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BASIC RESEARCH ARTICLE



Complex PTSD symptom trajectories in trauma-exposed adolescents: a five-year longitudinal study

Agniete Kairyte , Evaldas Kazlauskas  and Paulina Zelviene 

Faculty of Philosophy, Institute of Psychology, Center for Psychotraumatology, Vilnius University, Vilnius, Lithuania

ABSTRACT

Background: Complex posttraumatic stress disorder (PTSD) symptom profile, prevalence, and risk factors have been studied in various populations across the lifespan. However, the longitudinal course of complex PTSD symptoms is unknown.

Objective: The current study aimed to investigate the ICD-11 PTSD and complex PTSD symptom trajectories and trauma disorders diagnostic changes in a longitudinal study of a trauma-exposed community sample of adolescents.

Method: The five-year, three-wave longitudinal study included 156 adolescents (58.3% girls, 40.4% boys, and 1.3% non-binary); age $M(SD) = 17.10(0.43)$ years, who completed self-report questionnaires. The Repeated Measures ANOVA was used to identify changes in complex PTSD symptom clusters in adolescents meeting diagnostic criteria for PTSD, complex PTSD, or no trauma disorder at wave 3.

Results: 21 diagnostic pathways of PTSD, complex PTSD, and no trauma disorder were observed across the three biannual study waves. Almost half of the participants (46.8%) met diagnostic criteria for PTSD or complex PTSD at least at a single wave over the course of the study. However, complex PTSD (2.6%) or PTSD (0.6%) diagnostic pathways across all three waves were rare. In adolescents with complex PTSD at the last wave, all symptom cluster trajectories were elevated through time in comparison to the no current trauma disorder status group. Also, the stability in time of affect dysregulation and disturbed relationships symptoms was indicated in adolescents with complex PTSD status in wave 3.

Conclusions: The longitudinal study of complex PTSD symptom trajectories reveals heightened complex PTSD symptoms across five years of the study in participants meeting diagnostic criteria for complex PTSD at the last study wave. These findings reveal the importance of early recognition of complex PTSD symptom patterns in adolescents to provide trauma care and treatment. Further studies are needed to explore complex PTSD symptom trajectories in other adolescent populations.

Trayectorias de los síntomas del trastorno de estrés postraumático complejo (TEPT complejo) en adolescentes expuestos a trauma: un estudio longitudinal de cinco años

Antecedentes: El perfil de síntomas, la prevalencia y los factores de riesgo del trastorno de estrés postraumático complejo (TEPT complejo) han sido estudiados en diversas poblaciones a lo largo del ciclo vital. Sin embargo, se desconoce la evolución longitudinal de los síntomas del TEPT complejo.

Objetivos: El presente estudio tuvo como objetivo investigar las trayectorias de los síntomas del TEPT y del TEPT complejo, según la CIE-11, así como los cambios diagnósticos en los trastornos relacionados con el trauma, mediante un estudio longitudinal de una muestra comunitaria de adolescentes expuestos a experiencias traumáticas.

Método: El estudio longitudinal, con una duración de cinco años y tres 'olas' de evaluaciones, incluyó a 156 adolescentes (58,3% mujeres, 40,4% hombres y 1,3% personas no binarias; edad: $M[DE] = 17,10 [0,43]$ años) que completaron cuestionarios de autoinforme. Se utilizó un análisis de varianza de medidas repetidas (ANOVA) para identificar los cambios en los grupos sintomáticos del TEPT complejo en adolescentes que, en la tercera 'ola' de evaluación, cumplían criterios diagnósticos de TEPT, TEPT complejo o no presentaban ningún trastorno relacionado con el trauma.

Resultados: A lo largo de las tres evaluaciones bienales del estudio se observaron 21 trayectorias diagnósticas de TEPT, TEPT complejo y ausencia de trastorno relacionado con el trauma. Casi la mitad de los participantes (46,8%) cumplió los criterios diagnósticos de TEPT o TEPT complejo en al menos una de las evaluaciones realizadas durante el estudio. Sin embargo, las trayectorias diagnósticas de TEPT complejo (2,6%) o TEPT (0,6%) a lo largo de las tres evaluaciones fueron poco frecuentes. En los adolescentes que presentaban TEPT

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TEPT complejo; TEPT; CIE-11; adolescencia; estudio longitudinal

HIGHLIGHTS

- Based on the self-report measure, almost half of the adolescents in the study sample met diagnostic criteria for PTSD or complex PTSD at least once, over a five-year period.
- Chronic complex PTSD and PTSD diagnostic pathways with a prolonged course of these disorders in five years of the study were rare.
- The symptoms of reexperiencing, avoidance, sense of threat, affect dysregulation, negative self-concept, and disturbed relationships were higher in adolescents with complex PTSD compared to the no trauma disorder group over a five-year period.
- The study informs that early identification of complex PTSD symptoms in adolescents exposed to potentially traumatic events might help to prevent the development of the disorder.

CONTACT Agniete Kairyte  agniete.kairyte@fsf.vu.lt  Faculty of Philosophy, Institute of Psychology, Center for Psychotraumatology, Vilnius University, M. K. Ciurlionio str. 29, Vilnius, Lithuania

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complejo en la última evaluación, las trayectorias de todos los grupos de síntomas se mantuvieron elevadas a lo largo del tiempo en comparación con el grupo sin un trastorno relacionado con el trauma en la evaluación final. Asimismo, en los adolescentes que presentaban TEPT complejo en la tercera evaluación se observó estabilidad temporal en los síntomas de desregulación afectiva y de alteraciones en las relaciones interpersonales.

