

Post-traumatic stress disorder in children. Overview and case study

Simona Irina Damian^{1*}, Anton Knieling², Beatrice Gabriela Ioan³

Abstract: Post-traumatic stress disorder (PTSD) is a severe psychological trauma which results in an emotional suffering and a significant impairment in social area of functioning, revealing an intricate clinic summary which proves to be a tackling challenge concerning the therapeutic response. Among the general population PTSD is commonly associated with the highest rate in the use of medical and other professional services which makes it one of the most costly mental disorders. Widespread scientific recognition of PTSD occurrence in children was only recently gained. Studies indicate that there is a series of traumatic circumstances with a high potential of inducing PTSD in children: witnessing the murder or any other violent aggression against a parent.

In this article the authors' approach on PTSD in children starts with the overall data followed by an in depth presentation and analysis of a clinical case, in which a child was diagnosed with PTSD, following her witnessing the severe physical injury of her father.

Key Words: post-traumatic stress disorder, PTSD, children, traumatic event

A traumatic event is a long-term disarray of a subject's psychological life which reflects on the person's (victim or witness) way of thinking and behaviour. In 1896 Kraepelin described the mental condition comprising multiple mental and nervous phenomena emerging as a result of severe emotional trauma, following accidents, especially fires, train collisions and derailments [1].

Across the XX century, mental post-trauma emerging syndromes have been studied and defined in detail starting from a common symptomatology which included sleep disturbance, depression and high anxiety.

PTSD has been established as a freestanding entity in psychiatric nosology in DSM III (1980). The particular clinical aspects of this entity have been correlated to intense, repetitive psychotrauma, as well as vital stress, particularized to Vietnam combat veterans [2].

Subsequently, this syndrome has been recognized in other etiopathogenic cases [3] which determined the development of certain typical symptoms after a traumatic event which is not commonly encountered across human existence.

DSM IV and ICD 10 point out that the trigger traumatic phenomena could be of multiple nature, starting with war trauma, concentration camp imprisonment, deportation, detention, cumulative oppression, sexual abuse, natural disasters, traffic or (especially collective) work accidents, social

1) * Corresponding author: Assistant Professor, MD, PhD, Chair of Legal Medicine, University of Medicine and Pharmacy "Gr.T. Popa", 16 University Street, R0-700115, Jassy, Romania, e-mail: si_damian@yahoo.com

2) Assistant Professor, MD, PhD, Chair of Legal Medicine, University of Medicine and Pharmacy "Gr.T. Popa"

3) Associate Professor, MD, PhD, MA in Bioethics, BA in Psychology, Chair of Legal Medicine, University of Medicine and Pharmacy "Gr.T. Popa"

crisis, aggression, information deprivation and so on. DSM IV PTSD criteria are:

1) The person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others; the person's response involved intense fear, helplessness, or horror (in children, it may be expressed instead by disorganized or agitated behaviour);

2) Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions (in young children, repetitive play may occur in which themes or aspects of the trauma are expressed.); recurrent distressing dreams of the event (in children, there may be frightening dreams without recognizable content); acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes); intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event; physiologic reactivity;

3) Efforts to avoid thoughts, feelings, or conversations associated with the trauma; efforts to avoid activities, places, or people that arouse recollections of the trauma; inability to recall an important aspect of the trauma; markedly diminished interest or participation in significant activities; feeling of detachment or estrangement from others; restricted range of affect; sense of foreshortened future;

4) Difficulty falling or staying asleep; irritability or outbursts of anger; difficulty concentrating; hyper-vigilance; exaggerated startle response.

5) Duration of the disturbance is more than one month.

6) The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning [4].

Although post-traumatic stress disorder symptoms are usually classified into three basic clusters (re-experiencing, avoidance/numbness and hyperarousal) it's the very typical symptoms which include repetitive re-experiencing of the traumatic event along with the associated physiological reactivity that best distinguish PTSD apart from the other emotional or anxiety disorders [5]. A diagnostic meets the validity criteria only if one symptom from the first cluster, three symptoms of avoidance and two of hyperarousal are fulfilled, thus a precipitating traumatic event defines a necessary but not a sufficient condition for the PTSD diagnosis[4].

