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## PTSD and cPTSD in foster children – a review of the literature

### PTSD i cPTSD wśród wychowanków pieczy zastępczej – przegląd literatury

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#### Abstract

**Background:** Individuals particularly vulnerable to the development of mental disorders are alumni of foster care. A high prevalence of traumatic experiences is observed in the latter group. Exposure to multiple traumas increases the likelihood of developing post-traumatic stress disorder (PTSD) and complex post-traumatic stress disorder (cPTSD). The translation of the term “post-traumatic stress disorder” into Polish depends on the diagnostic classification applied. **Aim:** The aim of the review is to present the rates of PTSD and cPTSD in the population of children and adolescents in foster care and adult alumni of foster care. **Method:** The search for scientific literature in Polish and English was conducted in the databases MEDLINE, PsycINFO, PubMed and Scopus. Additionally, the review took into account results of search carried out using Google Scholar. Finally, 24 research reports published between January 2000 and February 2024 were identified using the terms: “PTSD”, “cPTSD” and “foster care”. **Results:** The prevalence of PTSD in children ranged from 5.6% to 55%, whereas cPTSD was estimated between 8.2% and 10.7%. PTSD rates in adult alumni of foster care ranged from 2% to 35.6%. Children in foster care who had experienced  $\geq 2$  traumatic events were more likely to meet criteria for PTSD and cPTSD than those who had been exposed to a single trauma. The severity of traumatic experiences is a factor that increases the likelihood of developing PTSD.

**Keywords:** PTSD, foster care, traumatic events, cPTSD

#### Streszczenie

**Wstęp:** Osobami szczególnie narażonymi na rozwój zaburzeń psychicznych są wychowankowie pieczy zastępczej. W grupie tej odnotowuje się wysokie rozpowszechnienie doświadczeń traumatycznych. Ekspozycja na wiele traum zwiększa prawdopodobieństwo rozwoju zaburzenia stresowego pourazowego (*post-traumatic stress disorder*, PTSD) i złożonego zaburzenia stresowego pourazowego (*complex post-traumatic stress disorder*, cPTSD). Tłumaczenie na język polski terminu *post-traumatic stress disorder* zależy od przyjętej klasyfikacji diagnostycznej. **Cel:** Celem przeglądu jest przedstawienie wskaźników występowania PTSD i cPTSD w grupie dzieci i młodzieży z pieczy zastępczej oraz dorosłych wychowanków tej instytucji. **Metoda:** Literatura naukowa była wyszukiwana w języku polskim i angielskim z wykorzystaniem baz: MEDLINE, PsycINFO, PubMed i Scopus. Dodatkowo przegląd uzupełniono o wyszukiwania w Google Scholar. Ostatecznie wyselekcjonowano 24 publikacje opublikowane w okresie styczeń 2000 – luty 2024 roku, zidentyfikowane przy użyciu terminów: „PTSD”, „cPTSD” i „piecza zastępcza” (*foster care*). PTSD diagnozowano przy użyciu kryteriów: ICD-11, ICD-10, DSM-5, DSM-IV i DSM-III-R. **Wyniki:** Rozpowszechnienie PTSD wśród dzieci mieściło się w przedziale 5,6–55%, a cPTSD – 8,2–10,7%. Wskaźniki PTSD u dorosłych wychowanków wyniosły od 2% do 35,6%. Dzieci z opieki zastępczej, które doświadczyły  $\geq 2$  wydarzeń traumatycznych, częściej spełniały kryteria PTSD i cPTSD niż wychowankowie, którzy byli narażeni na jedną traumę. Nasilenie doświadczeń traumatycznych jest czynnikiem zwiększającym prawdopodobieństwo rozwoju zaburzeń po traumie.

**Słowa kluczowe:** PTSD, piecza zastępcza, wydarzenia traumatyczne, cPTSD

## BACKGROUND

Statistical data for the year 2022 show that there were approximately 72,800 children in foster care in Poland who were totally or partially removed from the care of their natural family (Główny Urząd Statystyczny, 2023). The foster care system is designed to provide care when parents are unable or unwilling to do that. The main reasons why children are taken away from their biological families include parental alcohol abuse, violence and neglect. Experiencing multiple violent incidents in childhood is associated with a higher risk of being diagnosed with post-traumatic stress disorder (PTSD) in adulthood (Breslau et al., 1999). The prevalence of mental disorders in the population of children raised in foster care and adult alumni of this system is higher than in the general population (Bronsard et al., 2016; Pilowsky and Wu, 2006; Seker et al., 2022). Growing up in foster care can be a risk factor for the development of mental disorders, including PTSD and complex post-traumatic stress disorder (cPTSD). The translation of the term “post-traumatic stress disorder” into the Polish language varies depending on the classification system: the term *zaburzenie stresowe pourazowe* is applied in the ICD-10 (International Classification of Diseases, 10<sup>th</sup> Revision) (World Health Organization, 1993), the phrase *zaburzenie po stresie traumatycznym* has been adopted in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition) (American Psychiatric Association, 1994), while in reference to PTSD criteria according to the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition) (American Psychiatric Association, 2013), researchers have suggested that the translation *zaburzenie po stresie traumatycznym* should be applied rather than *pourazowe zaburzenie stresowe* (Zawadzki and Popiel, 2014). Studies show that PTSD and cPTSD often coexist with other disorders. The most common clinical conditions diagnosed in association with PTSD and cPTSD include substance use disorders, depression, other anxiety disorders, attention-deficit/hyperactivity disorder (ADHD), and in children oppositional defiant disorder (Ginzburg et al., 2010; Harrington et al., 2012; McCauley et al., 2012; Spencer et al., 2016).