Conclusiones: El estudio longitudinal de las trayectorias de los síntomas del TEPT complejo reveló niveles elevados de síntomas de TEPT complejo durante los cinco años de seguimiento en los participantes que cumplían los criterios diagnósticos de TEPT complejo en la última evaluación del estudio. Estos hallazgos ponen de manifiesto la importancia de la detección temprana de los patrones sintomáticos del TEPT complejo en adolescentes para proporcionar una atención y un tratamiento informados en trauma. Se requieren estudios adicionales para explorar las trayectorias de los síntomas del TEPT complejo en otras poblaciones de adolescentes.

1. Introduction

The inclusion of complex posttraumatic stress disorder (PTSD) diagnosis in the 11th edition of the International Classification of Diseases (ICD-11) (World Health Organization, 2025) facilitated research on complex PTSD assessment and treatment, and prevalence and risk factors for complex PTSD across the lifespan. However, most of the current knowledge about complex PTSD is based on cross-sectional studies. The longitudinal course of complex PTSD, and in particular in adolescence, is unknown.

ICD-11 complex PTSD includes 6 symptom clusters, divided into three clusters of PTSD symptoms: (1) reexperiencing of the traumatic event(s), which may occur with sensory experiences and is typically led by overwhelming emotions and physical sensations; (2) avoidance of thoughts and memories of the event(s), or avoidance of activities, situations, or people reminiscent of the event(s); and (3) persistent perceptions of heightened current threat, for example as indicated by hypervigilance or an enhanced startle reaction to stimuli. And three clusters of disturbances in self-organization symptoms (DSO): (4) problems in affect regulation; (5) negative self-concept as beliefs about oneself as diminished, defeated or worthless; and (6) difficulties in sustaining relationships and in feeling close to others. For complex PTSD to be diagnosed, it should cause significant impairment in important areas of functioning (e.g. family, social, educational, etc.). Complex PTSD could be diagnosed after exposure to one or a series of potentially traumatic events (PTEs) – the events of extremely threatening or horrific nature (World Health Organization, 2025).

Complex PTSD may be diagnosed at all ages (World Health Organization, 2025). The structure of complex PTSD has already been validated in numerous countries across different cultures, including various samples of adolescents (Afsharzada et al., 2025; Banzon et al., 2024; Haselgruber et al., 2020; Ho et al., 2022; Kazlauskas et al., 2022; Løkkegaard et al., 2023; Parhoon et al., 2024; Redican et al., 2022; Rossi et al., 2022). In non-clinical adolescent samples, the prevalence of complex PTSD using self-report

measures ranges from 3.4% to 12.3% (Banzon et al., 2024; Kazlauskas et al., 2022; Redican et al., 2022; Sigurðardóttir et al., 2025).

However, adolescence as a developmental stage is marked by rapid changes in socioemotional and neuro-cognitive development; thus, complex PTSD has specific developmental presentations (Maercker et al., 2022; World Health Organization, 2025). For example, it might be difficult for adolescents with still-developing reflective function to recognize and reflect on internal states specific to complex PTSD, or the symptoms might be expressed more behaviourally than in adults (Jensen & Sachser, 2024). Moreover, children and adolescents are more vulnerable to complex PTSD than adults (World Health Organization, 2025).

A few previous studies have examined the ICD-11 complex PTSD longitudinally in adolescent samples. Elliott et al. (2021) have examined ICD-11 PTSD and complex PTSD in comparison to ICD-10 PTSD in the 9th week after a single PTE exposure. However, they did not further examine the changes in PTSD and complex PTSD diagnostic status or symptoms. Also, Kazlauskas et al. (2024) have examined the factors related to chronic complex PTSD and recovery from complex PTSD in a two-time-point study of a non-clinical sample of adolescents. However, in this study, other symptom trajectories were not considered.

It is worth mentioning several recent studies that have explored ICD-11 complex PTSD symptom patterns in young adult samples. Research findings show various distinct trajectories of complex PTSD: e.g. low-symptom, moderate-symptom, and high-risk (Huang et al., 2024); low symptom, DSO group, complex PTSD group, and PTSD group (Song et al., 2026); or a high-risk and a resistant (Liu et al., 2025). Despite adding new knowledge to the field of traumatic stress, these studies have shared limitations: they were conducted in a young adult sample, and not adolescents, which is close but also differs a lot developmentally; and they were conducted only in the sample with adverse childhood experiences, which do not cover the variety of PTEs. Moreover, some of these studies do not include PTSD symptoms in the analysis, nor

do they apply diagnostic criteria to identify PTSD or complex PTSD or distinguish PTSD and DSO symptom clusters in the analysis.

Considering the gap in evidence of ICD-11 complex PTSD symptom changes in adolescence, the current study aimed to investigate the PTSD and DSO symptom cluster changes in a five-year three-wave longitudinal study, in a non-clinical community-based sample of adolescents exposed to various traumatic events. The objectives of the study were: (1) to identify ICD-11 PTSD and complex PTSD diagnostic status changes over time, and (2) to explore PTSD and complex PTSD-specific DSO symptom clusters changes over time with respect to the PTSD, complex PTSD, or no trauma-disorder diagnostic statuses at wave 3.

2. Method

2.1. Participants

The study used biennial data from three waves of the longitudinal research project Stress and Resilience in Adolescence (STAR-A), conducted in a general population sample of adolescents in public schools across Lithuania. Overall, 1299 adolescents participated in wave 1 (W1), 849 in wave 2 (W2), and 275 in wave 3 (W3). For the current analyses, the inclusion criteria were: (1) participation in all three waves ($N = 175$), and (2) exposure to at least one potentially traumatic event during the lifetime ($N = 156$).

Therefore, the final sample comprised 156 adolescents, of whom 58.3% ($n = 91$) were girls, 40.4% ($n = 63$) were boys, and 1.3% ($n = 2$) did not identify as binary. The mean age of participants at W3 was 17.10 ($SD = 0.43$) years. More than half of the sample (67.3%, $n = 105$) did not experience financial difficulties in a family, and the rest (32.7%, $n = 51$) experienced at least some financial difficulties. Most of the sample live with both parents (73.7%, $n = 115$), 25.0% ($n = 39$) with one parent, and 1.3% ($n = 2$) in other family conditions. Almost one-third of the participants received professional psychological services in the past year: 14.7% ($n = 23$) went to a psychologist for a few months or more, and 13.5% ($n = 21$) once or a few times.