PTSD is considered a pathological answer, which is easy to distinguish from any normal reactions to severe psychotraumatic events because of its intense and complex symptomatology. The recollection of a traumatic event in PTSD is radically different from a genuine recollection as the subjects exhibit the symptom unwillingly and unconsciously involving strong emotions affecting the normal functioning of the individual and his/her quality of life. First signs of PTSD usually appear in the first month following the traumatic exposure; this time frame decreasing if the triggering events are intense and repetitive, down to a 39-84% rate of early PTSD incidence within a community subjected to constant psycho-trauma [3,6]. For a diagnosis which differentiates PTSD apart from other affective and anxiety disorders there's also the possibility of investigating neurobiological markers (such as changes in the hypothalamus-hypophysis axis) with different results in adults, children, teens noradrenergic and serotonergic activity. [7,8]. Furthermore, there are evidence which sustain the importance of anxiety autonomous symptoms in individuals exhibiting PTSD, such as high autonomous reactivity recorded under exposure to situations favouring the recollection of the past trauma [9]. PTSD is also associated with certain significant social maladjustment [10], inferior quality of life [11], a medical comorbidity [12], sociophobia [13], proneness to guilt, anger and anger management difficulties [13,14], cognitive alterations [15], unemployment and domestic conflicts [16,17]. PTSD essentially involves multiple comorbid disorders including substance abuse, major depression, psychosis, personality disorders, as well as anxiety, somatization, panic attacks, bipolar disorder, phobia, disassociate disorders, sexual dysfunctions, eating disorders [18].

Recent studies have shown that the trauma consequences manifest a high prevalence (51-98%) among individuals with severe mental illnesses grounds (schizophrenia, bipolar disorder) [19,20]. Ultimately, PTSD is an oscillatory chronic illness, as combat veterans from long past wars (Vietnam

and World War II) still exhibit severe symptoms 30 or 50 years later, with a transition to a durable change in personality [21,22]. Moreover, PTSD presence increases the risk of future development of mental issues.

PTSD is associated in general population with the one of the highest rates of medical and other professional services consumption and thus is one of the most costly mental disorder [10,23].

Post-traumatic stress disorder in children

The formal scientific recognition of the occurring of PTSD in children was only recently gained. Up to the 80s it was a widespread belief that children have strictly transitory reactions confronting a singular traumatic event and easily “forget” the trauma. Basically the misunderstandings were due to the fact that children could not provide solid information, and it was preferable to interrogate the adult entourage. As a fact, whenever being asked, children recount a series of anomalies following a traumatic event, anomalies which tend to agglutinate towards the trauma recollection and reliving signs, generating avoidance behaviours of the related emotions. Children often repeat the trauma theme in their games. There is also a series of traumatic factors which increase the rate of developing PTSD in children up to 100%, such as witnessing the murder of their parents or a sexual aggression against them, respectively up to 90% in sexual abused children and up to a 35% in those from the urban areas subjected to community violence [24]. PTSD severity in children depends on three distinct factors: the severity of the traumatic event, parental reaction and physical proximity of the occurrence. The re-experience of the traumatic exposure amplifies the risk of developing PTSD, and female individuals experience a higher risk compared to male individuals.

Neuroimaging applied to children indicated that PTSD is commonly associated with diffuse morphological effects (diminution / shrinkage of the cerebral volume without any affection to the limbic structures) which generate focus difficulties, attention disorders, abstract reasoning deficiencies, disruption, impulsiveness and developmental coordination disorder [24]. As for the front lobe, children showed semantics coordination deficiencies and long-term memory issues, but not significant communication disruption. Beginning with the year 2000, the shrinkage in volume of the right hippocampus has been considered a specific alteration for PTSD, which brings us to nowadays undecided debate, if shrinkage itself (as a neurotoxic effect induced by the glucocorticoids in the stress response) is a valid vulnerability factor or a simple PTSD marker [25].

From the four symptom categories established by DSM IV for the PTSD diagnosis in children, the only pathognomonic ones are those concerning hypervigilance correlated with sleep disturbances, hyperactivity and perplexity or apathy. A variant of the PTSD diagnosis scales in children and teens is CAPS-CA (Clinical Administered Scale for Children and Adolescents), structured as an clinical interview which evaluates the symptoms' frequency and intensity, the type of trauma, their impact upon the psychological functioning of the victim, coping, social and psychological development of the child, including tuition effect.