The current study presents a review of literature focusing on the prevalence of PTSD and cPTSD in foster children and adult foster care alumni. The aim of the review is to present the prevalence rates of these disorders in order to indicate the magnitude of the problem manifested by the frequent diagnosis of PTSD and cPTSD in these populations. The search for scientific literature in Polish and English was conducted in the databases MEDLINE, PsycINFO, PubMed and Scopus. Additionally, the review took into account results of search carried out using Google Scholar. Ultimately, the review has taken into account 24 research reports published between January 2000 – February 2024, which were identified using the key words “PTSD” (post-traumatic stress disorder), “cPTSD” (complex post-traumatic stress disorder) and “foster care”. The diagnosis

of PTSD was based on the diagnostic criteria defined in ICD-11, ICD-10, DSM-5, DSM-IV and DSM-III-R.

## DIAGNOSTIC CRITERIA FOR PTSD AND cPTSD

Post-traumatic stress disorder (PTSD) was classified in the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV) as an anxiety disorder (American Psychiatric Association, 1994), whereas in the DSM-5 it was moved to a new disorder class: “Trauma- and stressor-related disorders” (American Psychiatric Association, 2013). Compared to the DSM-IV, the current version does not include the controversial criterion of a subjective state of horror during the experience of trauma; furthermore the list of potentially traumatic stressors has been expanded in the DSM-5 (Zawadzki and Popiel, 2014). Another significant difference is linked with the fact that the DSM-5 has introduced symptoms relating to adverse changes in cognitive ability and mood, as a result of which the number of symptom groups has increased from three (criteria B, C and D in the DSM-IV) to four (criteria B, C, D and E in the DSM-5). According to the DSM-5, PTSD (diagnosis code 309.91) may develop in individuals who have experienced a traumatic event (Criterion A). Such events may include: 1) actual or threatened death, 2) actual severe injury or threatened severe injury, 3) actual sexual violence or threatened sexual violence (American Psychiatric Association, 2013). At least one of the following conditions must be identified in order to determine that an event was traumatic:

1. direct experience of the traumatic event;
2. witnessing the traumatic event in person;
3. indirect experience, by learning that a close family member or friend was exposed to a traumatic event;
4. repeated or extreme exposure to aversive details of traumatic events (American Psychiatric Association, 2013).

As previously mentioned, the trauma-related criteria for the diagnosis of PTSD include intrusive memories (Criterion B), persistent avoidance of stimuli reminiscent of the traumatic experience (Criterion C), adverse changes in cognitive ability and mood (Criterion D) and marked changes in arousal (Criterion E). In order to determine a diagnosis of PTSD based on the DSM-5, symptoms should persist for at least one month (Criterion F) and cause significant clinical distress or interference with functioning in various spheres of the person’s life (Criterion G). The above criteria are applied to children over 6 years of age and adults.

The DSM-5 also distinguishes diagnostic criteria for PTSD in children under 6 years of age. Researchers have observed that young children present with unique symptoms of the disorder; only as they grow up symptoms similar to those exhibited by adults can be identified (Widera-Wysoczańska, 2011). Young children who develop PTSD may, for a period of time, lose previously acquired skills corresponding to the stage of their development, and show signs of re-experiencing the trauma in the form of post-traumatic play, which

involves re-enacting of some aspects of the trauma, is compulsive in nature and does not mitigate anxiety. In the case of children diagnosed with PTSD, playful activities present lower complexity and contain fewer imaginary components than what is usually observed. Given the above, the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood, DC:0-3R (2005) and/or DC:0-5 (2016), is a useful tool for more effective diagnosis of children.

The assessment process should apply differential diagnosis which is intended to rule out any other conditions similar to PTSD. In the context of foster care one should take into account reactive attachment disorder (RAD) (criteria according to the DSM-5, number 313.89) which is a result of trauma and attachment issues. Reactive attachment disorder originates before the age of 5 years and can be diagnosed in a child who is at least 9 months old. The picture of RAD includes markedly dysfunctional and developmentally maladaptive styles of social attachment. The key criterion for RAD is the experience of serious neglect by the caregivers. Pathogenic characteristics of care include at least two of the following:

1. persistent neglect of the child's basic needs such as sense of security, peace, stimulation and affection;
2. repeated changes of caregivers which makes it impossible to form stable attachments;
3. rearing in unusual settings, e.g. in an institution with a large number of children per one caregiver, which limits opportunities to form stable attachments (American Psychiatric Association, 2013).

The prevalence of RAD in children raised in foster care has been estimated at a rate of 19.5% (Lehmann et al., 2013). According to the ICD-10, a traumatic event is an event of an exceptionally threatening or frightening nature that would cause suffering in almost anyone (World Health Organization, 1993).

PTSD (criteria numbered F43.1) consists of three groups of symptoms: 1) persistent recollections, reliving the trauma in intrusive memories or dreams; 2) avoidance of circumstances reminiscent of the traumatic event; and 3) difficulty recalling certain important circumstances of contact with the stressor and/or a persistent state of heightened psychological vulnerability and a state of arousal (World Health Organization, 1993). These symptoms must first appear within 6 months following the stressful event. PTSD is often confused with other disorders, as many similar difficulties are experienced by, for example, individuals with adjustment disorder, depressive disorder, anxiety disorder and cPTSD (World Health Organization, 2023).

Complex post-traumatic stress disorder (cPTSD) (criteria number 6B41) is a new diagnostic category included in the ICD-11 (World Health Organization, 2023). cPTSD is a disorder that develops following an exposure to event/events of an extremely threatening or frightening nature – most commonly these are long-lasting and recurrent events (World Health Organization, 2023). In conclusion, usually the cause of cPTSD is a complex trauma, including

relational trauma. However, it cannot be ruled out that individuals exposed to long-lasting and recurrent trauma may develop PTSD. A vulnerable person who has experienced a one-time trauma may be diagnosed with cPTSD, whereas a resilient and/or well-supported person with a history of long-term trauma will be diagnosed with PTSD or none of the above disorders (Cloitre, 2020).

cPTSD combines the characteristics of PTSD and personality disorders. The individual assessed should meet all the criteria for PTSD according to the ICD-11 as well as three groups of symptoms which jointly are referred to as disturbances in self-organisation (DSO): emotional dysregulation, negative self-image and relationship disorders (World Health Organization, 2023). Notably, there have been no significant changes in the structure of PTSD symptoms in the ICD-11 compared to the previous version.