The drop-out analysis revealed that the final study sample did not differ from the sample dropouts on demographic variables at W1 – gender proportions ($\chi^2(1) = .46$; $p = .271$) and family financial situation ($\chi^2(3) = 5.34$; $p = .165$). However, the dropped-out participants at W1 were older ($t(1296) = 17.35$, $p < .001$). This happened because of the ethical limitation of reaching participants after they graduated or left school.

2.2. Procedure

The study was completed with the Committee on Research Ethics in Psychology at Vilnius University

approval (No. 2019.03.06/23; 15/(1.13E)250000-KT-5). The quota sampling was used in this study, with the goal of reaching adolescents from 6th to 9th grades in all regions of Lithuania. Invitations to participation were sent to the public schools in Lithuania. Agreement to participate was obtained from 15 schools. Written informed consent was obtained from one of the parents/guardians and the participants. The W1 data were collected in March–June 2019 using the paper-and-pencil method. For W2 (March–June 2021) and W3 (March–June 2023), due to the COVID-19 lockdown, data were collected using the digital survey. At all data collection stages, at least one researcher or a trained psychology student was present in person or via online Zoom meeting to explain study procedures, ethical concerns, ensure that participants were filling out the survey individually, without consulting each other, and answer questions about the study. Participants filled out the self-report questionnaire in groups during school hours. Survey completion took around 30–45 mins. After participation, each participant received information about easily accessible, free psychological help or emotional support services at their school, and outside.

2.3. Measures

The Child and Adolescent Trauma Screen (CATS) – List of potentially traumatic events, first version (Kazlauskas et al., 2020; Sachser et al., 2017), was used to assess lifetime exposure to PTEs. The list comprised 14 PTEs (e.g. natural disaster, physical abuse, sexual abuse, etc.) and an option to write not listed event(s). In the CATS PTEs list, the binary answers No (= 0) and Yes (= 1) were provided to reflect on whether the participant has experienced such PTE. The list was used across all three waves: at W1, participants were asked to recall all the events they had experienced in their lives, and at W2 and W3, they were asked to recall new PTEs that had occurred in the past two years. For the lifetime PTEs exposure in this study, we combined data from all three waves. Items representing the same PTE were summed (scores ranged from 0 to 3), and recoded to a binary expression (0 = No lifetime exposure of specific PTE; scores 1, 2, and 3 were recoded to 1 = exposed to a specific PTE in lifetime). Trauma exposure was confirmed if at least one item of the CATS was confirmed. The cumulative PTE exposure score was computed as the sum of all the combined CATS items and ranged from 0 to 15.

The International Trauma Questionnaire-Child and Adolescent version (ITQ-CA) (Kazlauskas et al., 2020) was used to assess PTSD and complex PTSD according to ICD-11 symptoms and diagnostic status. ITQ-CA is divided into two parts: for

assessment of PTSD symptoms (includes three symptom clusters of reexperiencing, avoidance, and sense of threat) and DSO symptoms (includes three symptom clusters of affect dysregulation, negative self-concept, and disturbed relationships). Each part contains six items, with two items per symptom cluster. Each item was evaluated on a five-point Likert scale, ranging from Never (= 0) to Almost all the time (= 4). Additionally, both PTSD and DSO parts are followed by five items for functional impairment evaluation in various daily life areas (e.g. school, relationships with family), rated dichotomously with Yes (= 1) if symptoms have affected such area of life and No (= 0) if not.

The diagnostic status of PTSD and complex PTSD were evaluated in each wave for participants with at least one lifetime PTE. PTSD diagnostic status was confirmed when at least one item in each PTSD symptom cluster was rated ≥ 2 , and at least one functioning area was affected by these symptoms. Complex PTSD was confirmed when at least one item in each PTSD and DSO symptom clusters was rated ≥ 2 , and at least one functioning area was affected by these symptoms. In confirmed complex PTSD cases, PTSD diagnosis was excluded. In this study, the 'PTSD group' means participants with confirmed PTSD status, the 'CPTSD group' with confirmed complex PTSD status, based on ITQ-CA, and the rest of the participants with no indication of trauma disorder will be assigned to the 'No (C)PTSD' group. Symptom severity was calculated by summing item ratings within each symptom cluster. For symptom clusters of reexperiencing, avoidance, sense of threat, affect dysregulation, negative self-concept, and disturbed relationships, sums may range from 0 to 8, for the total of PTSD and DSO symptoms from 0 to 24. The Lithuanian version of ITQ-CA has been validated previously in a non-clinical sample of adolescents (Kazlauskas et al., 2020). The internal consistency of the ITQ-CA in this study was very good (all items Cronbach's α at W1 was .86; W2 α = .92; W3 α = .89).

2.4. Data analyses

Data processing and analyses were performed using IBM SPSS Statistics 29 and JASP softwares. Descriptive statistics were used to summarize data on the study variables. Series of Repeated Measures Analyses of Variance (RM ANOVA) were run to estimate the possible changes of PTSD and complex PTSD symptom clusters (reexperiencing, avoidance, sense of threat, affect dysregulation, negative self-concept, and disturbed relationships) and the total of PTSD and DSO symptoms, with time (W1, W2, and W3) as a within-subject factor and group (no (C)PTSD, PTSD, and complex PTSD based on W3 diagnostic status) as a between-subject factor. The normality

tests for continuous variables showed an acceptable fit of the data – Skewness and Kurtosis ranged from -2 to 2 (Mishra et al., 2019). The sphericity assumption among all variables was confirmed using Mauchly's test. Except for the sense of threat cluster variable and the PTSD total variable, which violated the sphericity assumption. Therefore, here we used Huynh-Feldt sphericity correction. The Bonferroni post hoc criteria were used to assess differences within and between factors. The effect sizes (Cohen's d) were interpreted as follows: $(-0.5; -0.2]$ and $[0.2; 0.5]$ small, $(-0.8; -0.5]$ and $[0.5; 0.8]$ = medium, ≤ -0.8 and ≥ 0.8 = large (Cohen, 2013).