In an earlier study of refugee families [32] where one or both of the parents had a history of torture and suffered from post-traumatic stress disorder (PTSD), it was found that 41% of the boys and 63% of the girls showed post-traumatic stress symptoms although they themselves had not experienced death threats [33].

Prevalence of PTSD in children is underscored by Fletcher's meta-analysis of 34 samples that included 2697 children who had experienced trauma. Fletcher reported that 36% of children (comparable to the rate of 24% adults) met criteria for PTSD following a range of traumas and that the rates of diagnosed PTSD did not differ markedly across developmental levels. PTSD was diagnosed in 39% of preschoolers (less than 7 years old), 33% in school-aged children (6-12 years old) and 27% in teenagers (over 12 years old) [26].

The emotional suffering, the important social maladjustment, the intricate clinical summary, the rather difficult therapeutical process, as well as the potential impact of PTSD on justice requires a complex multidisciplinary assessment of the cases which must imply a view on the child functionality before and after the trauma, in order to evaluate the impact on the child's emotional development, as

well as an analysis of the family circumstances which are crucial basics for the protective and risk factors in the ongoing child recovery and treatment process [27].

Case study

We present the case of a 13 years old patient who addressed the Infantile Neuropsychiatric service for symptomatology that appeared after being witness to a profound traumatizing event.

The adolescent girl witnessed a violent aggression against her father who suffered severe mutilating injuries, being stabbed with a knife in the eye (causing complete loss of vision, currently he is using an ocular prosthesis), being cut with a chainsaw and threatened with death by gun shoot; during the traumatic incident she tried desperately to protect her father by using her own body as a shield.

Her first admittance in the psychiatric service has been recorded four months following the traumatic event, manifesting anxiety, a certain predisposition to depression, and disturbed, unrestful sleep, (“I see my father dead in my sleep”), even insomnia, somniloquy including verbalized trauma-related content, frequent weeping, aggressive behaviour, a tendency towards lesser communication, loss of interest for current activities, diminished appetite. The psychological exam at this point revealed a patient with a below average intellect, exhibiting a depressive configuration with significant aggravation of anxiety and manifestations of obsessive-compulsive symptoms in a major psychotraumatic context.

Following the anti-depressive treatment, sleep inductor, an intensive psychotherapy associated with the indication of a psycho-protective social and family climate, she marked a favourable evolution. The diagnostic established during her first hospitalization was PTSD, childhood affective disorder.

The second hospitalization, eight months apart from the triggering event, has been recommended by the forensic psychiatric commission in order to assess a dynamical evolution of the case, to establish whether the patient suffered trauma with negative repercussions upon her psychic and to assess the extent her general health has been affected.

The patient comes from a disorganized family with three children (parents being divorced, the mother leaving for a job in Italy). The girl recounts being rejected several times by her natural mother. Living conditions were decent, the father supporting the family in a responsible and protective way.

The patient has a sister and a brother, both of them in school, and whenever the father is missing the children are looked after by the paternal grandmother. As for academic activity it has been recorded that the patient used to have good grades till the 4-th grade, even receiving a scholarship as well as diplomas. The psychological and pedagogical characterization chart shows that during school year (at present being in the 7-th grade) she scored weak results in school compared to the previous period, she no longer holds plans for the future or for achieving any job skills, she doesn't show interest in any extracurricular activities; without school absenteeism.