The authors of the DSM-5 ultimately decided not to introduce cPTSD as a formally coded diagnostic entity, despite initial intentions to do so. This condition was not coded in the ICD-10, either. The decision not to include cPTSD in these classifications was associated with the fact that most individuals who can be considered to have cPTSD meet the criteria for an already existing disorder (i.e. PTSD and/or borderline personality disorder – BPD).

### PREVALENCE OF PTSD AND cPTSD IN CHILDREN AND ADOLESCENTS IN FOSTER CARE

Children and adolescents in foster care are a group with a high prevalence of exposure to traumatic events. The analyses show that 18.9% of the study participants had experienced one traumatic event and 59.1% reported two or more such events. The most common events were physical and emotional neglect (53.3% and 52.5%, respectively), psychological violence (49.2%), physical violence (33.6%) and sexual abuse (28.7%) (Haselgruber et al., 2021). Another study showed that 46.8% of foster children had experienced at least one trauma. Girls were more at risk of such experiences and had higher rates of cumulative trauma than boys (Streicher et al., 2023). Cumulative trauma is defined as the co-occurrence of traumatic events (Xue et al., 2023). The prevalence of such experiences in children may be inaccurately estimated due to the diagnostic procedures applied. The study by Grasso et al. (2009) suggests that if assessments took into account the data from interviews with biological parents and children exclusively, 36% of children who were sexually abused, 39% of those with a history of physical abuse and 32% of those who witnessed domestic violence would not be identified as having such experiences. If the child is the only person reporting trauma, even more such experiences are missed in the assessment. Importantly, exposure to trauma is a key criterion for PTSD or cPTSD. Incorrect estimation of traumatic events in this population may affect the identified PTSD/cPTSD prevalence rates or lead to erroneous clinical diagnoses.

Authors, year of publication	Study participants	Method, research tools, diagnostic criteria for PTSD and cPTSD	Main findings
Ahmad et al., 2005	Girls and boys in foster care <i>n</i> = 94 Age = 7–16 years Girls and boys from orphanages <i>n</i> = 48 A = 8–14 years Iran	Survey questionnaires Diagnostic interview HUTQ-C, PTSS-C Two-year observation Diagnostic criteria for PTSD – DSM-IV	Foster care: Measurement 1 PTSD – 28.7% Measurement 3 PTSD – 15.7% Orphanage: Measurement 1 PTSD – 33.3% Measurement 3 PTSD – 19.6%
McMillen et al., 2005	Girls and boys in foster care USA <i>N</i> = 373 A = 17 years	Diagnostic interview DIS-IV, CTQ Diagnostic criteria for PTSD – DSM-IV	PTSD L – 14% Before entering foster care: PTSD – 42% In the final year: PTSD – 8%
Grasso et al., 2009	Boys and girls with experience of foster care: 1. foster children: <i>n</i> = 119 2. control group: <i>n</i> = 83 USA A = 6–14 years	Acquisition of data from children, caregivers and parents PTSD-CL, CTQ, structured diagnostic interview K-SADS-PL Diagnostic criteria for PTSD – DSM-IV	PTSD – 55% Experience of four types of maltreatment – 80% children met the diagnostic criteria for PTSD
Keller et al., 2010	Girls and boys in a child welfare system USA <i>N</i> = 732 A = 17–18 years	Diagnostic interview CIDI Diagnostic criteria – DSM-IV	PTSD L – 15.1% Girls ↔ ↑ PTSD Type of care system – no differences in the diagnosis of PTSD
Salazar et al., 2013	Girls and boys in foster care USA <i>N</i> = 732 A = 17–18 years	Diagnostic interview CIDI Diagnostic criteria – DSM-IV	Experience of ≥2 traumatic events ↔ ↑ diagnosis of PTSD Experience of one traumatic event ↔ ↓ diagnosis of PTSD
Seiler et al., 2016	Girls: 1. orphanage: <i>n</i> = 27 2. control group: <i>n</i> = 27 Chile A = 6–17 years	Questionnaire survey MACE, UCLA PTSD-RI, KIDSCREEN-27, CBCL Diagnostic criteria for PTSD – DSM-IV	Orphanage: PTSD – 18.5% Control group: PTSD – 0%
Bederian-Gardner et al., 2018	Females and males with experience of foster care USA <i>N</i> = 146 A = 17 years	Questionnaire survey LASC Diagnostic criteria – DSM-IV	Residential instability ↔ ↑ symptoms of PTSD
Beyerlein et al., 2018	Girls and boys with experience of foster care • kinship care – <i>n</i> = 133 • non-kinship care – <i>n</i> = 118 • legal guardian – parent – <i>n</i> = 856 USA A = 2–18 years	Questionnaire survey UCLA PTSD-RI Clinical diagnosis Diagnostic criteria for PTSD – DSM-5	Non-kinship foster care ↔ ↑ traumatic events Clinical diagnosis of PTSD ↔ ↑ non-kinship foster care Symptoms of re-experiencing the trauma ↔ ↑ kinship care
Pawliczuk et al., 2018	Girls and boys from orphanages Poland <i>N</i> = 141 A = 11–18 years	Questionnaire survey, diagnostic interview YSR, K-SADS-PL Diagnostic criteria for PTSD – DSM-III and DSM-IV	PTSD – 5.6%
Bruckmann et al., 2020	Girls and boys with experience of foster care Austria <i>N</i> = 145 A = 10–19 years	Questionnaire survey ITQ, CATS, LEC Diagnostic criteria for PTSD – DSM-5, ICD-11	PTSD (DSM-5) – 21.4% PTSD (ICD-11) – 16.7%
Lehmann et al., 2020	Girls and boys with experience of foster care Norway <i>N</i> = 303 A = 11–17 years	Questionnaire survey CATS Diagnostic criteria for PTSD – DSM-5	PTSD symptoms at or above the clinical cut-off score – 52.9%
Sölva et al., 2020a	Girls and boys with experience of foster care Austria <i>N</i> = 140 A = 10–18 years	Questionnaire survey CTQ, FRKJ, ITQ Diagnostic criteria for PTSD – ICD-11	CTE ↔ PTSD – SOC non-significant mediator CTE ↔ DSO – SOC significant mediator
Sölva et al., 2020b	Girls and boys with experience of foster care Austria <i>N</i> = 147 A = 10–18 years	Questionnaire survey CTQ, ITQ, SOC Diagnostic criteria for PTSD/cPTSD – ICD-11	PTSD – 8.7% cPTSD – 8.2% CM ↔ ↑ PTSD, cPTSD
Haselgruber et al., 2021	Girls and boys in foster care Austria <i>N</i> = 122 A = 10–18 years	Questionnaire survey CTQ, ITQ, PHQ-9 Diagnostic criteria for PTSD/cPTSD – ICD-11	PTSD – 13.9% DSO – 19.7% cPTSD – 10.7%