3. Results

PTE in the study sample. At W1, 79.5% ($n = 124$) of participants reported at least one PTE. In W2, 59.6% ($n = 93$) and in W3 66.7% ($n = 104$) reported additional new PTEs that happened between study waves. The lifetime trauma exposure was computed based on data from the three study waves. The majority of the sample reported exposure to multiple lifetime traumatic experiences. A single lifetime PTE was experienced by 19.2% ($n = 30$) of the sample, 2–3 PTEs by 31.4% ($n = 49$), 4–5 PTEs by 26.3% ($n = 41$), and 6 or more PTEs by 23.1% ($n = 36$). The average trauma exposure was 3.81 ($SD = 2.32$) PTEs in the sample. The most prevalent PTE was a serious accident or injury (67.3%; $n = 105$), a stressful or scary medical procedure (50.6%; $n = 79$), physical abuse outside the family (37.2%; $n = 58$), and sudden or violent death of a close one (32.1%; $n = 50$).

PTSD and complex PTSD diagnostic changes over time. Overall, at W3, PTSD diagnostic status was met in 8.8% ($n = 14$) and complex PTSD in 25.6% ($n = 40$) of adolescents. PTSD diagnostic status for the first time at W3 was met in 4.5% ($n = 7$), and complex PTSD in 9.0% ($n = 14$) participants. Only at one wave out of three, the PTSD diagnostic status met 10.9% ($n = 17$), and complex PTSD 13.45% ($n = 21$) participants. Status fluctuations – meeting either PTSD or CPTSD statuses in W1 and W3, but not meeting any status in W2 – emerged in 5.1% ($n = 8$) participants. Chronic PTSD across all three waves was identified in one participant (0.6%), and chronic complex PTSD in 4 participants (2.6%). Around half of the participants (53.2%; $n = 83$) had no PTSD or complex PTSD across all waves. Overall, 21 out of 27 possible trauma disorders diagnostic pathways were revealed in the study. The full list of possible pathways and prevalence based on trauma disorder diagnostic status is presented in Table 1.

PTSD and complex PTSD symptom trajectories over time. The PTSD and DSO symptoms trajectories in each study group based on trauma disorders diagnostic status at W3 are presented in Figure 1. The

Table 1. Trauma disorder diagnostic change pathways in the sample ($N = 156$).

W1	W2	Study wave		
		W3		
		No (C)PTSD ($n = 102$) $n(\%)$	PTSD ($n = 14$) $n(\%)$	CPTSD ($n = 40$) $n(\%)$
No (C)PTSD	No (C)PTSD	83(53.2)	7(4.5)	14(9.0)
	PTSD	6(3.9)	1(0.6)	3(1.9)
	CPTSD	4(2.6)	1(0.6)	9(5.8)
PTSD	No (C)PTSD	4(2.6)	2(1.3)	2(1.3)
	PTSD	–	1(0.6)	–
	CPTSD	–	1(0.6)	3(1.9)
CPTSD	No (C)PTSD	3(1.9)	1(0.6)	3(1.9)
	PTSD	–	–	2(1.3)
	CPTSD	2(1.3)	–	4(2.6)

Notes: CPTSD = complex posttraumatic stress disorder status; No (C)PTSD = no trauma disorder diagnosis status; PTSD = posttraumatic stress disorder status; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3. W1: No (C)PTSD $n = 128$ (82.1%), PTSD $n = 13$ (8.3%), CPTSD $n = 15$ (9.6%). W2: No (C)PTSD $n = 119$ (76.3%), PTSD $n = 13$ (8.3%), CPTSD $n = 24$ (15.4%).

visual representation of complex PTSD symptom trajectories shows that all complex PTSD symptom clusters in the complex PTSD group were elevated in comparison to the PTSD and no (C)PTSD groups. Especially, the gap between the study groups is recognizable in graphs *e* and *f*, which represent the negative self-concept and disturbed relationships symptom clusters (see Figure 1). Meanwhile, the symptom trajectories of the no (C)PTSD group show all symptom clusters remain not elevated through time. Moreover, even though PTSD cluster symptoms seem to be increasing over time in the complex PTSD group, they are higher than in other groups across all waves.

Within-group symptom trajectories over time. Furthermore, we tested the complex PTSD symptom changes over time within the PTSD, complex PTSD, and no trauma disorder diagnostic status groups (Table 2). Significant trauma disorder group and time effects were found in all symptom clusters, except for affect dysregulation. In the no (C)PTSD group, expression of almost all symptom clusters remained stable. Except for a statistically significant decrease in avoidance of symptoms at W2, in comparison with W1, and a medium effect size ($d = 0.60$; $CI = [0.12; 1.07]$) and PTSD total symptoms decrease in W2 and W3, in comparison with W1, with small effect sizes ($d = 0.46$ $CI = [0.02; 0.91]$ and 0.38 $CI = [0.01; 0.74]$, respectively). In the PTSD group, the only increase in reexperiencing symptoms was found, in comparing W2 with W3, with a large effect size ($d = -1.07$, $CI = [-2.11; -0.03]$). In the complex PTSD group, a significant increase was found in all PTSD symptom clusters and DSO negative self-concept, in comparison between W1 and W3 waves, with medium effect sizes (reexperiencing $d = -0.75$ $CI = [-1.42; -0.08]$; avoidance $d = -0.71$ $CI = [-1.38; -0.03]$, sense of threat $d = -0.75$, $CI = [-1.33; -0.17]$, and negative self-concept $d = -0.71$ $CI = [-1.35;$

$-0.07]$). Also, comparing W1 and W3, an increase in both PTSD total and DSO total symptoms was found, with a large effect size in an increase in PTSD symptoms ($d = -0.92$, $CI = [-1.52; -0.32]$), and a medium effect size in DSO symptoms ($d = -0.79$, $CI = [-1.46; -0.12]$). There were no significant differences for the rest of the comparisons (see Table 3).