Along the forensic psychiatric assessment it has been recorded that the adolescent has been cooperative, and benevolent, expressing herself with ease, understanding the questions and coherently relating important dates in her life, some of the moments from the traumatic event, her father's and her own suffering. Her answers were prompt and logical. During the interview she exhibited an anxiety mood closely related to the recounting of the traumatic events, which generated a “crying out loud” reaction with an obvious grief grimace, basic restrained gestures – all being related to the traumatic event she experienced. Her ideation, as well as her wishes for the future are projected towards the protection of her father, whom she has chosen to stay with after the divorce and whom she highly speaks of. Her attention and focusing capacity are only affected when it comes to expressing herself in writing (“My thoughts are slipping away whenever I have to write something down”). Only partial amnesia involving the trauma is affecting her memory, the part concerning the most intense sequence of the experience remaining unaltered. The patient is close to her father, she barely mentions her grandmother and as for her mother – she refuses to discuss the issue, her mother's abandon of the family remaining a deep vivid unsurpassed episode. The primary interest of the patient is constantly focused on the health status of her father, revealing obvious worries which turn to anxiety, sadness and the constant urge to be able to protect and defend her father at any time whatsoever. There's a noticeable emotional lability revealed through the fast shift from a state of apparent calmness to sudden sadness and crying. She states she's not experiencing any sleep disturbance

anymore, but still dreams about her father being dead in an entirely different location from their forest or house, she also avoids passing through the forest and she makes great efforts not to recollect the traumatic event.

Her favourite colours are purple, black and gray. She prefers small children's company, towards whom she acts in a careful, maternal manner.

The psychological examination during the second hospitalization period reveals an IQ scoring 77-82, with the particularity of a cognitive dynamics in a slight regress, resonating in the global scholar performance, a focusing difficulty, a slow mobilization, psychological fatigue under sustained cognitive effort. Linguistic and communication competence has an average grade of assimilation and representation. Clear and open dialogue, critical and self-critical attitude, sadness. Depressive and anxiety-related configuration with frequent decompensations of emotional blockage and phobic obsessive mental ruminations amid a background of psycho-stressful and psycho-traumatic events in her life history. An existential baseline program of abandon-loss (the natural mother semi-rejects her family; the attachment re-grounding towards the grandmother; the conjectural feeling of the possibility to lose her father too) generates a flood of multiple suffering on an affection-emotional level. Re-signifying basis- nucleus of the concept of loss, the idea's, thoughts' and options' re-evaluation upon the meaning and significance of living at present.

The diagnostic established for the second hospitalization period has been: PTSD; depressive-anxiety-related disorder with panic attacks recommending the continuity of the anti-depressive, anxiolytic (benzodiazepines) and cerebro-neurotrophic treatment, along with psychological counselling for at least 3-6 months period.

It has been estimated that the diagnosed sufferings in this particular case are generated by the psychiatric health damage and led to a certain yield loss in school which imposed psychological counselling, maintaining close psychiatric observation and specialized treatment.

Discussion

According to DSM IV the presented case meets all the exposure criteria (the child witnessed a profound traumatic event as in violent aggression against her father and the threats of a violent death, at all times during the event she has tried to protect her father with her own body, experiencing thus intense fear, horror and helplessness); four criteria of intrusion (repetitive recollections of the traumatic event, through thoughts, images, perceptions which induce a severe depressive symptomatology, sleep with nightmares, physiological reactivity during recounting the indices related to trauma); three avoidance symptoms (those of thoughts, feelings, places or persons in connection with the traumatic event); hyperarousal symptoms (sleep disturbances, intense psychological activity as an excessive reaction to stress); duration of the symptoms of more than one month along with significant effect on the functionality of the individual.

In the analyzed case a double trauma underlies at the very foundation of psychological suffering: the loss of her mother and the aggression against her father which made her experience an imminent and more drastically kind of loss, of the single person actually supporting the whole family.

Therefore the symptomatology is aggravated on favourable grounds, the patient failing to cope with her mother rejection, relating to the paternal relationship as being the only secure thing in her present existence. As associated features reported in this case we mention a certain form of self-blame (the girl exhibiting remorse for her inability in better protecting her father), as well as an overcompensation mechanism (the victim stating that she wants to learn in order to earn enough money to buy a car for the purpose of taking her father away to a safe place) which denotes a cutting inner-wish for personal achievement as an effective shield against any other forms of future abuse. PTSD symptoms are also associated in this case with depression and anxiety, along with panic attacks which urge for a specialized long-term treatment, dynamic tracking and psychological counselling.

Conclusions

PTSD in children represents a mental suffering, the disturbance of all sectors of life along with the risk of persistence of some complications even during adulthood. On the basis of these considerations the acceptance of PTSD existence in children as well as a rigorous multi-disciplinary

approach in order to undergo an adequate management, is highly essential. The psychiatric assessment of individuals for PTSD in forensic setting requires particular care and sensitivity. The Romanian forensic jurisprudence must be aligned to the forensic and legal realm of the European Union.