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Hiller et al., 2021	Girls and boys with experience of foster care UK N = 120 A = 10–18 years	Questionnaire survey CATS, Child Complex PTSD Checklist, CPTCI, CPCQ, TMQQ Diagnostic criteria for PTSD – DSM-5 and ICD-11	PTSD – 19% Caregivers' report: PTSD – 25% No significant differences in the severity of PTSD symptoms in the period of one year Severity of SA ↔ ↑ PTSD
McGuire et al., 2021	Girls and boys with experience of foster care USA N = 291 A = 8–18 years	Retrospective study, the databases Medicaid, Department of Social Services Diagnostic criteria for PTSD – DSM-IV, DSM-5	Experience of maltreatment before entering foster care ↔ ↑ diagnosis of PTSD ↑ age of entering foster care ↔ earlier diagnosis of PTSD
Streicher et al., 2023	Girls and boys with experience of foster care Austria N = 124 A = 10–18 years	Questionnaire survey ITQ, CBCL, CTQ Diagnostic criteria for PTSD – ICD-11	PTSD – 16.2% cPTSD – 9.5%

**A** – age of study participants; **CATS** – Child and Adolescent Trauma Screen; **CBCL** – Child Behavior Checklist; **CIDI** – World Health Organization Composite International Diagnostic Interview; **CM** – cumulative maltreatment; **CPCQ** – Child Posttrauma Coping Questionnaire; **CPTCI** – Child Post-Traumatic Cognitions Inventory; **cPTSD** – complex post-traumatic stress disorder; **CTE** – cumulative traumatic experiences; **CTQ** – Childhood Trauma Questionnaire; **DIS-IV** – Diagnostic Interview Schedule for DSM-IV; **DSO** – disturbances in self-organization; **FRKJ** – Fragebogen für Ressourcen im Kindes- und Jugendalter; Questionnaire for Resources in Children and Adolescents; **HUTQ-C** – Harvard–Uppsala Trauma Questionnaire for Children; **ITQ** – International Trauma Questionnaire; **KIDSCREEN-27** – Health Related Quality of Life Questionnaire for Children and Young People and their Parents; **K-SADS-PL** – Schedule for Affective Disorders and Schizophrenia for School-Age Children; **L** – lifetime diagnosis; **LASC** – Los Angeles Symptom Checklist; **LEC** – Life Events Checklist; **MACE** – Maltreatment and Abuse Chronology of Exposure scale; **N/n** – number of study participants; **PHQ-9** – Patient Health Questionnaire-9; **PTSD** – post-traumatic stress disorder; **PTSD-CL** – Posttraumatic Stress Disorder Checklist; **PTSS-C** – Post-Traumatic Stress Symptoms for Children; **SA** – sexual abuse; **SOC** – sense of coherence; **TMQQ** – Trauma Memory Quality Questionnaire; **UCLA PTSD-RI** – UCLA Child/Adolescent PTSD Reaction Index for DSM-IV; **YSR** – Youth Self-Report.

Tab. 1. Review of studies focusing on PTSD and cPTSD in children and adolescents in foster care (cont.)

Upon entering the foster care system, older adolescents receive a diagnosis of PTSD more quickly than younger children. This may be linked to the behaviour of older adolescents who exhibit more of the externalising symptoms associated with PTSD. These symptoms can be disruptive to those around, as a result of which the foster carers make effort to have the youngster diagnosed more quickly (McGuire et al., 2021).

The studies taken into account in the current review reported PTSD prevalence rates in the range between 5.6% and 55% (the diagnoses were based on DSM-5, DSM-IV, DSM-III-R, ICD-11 and ICD-10) (Tab. 1). The prevalence rate of cPTSD was in the range of 8.2–10.7% (diagnoses according to the ICD-11). For comparison, results from a study of the general population of children and adolescents showed that 3.7% of boys and 6.3% of girls, respectively, met the criteria for PTSD (Cohen et al., 2010).

The prevalence of PTSD in Chilean girls living in orphanages was estimated at 18.5%, whereas no girls in the control group received such diagnosis (Seiler et al., 2016). In a Polish study by Pawliczuk et al. (2018), 5.6% of children and adolescents from orphanages (childcare and educational facilities) met criteria for PTSD. The rates identified in this study are slightly lower than the data from a study carried out in the US, which reported that 8% of the study participants were diagnosed with PTSD (McMillen et al., 2005).