Between-group comparison of symptom trajectories. Further, we applied RM ANOVA to test for between-group effects on PTSD and complex PTSD symptoms trajectories based on the PTSD, complex PTSD and no trauma disorder diagnostic status at W3 (Table 2). Statistically significant between-group effects on symptom trajectories were found across all complex PTSD symptom clusters (Table 4). In comparison of the No (C)PTSD and PTSD groups, reexperiencing, avoidance, sense of threat, and affect dysregulation symptoms were higher in the PTSD group, with medium effect sizes (d ranging from -0.54 to -0.72), and the total score of PTSD symptoms with a large effect size ($d = -0.81$ $CI = [-1.30; -0.32]$). However, in no (C)PTSD and complex PTSD groups, differences emerged in comparisons in all symptom clusters, with large effect sizes, ranging from -0.88 to -1.28 . In comparison of the PTSD and complex PTSD groups, the reexperiencing symptom cluster trajectory was significantly heightened with a medium effect size in the complex PTSD group ($d = -0.58$, $CI = [-1.11; -0.06]$), and trajectories of the negative self-concept and disturbed relationships clusters with large effect sizes ($d = -1.21$ $CI = [-1.79; -0.63]$ and $d = -0.89$ $CI = [-1.40; -0.38]$ respectively). Both PTSD and DSO symptom trajectories combined into two separate cumulative symptom trajectories that were higher in the complex PTSD group in comparison to the PTSD group ($d = -0.53$ $CI = [-1.06; 0.00]$ and $d = -1.03$ $CI = [-1.59; -0.47]$ respectively). The detailed effect sizes are presented in Table 4.

4. Discussion

The current study examined the PTSD and complex PTSD diagnostic pathways, as well as PTSD and DSO symptom changes among the general population community sample of trauma-exposed adolescents in a longitudinal three-wave study over five years. This study is one of the first longitudinal studies that aimed to explore ICD-11 complex PTSD symptom changes in adolescence and provides an important push towards further knowledge about human responses to trauma.

This study sample was exposed to a wide variety of traumatic experiences, with the most prevalent being serious accidents or a stressful or scary medical procedure, physical abuse outside the family, and sudden or violent death of a close one. Previous studies reported a similar PTEs pattern as the most prevalent

