (29.9)	35 (32.4)	0.06	.813
11 Attacked, stabbed, shot at or hurt badly	8 (3.9)	4 (4.1)	4 (3.7)	*F*	1.000
12 Seeing someone attacked, stabbed, shot at, hurt badly or killed	31 (15.1)	12 (12.4)	19 (17.6)	0.72	.397
13 Stressful or scary medical procedure	113 (55.1)	50 (51.5)	63 (58.3)	0.70	.404
14 Being around war	5 (2.5)	2 (2.1)	3 (2.8)	*F*	1.000
Interpersonal trauma	160 (78)	68 (70.1)	92 (85.2)	5.93	.015
Cumulative trauma					
1	41 (20)	26 (26.8)	15 (13.9)	4.55	.033
2–3	67 (32.7)	30 (30.9)	37 (34.3)	0.13	.720
4–5	61 (29.8)	24 (24.7)	37 (34.3)	1.79	.182
≥6	36 (17.6)	17 (17.5)	19 (17.6)	0.00	1.000
Mean (*SD*)	3.58 (2.04)	3.35 (2.19)	3.78 (1.89)	$t(203) = -1.50$	.135

Note: *F = Fisher's Exact Test.*

experiences revealed no differences between the PTSD and CPTSD groups, except for physical abuse outside the family (χ^2 (1, n = 75) = 4.34, p = .037) which was significantly higher for the CPTSD group. Significantly more participants in the CPTSD group, compared to the PTSD group reported interpersonal trauma (χ^2 (1, n = 160) = 5.93, p = .015) (see Table 2).

3.3. Social problems in PTSD and CPTSD groups

All family and school problems occurred more frequently in adolescents with CPTSD, compared to adolescents with PTSD (see Table 3). The majority of adolescents with CPTSD reported being bullied at school and family conflicts at home. Moreover, social support was significantly lower among the CPTSD group in comparison to the PTSD group.

3.4. Factors associated with complex PTSD vs. PTSD

Multivariable binary logistic regression analysis was used to identify whether sociodemographic characteristics, trauma exposure, and social factors differentiated between CPTSD and PTSD status. Multivariable binary logistic regression analysis ($R^2_{\text{Nagelkerke}}$ = 0.295) revealed that financial difficulties in family (OR = 4.36, p = .047), conflicts in family (OR = 3.14, p = .001), experience of bullying at school (OR = 2.53, p = .007) and lack of social support from others (OR = 0.26, p = .025) were all significant predictors of CPTSD vs. PTSD status (see Table 4). Alcohol abuse and mental illness at home as well as learning difficulties at school did not predict CPTSD status in the multivariable adjusted logistic analysis.

4. Discussion

This is the first study to explore social factors associated with CPTSD and PTSD diagnostic status in an adolescent sample. It was found that significantly more participants with PTSD than CPTSD reported single traumatic experiences. While more participants in the PTSD group reported single trauma, the majority in both groups reported multiple traumas, and the number of reported traumatic events did not differ between the two groups. These findings differ from results from previous study among trauma exposed children where total cumulative trauma were greater and more strongly related among those with CPTSD than PTSD (Haselgruber et al., 2020b). However, exposure to interpersonal trauma was significantly associated with CPTSD in our study in line with the previous research (Sachser et al., 2017). Differences in outcomes in the studies may be the result of differences in the type of sample (community versus clinical). The two previous CPTSD studies assessed clinical samples who had experienced predominantly chronic interpersonal traumas and sexual traumas, thus cumulative rates may reflect the accumulation of these potentially more toxic types of experiences. In addition, information about the perpetrators of sexual or physical abuse/violence (caretakers versus others) was not collected in a similar way across studies, making it difficult to compare outcomes. Investigations of the impact of different kinds of trauma on diagnostic status in both the

Table 3. Social factors related to PTSD and CPTSD in adolescents' sample.

Variable	Total sample (N = 205)	PTSD (n = 97)	CPTSD (n = 108)		
	n (%)	*n (%)*	*n* (%)	Significance statistics	*p*
Financial difficulties in family					
No	189 (92.2)	94 (96.9)	95 (88.0)	$\chi^2(1) = 4.51$	.034
Yes	16 (7.8)	3 (3.1)	13 (12.0)		
Alcohol abuse in family					
No	148 (72.2)	79 (81.4)	69 (63.9)	$\chi^2(1) = 6.96$	.008
Yes	57 (27.8)	18 (18.6)	39 (36.1)		
Mental illness in family					
No	181 (88.3)	91 (93.8)	90 (83.3)	$\chi^2(1) = 4.46$	.035
Yes	24 (11.7)	6 (6.2)	18 (16.7)		
Constant conflicts in family					
No	111 (54.7)	68 (70.1)	43 (40.6)	$\chi^2(1) = 16.66$	<.001
Yes	92 (45.3)	29 (29.9)	63 (59.4)		
Bullying at school					
No	97 (47.5)	57 (58.8)	40 (37.4)	$\chi^2(1) = 8.49$	.004
Yes	107 (52.5)	40 (37.4)	67 (62.7)		
Learning difficulties at school					
No	41 (20.2)	28 (29.2)	13 (12.1)	$\chi^2(1) = 8.07$	.005
Yes	162 (79.8)	68 (70.8)	94 (87.9)		
Social support					
No	23 (11.3)	5 (5.2)	18 (16.7)	$\chi^2(1) = 5.57$	.018
Yes	181 (88.7)	91 (94.8)	90 (83.3)		

Table 4. Multivariable binary logistic analysis of factors associated with likelihood of complex PTSD.