When DSM-5 and ICD-11 criteria were applied, PTSD was identified respectively in 21.4% and 16.7% of the foster children. The differences were statistically non-significant (Bruckmann et al., 2020). The lower rates based on the ICD-11 are explained by the restrictive conceptualisation of PTSD in this classification. In the US classification of mental disorders, PTSD consists of four symptom

groups, whereas in the ICD-11, PTSD contains three symptom groups and is operationalised using fewer elements.

The risk of PTSD is associated with the type of the traumatic event (Kessler et al., 2017). Adolescents in foster care, who were exposed to sexual abuse, more frequently met the criteria for PTSD (Salazar et al., 2013), which was also shown by Hiller et al. (2021). McGuire et al. (2021) emphasise, however, that sexual abuse may not be a stronger predictor of the development of PTSD in this group if the analysis simultaneously takes into account other traumatic events and their entire history (severity, frequency).

PTSD was identified more frequently in foster children who had experienced at least two traumatic events (22.7%) compared to those exposed to only one trauma (6.7%) (Salazar et al., 2013). The evidence presented by Sölvä et al. (2020b) confirms a positive association between cumulative traumatic experience and severity of both PTSD and cPTSD symptoms. Exposure to multiple traumas is reported in the scientific literature as a risk factor for the development of PTSD, regardless of the population studied (Tortella-Feliu et al., 2019). The number of events associated with violence and neglect during childhood is also a strong predictor of other mental disorders (McMillen et al., 2005). Foster children, compared to the control group, had a two times higher rate of mental disorders (20.1%, and 9.7%, respectively), ADHD being the most commonly diagnosed condition (Keefe et al., 2022). Notably, some symptoms may be identified in both PTSD and ADHD, although quite different mechanisms are involved in the development of such symptoms (Odachowska and Woźniak-Prus, 2018).

The findings of studies conducted to date suggest an indirect role of dissociation or mentalization in the relationship between traumatic experience and the severity of PTSD symptoms (Doba et al., 2022; Vang et al., 2018).

Authors, year of publication	Study participants	Method, research tools, diagnostic criteria for PTSD and cPTSD	Main findings
Pecora et al., 2005	Women and men with experience of family foster care USA N = 479 A = 20–33 years	Diagnostic interview CIDI Diagnostic criteria – DSM-IV	PTSD – 25.2%
Thompson and Hasin, 2012	Foster care alumni in a crisis of homelessness USA N = 423 A = 18–21 years	Interview with study participants who reported mental disorders (self-report study) No diagnostic criteria specified	PTSD – 2%
Jackson Foster et al., 2015	Women and men with experience of foster care USA N = 1,038 A = 20–49 years	Diagnostic interview CIDI, MCS Diagnostic criteria for PTSD – DSM-IV and ICD-10	PTSD – 21.6%
White et al., 2015	Women and men with experience of foster care USA N = 65 A = 23–24 years	Diagnostic interview CIDI Diagnostic criteria for PTSD – DSM-IV	PTSD L – 32.3% PTSD – 23.1%
Lueger-Schuster et al., 2018	Women and men with experience of foster care n = 220 A = 29–87 years Control group n = 234 A = 40–86 years Austria	Questionnaire survey BSI-18, CTQ, LEC, ITQ, PCL-5; SCID Diagnostic criteria for PTSD – DSM-5	PTSD L – 56.4% PTSD – 35.6% PTSD ↑ foster care ↔ ↑ control group
Katz et al., 2020	Women and men with experience of foster care USA N = 732 A = 24–25 years	Diagnostic interview CIDI Diagnostic criteria for PTSD – DSM-IV	PTSD (17/18 years) ↔ violence in the relationship (24/25 years)
Fusco and Newhill, 2021	Women and men with experience of foster care USA N = 185 A = 18–25 years	Questionnaire survey CTQ, BDQ Diagnostic criteria for PTSD – DSM-IV	Exposure to trauma, physical violence, entering foster care at a younger age and spending more time in foster care were risk factors for marijuana use

**A** – age of study participants; **BDQ** – Brief Trauma Questionnaire; **BSI-18** – Brief Symptom Inventory-18; **CIDI** – World Health Organization Composite International Diagnostic Interview; **CTQ** – Childhood Trauma Questionnaire; **ITQ** – International Trauma Questionnaire; **L** – lifetime diagnosis; **LEC** – Life Events Checklist for DSM-5; **MCS** – Maltreatment Classification System; **N/n** – number of study participants; **PCL-5** – PTSD Checklist for DSM-5; **PTSD** – post-traumatic stress disorder; **SCID** – Structured Clinical Interview for DSM-IV.

Tab. 2. Review of studies focusing on PTSD and cPTSD in adult foster care alumni

Other studies show that a sense of coherence is negatively correlated with PTSD (Schäfer et al., 2019). Sense of coherence is a specific type of individual's resource – when well developed, it affects judgement and helps in choosing effective ways of coping with stress. Studies focusing on foster children do not report evidence suggesting that sense of coherence is a mediating variable between cumulative traumatic experience and PTSD severity (Sölva et al., 2020a). This variable was found to partially mediate the relationship between cumulative traumatic experience and DSO, a category of cPTSD symptoms (Sölva et al., 2020a).

Both before and after entering the child welfare system, girls presented with higher levels of PTSD symptoms than boys (Keller et al., 2010). The evidence reported by Hiller et al. (2021) confirms these differences. Gender is a factor which differentiates the prevalence of this disorder in the general population of children, as well (Alisic et al., 2014).