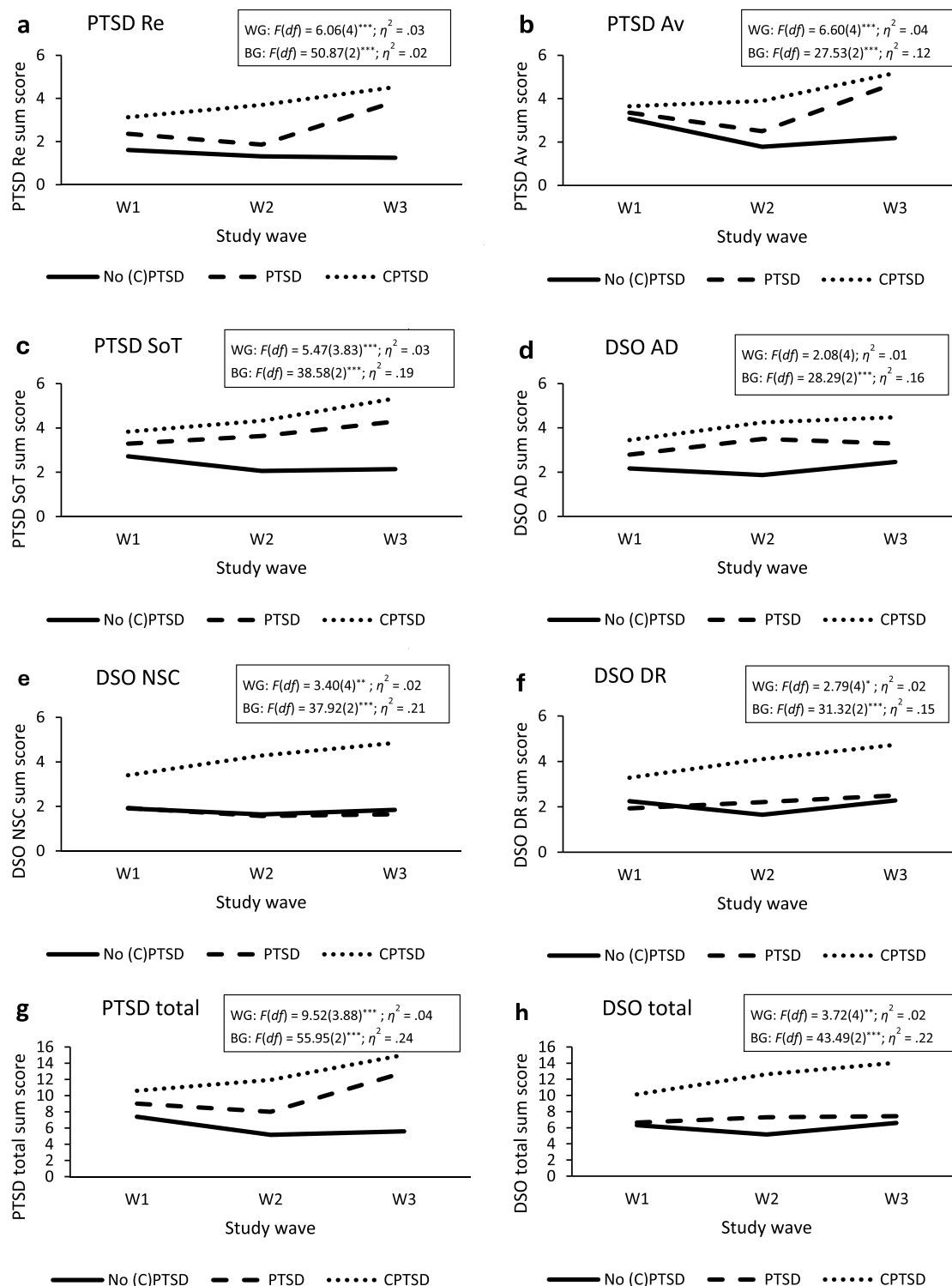


Figure 1. Trajectories and RM ANOVA results of PTSD and DSO symptom changes in No (C)PTSD ($n = 102$), PTSD ($n = 14$) and CPTSD ($n = 40$) groups in three measurement points.

Notes: $*p \leq .05$, $**p \leq .01$, $***p \leq .001$. W1 = Wave 1, W2 = Wave 2, W3 = Wave 3, WG = within-group comparison, BG = between-group comparison, PTSD = posttraumatic stress disorder, CPTSD = complex PTSD, Re = reexperiencing, Av = avoidance, SoT = sense of threat, AD = affect dysregulation, NSC = negative self-concept, DR = disturbed relationships, DSO = disturbances in self-organization.

in adolescent samples (Akkuş et al., 2021; Banzon et al., 2024). Also, the average PTE exposure in the sample is comparable and similar to previous trauma studies in adolescence (Sachser et al., 2022; Stupar et al., 2021).

The important novelty of this study is the prospective exploration of the changes in the PTSD and

complex PTSD diagnostic status over five years in adolescence. In the current study, 21 out of 27 possible trajectories have emerged. This result suggests that it could be difficult to predict the course of disorder individually, and it is important to deepen the understanding of PTSD and complex PTSD symptom fluctuations in adolescence to understand the

Table 2. Within-group and between-group comparison of symptom trajectories in the sample ($N = 156$).

Symptom cluster	Group	Wave			Within-groups		Between-groups	
		W1 <i>M(SD)</i>	W2 <i>M(SD)</i>	W3 <i>M(SD)</i>	<i>F(df)</i>	η^2	<i>F(df)</i>	η^2
Reexperiencing	No (C)PTSD	1.61(1.78)	1.31(1.79)	1.25(1.49)	6.06(4)***	.03	50.87(2)***	.02
	PTSD	2.36(2.06)	1.86(1.43)	3.86(1.17)				
	CPTSD	3.13(2.72)	3.70(2.39)	4.53(1.69)				
Avoidance	No (C)PTSD	3.07(2.37)	1.78(2.24)	2.19(2.06)	6.60(4)***	.04	27.53(2)***	.12
	PTSD	3.36(2.47)	2.50(2.53)	4.71(1.82)				
	CPTSD	3.65(1.94)	3.90(2.09)	5.18(1.69)				
Sense of threat	No (C)PTSD	2.72(1.97)	2.06(2.15)	2.14(1.77)	5.47(3.83)***	.03	38.58(2)***	.19
	PTSD	3.29(2.13)	3.64(2.59)	4.29(1.68)				
	CPTSD	3.83(2.19)	4.32(2.35)	5.33(1.39)				
Affect dysregulation	No (C)PTSD	2.17(1.77)	1.87(1.91)	2.46(1.70)	2.08(4)	.01	28.29(2)***	.16
	PTSD	2.79(2.52)	3.50(2.50)	3.29(1.82)				
	CPTSD	3.45(2.41)	4.25(2.10)	4.48(1.50)				
Negative self-concept	No (C)PTSD	1.91(2.00)	1.64(1.97)	1.84(1.91)	3.40(4)**	.02	37.92(2)***	.21
	PTSD	1.93(2.34)	1.57(2.24)	1.64(1.65)				
	CPTSD	3.40(2.49)	4.28(2.38)	4.85(1.61)				
Disturbed relationships	No (C)PTSD	2.25(2.09)	1.65(1.88)	2.28(2.05)	2.79(4)*	.02	31.32(2)***	.15
	PTSD	1.93(2.06)	2.21(1.85)	2.50(2.03)				
	CPTSD	3.28(2.61)	4.10(2.32)	4.73(1.49)				
PTSD total	No (C)PTSD	7.39(4.72)	5.16(5.24)	5.58(4.15)	9.52(3.88)***	.04	55.95(2)***	.24
	PTSD	9.00(5.84)	8.00(5.84)	12.86(3.53)				
	CPTSD	10.60(5.45)	11.93(5.90)	15.03(3.01)				
DSO total	No (C)PTSD	6.32(4.75)	5.16(4.97)	6.59(4.76)	3.72(4)**	.02	43.49(2)***	.22
	PTSD	6.64(5.64)	7.29(5.28)	7.43(3.92)				
	CPTSD	10.13(6.54)	12.63(5.71)	14.05(3.39)				

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. CPTSD = complex posttraumatic stress disorder status; No (C)PTSD = no trauma disorder diagnosis status; PTSD = posttraumatic stress disorder status; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

development of these disorders, specific developmental presentations in such a dynamic developmental stage, and provide appropriate psychological help services.