Variables	CPTSD vs PTSD (n = 202)	
	OR (95% *CI*)	*p*
1 Gender	1.29 (0.63–2.63)	.487
2 Age	1.14 (0.87–1.50)	.328
3 Family type	1.12 (0.53–2.33)	.785
4 Financial difficulties in family	4.36 (1.02–18.63)	.047
5 Alcohol abuse in family	1.73 (0.78–3.83)	.177
6 Mental illness in family	2.63 (0.83–8.32)	.099
7 Constant conflicts in family	3.14 (1.59–6.20)	.001
8 Bullying at school	2.53 (1.29–4.94)	.007
9 Learning difficulties at school	2.24 (0.97–5.16)	.060
10 Social support	0.26 (0.08–0.84)	.025
11 Cumulative trauma	0.95 (0.81–1.14)	.519

Note: *OR* = odds ratio, *CI* = confidence intervals.

adult and child literature would benefit from uniformity in use of measures and definitions.

Our study addressed important social factors, such as difficulties in family or school as well as lack of social support. Results indicated that these factors were particularly associated with CPTSD as opposed to PTSD status among traumatized adolescents. CPTSD in adolescents was significantly related to financial difficulties, constant conflicts and mental illness in the family, and learning problems at school. Lack of social support significantly discriminated CPTSD and PTSD status in this study, which confirms the results of a recent study in adults (Simon, Roberts, Lewis, van Gelderen, & Bisson, 2019). Although our study indicates that social and family problems may distinguish between PTSD and CPTSD diagnostic status in adolescents, these findings need replication in future studies. Adolescents may not have sufficient information or maturity to answer the questions regarding the mental health of their parents or socioeconomic status of the family. The role of social factors can depend on various aspects of the problem – severity, duration, developmental age, when the problem started, or if the problem relates to one or both parents. It is important that future research explores these issues more thoroughly, for example, by linking self-report data to information from parents/teachers, or official health registries.

The experience of bullying was missing from the CATS checklist and it was added as a separate stressful life event, which is highly prevalent in Lithuania (World Health Organization, 2018b). In the present study, we investigated factors that differentiated between CPTSD and PTSD and found that bullying was associated with the heavier symptom load represented in CPTSD. Previous studies have shown that bullying is related to PTSD and other mental health problems (Idsoe, Dyregrov, & Idsoe, 2012; Nielsen, Tangen, Idsoe, Matthiesen, & Magerøy, 2015; Plexousakis, Kourkoutas, Giovazolias, Chatira, & Nikolopoulos, 2019). The inclusion of bullying as a traumatic experience and its association with CPTSD and PTSD has been recently argued in the literature (Hyland et al., 2020; Strøm, Aakvaag, Birkeland, Felix, & Thoresen, 2018).

We aimed to investigate factors differentiating between PTSD versus CPTSD status in adolescents. Future studies are needed to extend this analysis. The studies on factors related to the severity of PTSD and CPTSD symptoms, quality of life, and level of functioning in adolescence and adulthood would help prevention and intervention fields. Moreover, the study was based on the ICD-11 conceptualization of PTSD. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) uses a different approach to the conceptualization of PTSD (American Psychiatric Association, 2013). Studies, analysing the effect of overlap and difference of PTSD/CPTSD algorithms in ICD-11 and DSM-5 classification systems on adolescent mental

health evaluation is another important milestone for the future (Bruckmann, Haselgruber, Sölva, & Lueger-Schuster, 2020).

4.1. Limitations

Several limitations should be highlighted. The cross-sectional nature of this study limits the possibilities to explore the causal pathways involved in the association between family situation, school bullying, social relationships and mental health problems in adolescents. Further longitudinal studies are required to explore the long-term effects of trauma on a child and adolescent development trajectories and how social factors affect the development of PTSD and CPTSD symptoms over time. Another limitation of this work is the use of self-rated scales although it is important to highlight that diagnostic interviews for ICD-11 PTSD and Complex PTSD in adolescents are still under development.

Although data were collected on specific traumatic events, more specific data concerning the duration and chronicity of traumatic experience would have been useful. The social factors related to PTSD and CPTSD development were evaluated using separate single items and should be interpreted only as rough indicators of the phenomena. It is difficult to evaluate such complex indicators as the mental health of parents in self-report adolescents' studies. The factors related to family functioning and school functioning were self-disclosed whereas adolescents may vary with regard to how they perceive conflicts or socioeconomic status in the family. The use of dedicated measures of social support, family and school functioning would provide a more accurate evaluation of the role of these factors on PTSD and CPTSD status.

Despite these limitations, this study employed a large sample of adolescents from the general population. The young age of participants assures that participants are less prone to memory bias which is an issue in adult retrospective childhood abuse and neglect studies.

5. Conclusions

The findings from this study provide new insights into the role of social factors in ICD-11 PTSD and CPTSD in adolescents. These findings confirm the importance of social and environmental factors in CPTSD status, especially the negative role of the dysfunctional family and school problems. Future longitudinal research could identify the sequential development of childhood trauma and its relationship with social difficulties and mental health in adolescents. There is a need to develop appropriate intervention and preventative strategies to tackle CPTSD in adolescents. Our findings suggest that addressing family and school difficulties may be helpful for traumatized children and adolescents who suffer from CPTSD.

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Data availability

Data supporting the findings is not openly available due to ethical reasons. The participants of the study were adolescents. The informed consent for participation in the study was received from all adolescents and parents. The agreement to share the study data was not obtained.

Disclosure statement

No potential conflict of interest was reported by the authors.

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