Instability, defined as a frequent change of residence (including change of caregiver) and school, was associated with greater severity of PTSD symptoms in a group of 17-year-old adolescents in foster care (Bederian-Gardner et al., 2018). Children placed in kinship care were more likely to report symptoms of re-experiencing the trauma (DSM-5 criterion C) compared to their peers placed in foster care or living with their parents (Beyerlein et al., 2018).

### PREVALENCE OF PTSD AND cPTSD IN ADULT ALUMNI OF FOSTER CARE

Studies investigating prevalence of PTSD in adults who grew up in foster care are listed in Tab. 2. Compared to the research focusing on foster children, significantly fewer studies investigate this issue in adult populations (Tabs. 1 and 2). It was not possible to find analyses that included cPTSD prevalence rates in the latter group.

Adult foster care alumni have experienced more trauma compared to control groups (Fusco and Newhill, 2021; Lueger-Schuster et al., 2018). A study by White et al. (2015) reported that before entering the facility, 30.8% of the study participants had experienced two traumatic events and 21.5% had been exposed to three such events.

Exposure to trauma, including physical abuse, as well as entering foster care at a younger age and spending more time in foster care were risk factors for marijuana use in foster care alumni (Fusco and Newhill, 2021). According to the available literature, individuals with a history of trauma may use marijuana to mitigate the symptoms of PTSD (Bujarski et al., 2012).

Nearly one in two adult alumni (45.6%) had mental health problems of clinical severity (Pecora et al., 2005). PTSD is one of the most common mental problems in this population (Jackson Foster et al., 2015). The current PTSD rates ranged from 2% to 35.6%, whereas during their lifetime PTSD criteria were met by 32.3–56.4% of the study participants (diagnoses based on the criteria in DSM-5, DSM-IV and ICD-10) (Jackson Foster et al., 2015; Lueger-Schuster et al., 2018; Pecora et al., 2005; Thompson and Hassin, 2012; White et al., 2015). In the general adult population, the lifetime prevalence rate of this disorder is 3.9% (Koenen et al., 2017).

Over 20% of foster care alumni reported they had committed and/or experienced violence in their relationships (Katz et al., 2020). The analyses performed by Katz et al. (2020) showed that alumni diagnosed with PTSD at 17/18 years of age (the first stage of the study) were less likely to commit domestic violence in later years (23/24 years) compared to their peers. The authors of the study suggest that those with PTSD chose to avoid situations that could trigger their aggressive behaviour and/or their partner's aggressive behaviour (or, indirectly, the trauma symptoms that would be activated by the experience of violence). They emphasise that PTSD symptoms are associated with a lower ability to regulate emotions, which is potentially a risk factor for violent behaviours. They also suggest that these differences would not have been identified if violence had been measured at the first stage of the study (Katz et al., 2020).

## CONCLUSIONS

There is a high prevalence of PTSD and cPTSD in the groups in question. PTSD rates in children and adolescents were 5.6–55%, while cPTSD rates were 8.2–10.7%. The differences in the rates may be linked to the tools applied and the diagnostic criteria adopted. The prevalence of PTSD in adult alumni was estimated at 2–35.6%, with 32.3–56.4% of the study participants meeting the criteria for this disorder during their lifetime. Notably, in the study where the prevalence of PTSD was 2%, individuals self-reported that they had a diagnosis of PTSD, so it is likely many respondents did not know they were affected by the disorder.

In both groups, a higher prevalence of PTSD and cPTSD can be observed than in the general populations. cPTSD is a new nosological entity, so it is not surprising that no studies have been found to investigate the prevalence of cPTSD in adult foster care alumni.

Individuals growing up in foster care have high levels of traumatic experience. Haselgruber et al. (2021) found that more than one traumatic event had been experienced by 59.1% of children. The intensity of traumas is positively correlated with the severity of PTSD and cPTSD symptoms (Breslau et al., 1999; Brown et al., 1999; Suliman et al., 2009). Studies using structural equation models found that the direct effect of multiple traumatic events on PTSD symptom severity was not statistically significant. By reference to these analyses, an indirect effect between multiple traumatic events and PTSD symptom severity was found to be statistically significant if it was linked to dysfunctional general cognitions and situation-specific beliefs (Kube et al., 2023). The analysis was interpreted according to exploratory cognitive models to explain the genesis of PTSD development (Ehlers and Clark, 2000).

The clinical implications of this research review include indications for conducting initial and periodic mental health assessments of those growing up in foster care, for performing an in-depth psychiatric assessment for potential PTSD and cPTSD, and to organise psychological support for those leaving the foster care system.

## Conflict of interest

*The authors do not report any financial or personal connections with other persons or organizations which might negatively affect the contents of this publication and/or claim authorship rights to this publication.*

## Author contribution

*Original concept of study: MC. Collection, recording and/or compilation of data: MC. Analysis and interpretation of data: MC. Writing of manuscript: MC. Critical review of manuscript: KK. Final approval of manuscript: MC, KK.*

## References

- Ahmad A, Qahar J, Siddiq A et al.: A 2-year follow-up of orphans' competence, socioemotional problems and post-traumatic stress symptoms in traditional foster care and orphanages in Iraqi Kurdistan. *Child Care Health Dev* 2005; 31: 203–215.
- Alisic E, Zalta AK, van Wesel F et al.: Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: meta-analysis. *Br J Psychiatry* 2014; 204: 335–340.
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders* (4<sup>th</sup> ed.). American Psychiatric Association Press, Washington DC 1994.
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders* (5<sup>th</sup> ed.). American Psychiatric Association Press, Arlington 2013.
- Bederian-Gardner D, Hobbs SD, Ogle CM et al.: Instability in the lives of foster and nonfoster youth: mental health impediments and attachment insecurities. *Child Youth Serv Rev* 2018; 84: 159–167.