In a five-year period, with a two-year gap between data collection, almost half of the sample adolescents met the PTSD or complex PTSD status at least once. This result suggests that every second adolescent in the general population might have experienced some clinically relevant symptomatology. However, the composition of the current study sample does not allow us to generalize the results on a broad scale: we recruited participants at the age of 12–14 in the study, we did not monitor pre-existing distress, and the gaps between measurement points were relatively long to have a more detailed picture of complex PTSD and PTSD trajectories in youth. Thus, we might assume that the risk for PTSD and complex PTSD could be even higher if monitored since early childhood and in more waves. However, the chronic PTSD and chronic complex PTSD pathways were rare, and were identified in only several cases, which confirms the rare severity of these prolonged chronic trauma disorder pathways.

In the current study, we found a higher prevalence of complex PTSD than PTSD. As it may seem intuitive, complex PTSD is a more severe form of PTSD, thus it should be found rarely. However, other recent studies in adolescent samples also show the same trends as ours (Banzon et al., 2024; Sigurðardóttir et al., 2025). There could be a case that growing evidence will confirm the same results. However, these studies used self-report measures for PTSD and

complex PTSD, whereas the interview method could provide more accurate diagnostic results, as shown by studies completed in adult samples (Gelezelyte et al., 2022). Unfortunately, an interview method for adolescent ICD-11 PTSD and complex PTSD has not yet appeared.

However, the percentage of those who met the diagnostic criteria for complex PTSD at the third time point was relatively high (25.6%). In previous studies conducted in youth samples, this varied at 3.4–8.5% (Banzon et al., 2024; Redican et al., 2022; Sigurðardóttir et al., 2025). It is difficult to draw robust explanations for the result of an elevated prevalence of complex PTSD in our study at wave 3. However, it seems that 9% of participants have met the status of CPTSD in W3 for the first time in this study, which may suggest the delayed onset, symptom fluctuation, responses to new PTEs, or developmentally related factors. Additionally, we could assume that geopolitical instability and increased community insecurity in Lithuania may contribute to this. Since the data for the third wave was collected after one year of large-scale Russian invasion in Ukraine, and Lithuania is a neighbouring country with a complicated history of previous Russian occupations and political oppression (Kazlauskas & Zelviene, 2016).

One of the most important findings in this study is the heightened PTSD and DSO symptoms trajectories over time in the complex PTSD group, in comparison to the no trauma disorder group. The elevated complex PTSD symptoms trajectory over the study span suggests that we might use this information for

Table 3. Within-group post-hoc results and effect sizes ($N = 156$).

Symptom cluster	Group	W1-W2 d [95% CI]	W2-W3 d [95% CI]	W1-W3 d [95% CI]
Reexperiencing	No (C)PTSD	0.16 [-0.27;0.58]	0.03 [-0.35;0.41]	0.19 [-.022;0.60]
	PTSD	0.27 [-0.88;1.32]	-1.07 [-2.11;-0.03]*	-0.80 [-1.91;-0.31]
	CPTSD	-0.31 [-0.99;0.37]	-1.44 [-1.05;0.17]	-0.75 [-1.42;-0.08]**
Avoidance	No (C)PTSD	0.60 [0.12;1.07]**	-0.19 [-0.58;0.21]	0.41 [-0.01;0.83]
	PTSD	0.40 [-0.84;1.64]	-1.03 [-2.11;0.06]	-0.63 [-1.75;0.50]
	CPTSD	-0.12 [-0.85;0.62]	-0.59 [-1.23;0.05]	-0.71 [-1.38;-0.03]*
Sense of threat	No (C)PTSD	0.33 [-0.10;0.76]	-0.04 [-0.47;0.39]	0.29 [-0.07;0.65]
	PTSD	-0.18 [-1.33;0.97]	-0.32 [-1.48;0.84]	-0.50 [-1.46;0.46]
	CPTSD	-0.25 [-0.93;0.43]	-0.50 [-1.19;0.19]	-0.75 [-1.33;-0.17]***
Affect dysregulation	No (C)PTSD	0.15 [-0.24;0.55]	-0.31 [-0.69;0.07]	-0.15 [-0.55;0.24]
	PTSD	-0.38 [-1.44;0.69]	0.11 [-0.91;1.13]	-0.26 [-1.33;0.81]
	CPTSD	-0.42 [-1.05;0.21]	-0.12 [-0.72;0.49]	-0.54 [-1.18;0.10]
Negative self-concept	No (C)PTSD	0.14 [-0.23;0.50]	-0.10 [-0.48;0.28]	0.03 [-0.36;0.43]
	PTSD	0.18 [-0.80;1.15]	-0.04 [-1.07;0.99]	0.14 [-0.92;1.20]
	CPTSD	-0.43 [-1.01;0.15]	-0.28 [-0.90;0.33]	-0.71 [-1.35;-0.07]*
Disturbed relationships	No (C)PTSD	0.29 [-0.13;0.72]	-0.31 [-0.71;0.09]	-0.02 [-0.47;0.43]
	PTSD	-0.14 [-1.27;0.99]	-0.14 [-1.21;0.93]	-0.28 [-1.48;0.93]
	CPTSD	-0.40 [-1.08;0.27]	-0.31 [-0.94;0.33]	-0.71 [-1.43;0.02]
PTSD total	No (C)PTSD	0.46 [0.02;0.91]*	-0.09 [-0.49;0.32]	0.38 [0.01;0.74]*
	PTSD	0.21 [-0.96;1.38]	-1.01 [-2.12;0.10]	-0.80 [-1.79;0.19]
	CPTSD	-0.28 [-0.97;0.42]	-0.64 [-1.30;0.02]	-0.92 [-1.52;-0.32]***
DSO total	No (C)PTSD	0.23 [-0.14;0.61]	-0.29 [-0.67;0.09]	-0.05 [-0.46;0.36]
	PTSD	-0.13 [-1.14;0.89]	-0.03 [-1.04;-0.98]	-0.16 [-1.27;0.95]
	CPTSD	-0.50 [-1.11;-0.11]	-0.29 [-0.89;0.31]	-0.79 [-1.46;-0.12]**