- Beyerlein BA, Briggs EC, Vivrette RL et al.: Examination of child placement, emotional, behavioral and attachment problems among children with caregiver-perpetrated trauma histories. *J Child Adolesc Trauma* 2018; 12: 245–255.
- Breslau N, Chilcoat HD, Kessler RC et al.: Previous exposure to trauma and PTSD effects of subsequent trauma: results from the Detroit Area Survey of Trauma. *Am J Psychiatry* 1999; 156: 902–907.
- Bronsard G, Alessandrini M, Fond G et al.: The prevalence of mental disorders among children and adolescents in the child welfare system: a systematic review and meta-analysis. *Medicine (Baltimore)* 2016; 95: e2622.
- Brown J, Cohen P, Johnson JG et al.: Childhood abuse and neglect: specificity of effects on adolescent and young adult depression and suicidality. *J Am Acad Child Adolesc Psychiatry* 1999; 38: 1490–1496.
- Bruckmann P, Haselgruber A, Sölva K et al.: Comparing rates of ICD-11 and DSM-5 Posttraumatic Stress Disorder in Austrian children and adolescents in foster care: prevalence, comorbidity and predictors. *Eur J Psychotraumatol* 2020; 11: 1767988.
- Bujarski SJ, Feldner MT, Lewis SF et al.: Marijuana use among traumatic event-exposed adolescents: posttraumatic stress symptom frequency predicts coping motivations for use. *Addict Behav* 2012; 37: 53–59.
- Cloitre M: ICD-11 complex post-traumatic stress disorder: simplifying diagnosis in trauma populations. *Br J Psychiatry* 2020; 216:129–131.
- Cohen JA, Bukstein O, Walter H et al.; AACAP Work Group On Quality Issues: Practice parameter for the assessment and treatment of children and adolescents with posttraumatic stress disorder. *J Am Acad Child Adolesc Psychiatry* 2010; 49: 414–430.
- Doba K, Saloppé X, Choukri F et al.: Childhood trauma and posttraumatic stress symptoms in adolescents and young adults: the mediating role of mentalizing and emotion regulation strategies. *Child Abuse Negl* 2022; 132: 105815.
- Ehlers A, Clark DM: A cognitive model of posttraumatic stress disorder. *Behav Res Ther* 2000; 38: 319–345.
- Fusco RA, Newhill CE: The impact of foster care experiences on marijuana use in young adults. *J Soc Work Pract Addict* 2021; 21: 54–65.
- Ginzburg K, Ein-Dor T, Solomon Z: Comorbidity of posttraumatic stress disorder, anxiety and depression: a 20-year longitudinal study of war veterans. *J Affect Disord* 2010; 123: 249–257.
- Główny Urząd Statystyczny: Piecza zastępcza w 2022 roku. Available from: <https://stat.gov.pl/obszary-tematyczne/dzieci-i-rodzina/dzieci/pieczka-zastepcza-w-2022-roku,1,7.html> [cited: 15 March 2023].
- Grasso D, Boonsiri J, Lipschitz D et al.: Posttraumatic stress disorder: the missed diagnosis. *Child Welfare* 2009; 88: 157–176.
- Harrington KM, Miller MW, Wolf EJ et al.: Attention-deficit/hyperactivity disorder comorbidity in a sample of veterans with posttraumatic stress disorder. *Compr Psychiatry* 2012; 53: 679–690.
- Haselgruber A, Knefel M, Sölva K et al.: Foster children's complex psychopathology in the context of cumulative childhood trauma: the interplay of ICD-11 complex PTSD, dissociation, depression, and emotion regulation. *J Affect Disord* 2021; 282: 372–380.
- Hiller RM, Meiser-Stedman R, Elliott E et al.: A longitudinal study of cognitive predictors of (complex) post-traumatic stress in young people in out-of-home care. *J Child Psychol Psychiatry* 2021; 62: 48–57.
- Jackson Foster LJ, Phillips CM, Yabes J et al.: Childhood behavioral disorders and trauma: predictors of comorbid mental disorders among adult foster care alumni. *Traumatology* 2015; 21: 119–127.
- Katz CC, Courtney ME, Sapiro B: Emancipated foster youth and intimate partner violence: an exploration of risk and protective factors. *J Interpers Violence* 2020; 35: 5469–5499.
- Keefe RJ, Cummings ADL, Greeley CS et al.: Mental health and developmental disorder diagnoses of foster and nonfoster children enrolled in Medicaid. *J Dev Behav Pediatr* 2022; 43: e296–e303.
- Keller TE, Salazar AM, Courtney ME: Prevalence and timing of diagnosable mental health, alcohol, and substance use problems among older adolescents in the child welfare system. *Child Youth Serv Rev* 2010; 32: 626–634.
- Kessler RC, Aguilar-Gaxiola S, Alonso J et al.: Trauma and PTSD in the WHO World Mental Health surveys. *Eur J Psychotraumatol* 2017; 8 (sup5): 1353383.
- Koenen KC, Ratanatharathorn A, Ng L et al.: Posttraumatic stress disorder in the World Mental Health Surveys. *Psychol Med* 2017; 47: 2260–2274.
- Kube T, Ellsner AC, Herzog P: The relationship between multiple traumatic events and the severity of posttraumatic stress disorder symptoms – evidence for a cognitive link. *Eur J Psychotraumatol* 2023; 14: 2165025.
- Lehmann S, Breivik K, Monette S et al.: Potentially traumatic events in foster youth, and association with DSM-5 trauma- and stressor related symptoms. *Child Abuse Negl* 2020; 101: 104374.
- Lehmann S, Havik OE, Havik T et al.: Mental disorders in foster children: a study of prevalence, comorbidity and risk factors. *Child Adolesc Psychiatry Ment Health* 2013; 7: 39.
- Lueger-Schuster B, Knefel M, Glück TM et al.: Child abuse and neglect in institutional settings, cumulative lifetime traumatization, and psychopathological long-term correlates in adult survivors: the Vienna Institutional Abuse Study. *Child Abuse Negl* 2018; 76: 488–501.
- McCauley JL, Killeen T, Gros DF et al.: Posttraumatic stress disorder and co-occurring substance use disorders: advances in assessment and treatment. *Clin Psychol (New York)* 2012; 19: 10.1111/cpsp.12006.
- McGuire A, Huffhines L, Jackson Y: The trajectory of PTSD among youth in foster care: a survival analysis examining maltreatment experiences prior to entry into care. *Child Abuse Negl* 2021; 115: 105026.
- McMillen JC, Zima BT, Scott LD Jr et al.: Prevalence of psychiatric disorders among older youths in the foster care system. *J Am Acad Child Adolesc Psychiatry* 2005; 44: 88–95.
- Odachowska E, Woźniak-Prus M: Trudna diagnoza. Kontrowersje wokół PTSD i ADHD. *Psychol Wychow* 2018; 55: 7–24.
- Pawliczuk W, Kaźmierczak-Mytkowska A, Srebnicki T et al.: Rozpozszechnienie zaburzeń psychicznych wśród dzieci i młodzieży przebywających w placówkach opiekuńczo-wychowawczych, domach dziecka – przegląd badań epidemiologicznych. *Psychiatr Psychol Klin* 2018; 52: 345–353.
- Pecora PJ, Kessler RC, Williams J et al.: Improving Family Foster Care: Findings from the Northwest Foster Care Alumni Study. *Casey Family Programs*, Seattle, WA 2005: 33–35.
- Pilowsky DJ, Wu LT: Psychiatric symptoms and substance use disorders in a nationally representative sample of American adolescents involved with foster care. *J Adolesc Health* 2006; 38: 351–358.
- Salazar AM, Keller TE, Gowen LK et al.: Trauma exposure and PTSD among older adolescents in foster care. *Soc Psychiatry Psychiatr Epidemiol* 2013; 48: 545–551.
- Schäfer SK, Becker N, King L et al.: The relationship between sense of coherence and post-traumatic stress: a meta-analysis. *Eur J Psychotraumatol* 2019; 10: 1562839.
- Seiler A, Kohler S, Ruf-Leuschner M et al.: Adverse childhood experiences, mental health, and quality of life of Chilean girls placed in foster care: an exploratory study. *Psychol Trauma* 2016; 8: 180–187.
- Seker S, Boonmann C, Gerger H et al.: Mental disorders among adults formerly in out-of-home care: a systematic review and meta-analysis of longitudinal studies. *Eur Child Adolesc Psychiatry* 2022; 31: 1963–1982.
- Sölva K, Haselgruber A, Lueger-Schuster B: The relationship between cumulative traumatic experiences and ICD-11 post-traumatic symptoms in children and adolescents in foster care: the mediating effect of sense of coherence. *Child Abuse Negl* 2020a; 101: 104388.
- Sölva K, Haselgruber A, Lueger-Schuster B: Latent classes of childhood maltreatment in children and adolescents in foster care: associations with ICD-11 PTSD and complex PTSD. *Eur J Psychotraumatol* 2020b; 11: 1832757.
- Spencer AE, Faraone SV, Bogucki OE et al.: Examining the association between posttraumatic stress disorder and attention-deficit/hyperactivity disorder: a systematic review and meta-analysis. *J Clin Psychiatry* 2016; 77: 72–83.