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. CPTSD = complex posttraumatic stress disorder status; No (C)PTSD = no trauma disorder diagnosis status; PTSD = posttraumatic stress disorder status; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

possible prediction of the onset and development of complex PTSD in adolescents who experience similar problems to DSO symptoms, such as heightened difficulties with mood regulation, self-esteem, friendships, etc. Adolescents with such problems following trauma exposure might be at a higher risk of developing complex PTSD. The DSO symptoms of negative self-concept and disturbed relationships symptoms, and overall DSO total symptoms were more elevated in the complex PTSD group in comparison to the PTSD group as well. This supports the validity of complex PTSD in adolescents and provides insight into the possibility of differentiating these trauma disorders. These results may also contribute to emphasizing the necessity for complex PTSD DSO symptoms targeted interventions. However, future studies that include developmentally sensitive tools and multiple more frequent study waves are needed to discriminate whether this early elevation of DSO symptoms is an early distinguishing feature or the development process of complex PTSD.

However, the affect regulation symptoms did not differ between the PTSD and complex PTSD groups.

This could be related to PTSD-specific symptoms, which include heightened emotional reactivity, for example, reexperiencing symptoms are highly related to high emotional reactions, e.g. anger outbursts, which might be difficult to regulate (World Health Organization, 2025).

4.1. Limitations and future directions

The participants were sampled from a general population via schools rather than solely from clinical mental health settings, which may increase the generalisability of our findings in the broader population of youth. However, the next step should be to conduct longitudinal complex PTSD studies in clinical samples. Retention of participants in our study was low. We reached 14.1% of participants who took part at W1 and W2. However, despite a high attrition rate due to ethical limitations of this study, the dropout analysis revealed that the study sample did not differ on sociodemographic variables at W1, except for age. Thus, the results of this study remain valid and highly valuable.

Table 4. Between-group post-hoc results and effect sizes ($N = 156$).

Symptom cluster	No (C)PTSD-PTSD d [95% CI]	No (C)PTSD-CPTSD d [95% CI]	PTSD-CPTSD d [95% CI]
Reexperiencing	-0.69 [-1.18;-0.21]**	-1.28 [-1.64;-0.92]***	-0.58 [-1.11;-0.06]*
Avoidance	-0.55 [-1.00;-0.09]*	-0.88 [-1.20;-0.56]***	-0.33 [-0.82;0.16]
Sense of threat	-0.72 [-1.20;-0.23]**	-1.10 [-1.44;-0.75]***	-0.38 [-0.90;0.14]
Affect dysregulation	-0.54 [-1.04;-0.04]*	-0.99 [-1.34;-0.64]***	-0.46 [-0.99;0.09]
Negative self-concept	0.04 [-0.47;0.55]	-1.17 [-1.54;-0.80]***	-1.21 [-1.79;-0.63]***
Disturbed relationships	-0.08 [-0.53;0.38]	-0.96 [-1.29;-0.64]***	-0.89 [-1.40;-0.38]***
PTSD total	-0.81 [-1.30;-0.32]***	-1.34 [-1.71;-0.98]***	-0.53 [-1.06;0.00]*
DSO total	-0.22 [-0.72;0.28]	-1.25 [-1.62;-0.88]***	-1.03 [-1.59;-0.47]***

Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Results are averaged over three levels. CPTSD = complex posttraumatic stress disorder status; No (C)PTSD = no trauma disorder diagnosis status; PTSD = posttraumatic stress disorder status.

Moreover, future studies may consider choosing shorter gaps between waves to examine the possibility of more rapid fluctuations of ICD-11 PTSD and complex PTSD status and symptoms in adolescents. Also, the study findings describe group-level symptom-course patterns rather than individual-level clinically meaningful change; thus, symptom shifts are not the direct evidence of individual recovery, deterioration, or reliable change. Thus, future studies may address using a person-oriented approach.

Also, the paper-and-pencil method could limit participants' openness; thus, switching to digital data collection via online survey in W2 and W3 could have affected the results. We used the self-report ITQ-CA questionnaire for PTSD and complex PTSD assessments, which helps to reach more participants. On the other hand, the diagnostic interviews could be beneficial for a more precise assessment of trauma disorders. However, at the time of the study, there were no valid diagnostic interviews for complex PTSD for adolescents. Self-report studies would also benefit from including measures for adolescents' reflective ability. For example, heightened symptoms through time could be due to improved reflective abilities as a result of maturity over time in youth.

4.2. Conclusion

The current study has examined ICD-11 PTSD and complex PTSD diagnostic pathways, as well as PTSD and DSO symptom trajectories in adolescence over five years. The distinct pathways of ICD-11 PTSD and complex PTSD diagnostic status were identified, resulting in almost half of the sample meeting either PTSD or complex PTSD status at least once over a five-year period. Most of the symptoms in no trauma disorder status and PTSD groups remained stable through time. The significant elevation in reexperiencing, avoidance, sense of threat and negative self-concept symptoms emerged in the complex PTSD group while comparing W1 and W3. Lastly, all symptom trajectories were significantly elevated in the complex PTSD group in comparison to no trauma disorder group. Symptom trajectories of reexperiencing, negative self-concept and disturbed relationships were elevated in the complex PTSD group in comparison to the PTSD group over the course of this longitudinal study.

Author contributions

CRediT: **Agniete Kairyte**: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft; **Evaldas Kazlauskas**: Conceptualization, Methodology, Supervision, Writing – review & editing; **Paulina Zelviene**: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Supervision, Writing – review & editing.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The datasets of the current study are not publicly available due to ethical reasons but are available from the corresponding author upon reasonable request.

ORCID

Agniete Kairyte  <http://orcid.org/0000-0002-6888-2869>
Evaldas Kazlauskas  <http://orcid.org/0000-0002-6654-6220>
Paulina Zelviene  <http://orcid.org/0000-0002-7524-6094>

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