- Streicher A, Haselgruber A, Sölva K et al.: Co-development of traumatic stress symptoms and externalising behaviour problems among foster children and the effect of complex trauma: a latent growth curve model. *BMJ Open* 2023; 13: e067860.
- Suliman S, Mkabile SG, Fincham DS et al.: Cumulative effect of multiple trauma on symptoms of posttraumatic stress disorder, anxiety, and depression in adolescents. *Compr Psychiatry* 2009; 50: 121–127.
- Thompson RG, Hasin D: Psychiatric disorders and treatment among newly homeless young adults with histories of foster care. *Psychiatr Serv* 2012; 63: 906–912.
- Tortella-Feliu M, Fullana MA, Pérez-Vigil A et al.: Risk factors for posttraumatic stress disorder: an umbrella review of systematic reviews and meta-analyses. *Neurosci Biobehav Rev* 2019; 107: 154–165.
- Vang ML, Shevlin M, Karatzias T et al.: Dissociation fully mediates the relationship between childhood sexual and emotional abuse and DSM-5 PTSD in a sample of treatment-seeking adults. *Eur J Trauma Dissociation* 2018; 2: 173–178.
- White CR, O'Brien K, Pecora PJ et al.: Mental health and educational outcomes for youth transitioning from foster care in Michigan. *Fam Soc* 2015; 96: 17–24.
- Widera-Wysoczańska A: Wpływ interpersonalnej traumy na rozwój dziecka – PTSD jako objawy niespecyficzne. In: Widera-Wysoczańska A, Kuczyńska A (eds.): *Interpersonalna trauma. Mechanizmy i konsekwencje*. Difin, Warszawa 2011: 142–170.
- World Health Organization: ICD-11 for Mortality and Morbidity Statistics. Available from: <https://icd.who.int/browse11/l-m/en#http%3A%2F%2Fid.who.int%2Ficd%2Fentity%2F2070699808> [cited: 15 March 2023].
- World Health Organization: *The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic Criteria for Research*. World Health Organization, Geneva 1993.
- Xue F, Suh HN, Rice KG et al.: Cumulative trauma and trauma symptoms: a three-way interaction. *Behav Sci (Basel)* 2023; 13: 576.
- Zawadzki B, Popiel A: Na rozstaju dróg: struktura objawów stresu pourazowego (PTSD) po DSM-5, a przed ICD-11. *Nauka* 2014; 4: 69–86.