Forensic psychiatry methodology must be oriented on objectivating sequelae, prolonged observation and comparison being mandatory conditions for the evaluation of every case.

PTSD remains a debate underway and the definition provided by Freiburg Psychotrauma Institute is still to be adjusted to current and future medical research findings and data.

References

- Kraepelin E., *Psychiatrie: Ein Lehrbuch für Studierende und Aerzte*. Fünfte, vollständig umgearbeitete Auflage, 1896, Leipzig.
- Kulka R.A., Schlenger W.E. et al, *Trauma in the Vietnam War Generation: Report of findings from the National Vietnam Veterans Readjustment Study*, 1990, Brunner/Mazel, New York.
- Breslau N., Chilcoat H.D., Kessler R.C. et al, *Vulnerability to assaultive violence: further specification of the sex differences in posttraumatic stress disorder*, *Psychol. Med.*, 1995, 29, 813-21.
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (Revised 4th ed.)*.2000, Washington, DC.
- Foa E.B., Riggs D.S. *Posttraumatic Stress Disorder following assault: Theoretical considerations and empirical findings*. *Current Directions in Psychological Science*,1995.
- Kessler R.C., Sonnega A. et al, *Posttraumatic stress disorder in the National Comorbidity Survey*, *Arch Gen Psychiatry* 52, 1995, 1048-60.
- Bremner J.D., *Does stress damage the brain?* *Biological Psychiatry*, 1995, 45, 797-805.
- Charney D.S., Deutch A., Krystal J., Southwick S.M., & Nagy L., *Psychobiological mechanisms of post-traumatic stress disorder*, *Archives of General Psychiatry*,1993, 50,294-305.
- Blanchard E.B., Hickling E.J., Baron K.A., Taylor A.E., Loos W.R., & Jones-Alexander J., *One-year prospective follow-up of motor vehicle accident victims*,1996.
- Frueh B.C., Turner S.M., Beidel D.C., Cahill S.P., *Assessment of social functioning in combat veterans with PTSD*, *Aggression and Violent Behavior: A Review Journal*,2001,6,79-90.
- Zatzick D., Weiss D.S., Marmar C. R., Metzler T. J., Wells K.,Golding J.M.; Stewart. *Military Medicine*, Vol 162(10), 1997, 661-665
- Clum G.A., Calhoun K.S.,Kimerling R., *Posttraumatic stress disorder and the risk of traumatic deaths among Vietnam veterans*. *Archives of Internal Medicine*,2000,164, 1908–1916.
- Crowson J.J., Frueh B.C., Beidel D.C., Turner S.M., *Self-reported symptoms of social anxiety in a sample of combat veterans with PTSD*. *Journal of Anxiety Disorders*,1998, 12, 605-612
- Kubany E.S., *A cognitive model of guilt typology in combat-related PTSD*. *Journal of Traumatic Stress*,1996, 7, 3-19.
- Chemtob C.M., Hamada R.S., Roitblat H.L., Muraoka M.Y., *Anger, impulsivity, and anger control in combat-related posttraumatic stress disorder*. *Journal of Consulting and Clinical Psychology*, 1994,62, 827-832.
- Buckley T.C., Blanchard E.B., Neill W.T., *Information processing and PTSD: A review of the empirical literature*. *Clinical Psychology Review*, 2000, 20, 1041-1065.
- Jordan B.K., Marmar C.R., Fairbank J.A., Schlenger W.E., Kulka R.A., Hough R.L., et al., *Problems in families of male Vietnam veterans with posttraumatic stress disorder*. *Journal of Consulting and Clinical Psychology*,1992, 60, 916-926.
- Keane T.M, Wolfe J., *Comorbidity in posttraumatic stress disorder: an analysis of community and clinical studies*. *J Appl Soc Psychol* 1990; 20:1776–1788
- Goodman L.A., Rosenberg S.D., Mueser K.T, et al., *Physical and sexual assault history in women with serious mental illness: prevalence, impact, treatment, and future directions*. *Schizophrenia Bulletin*,1997, 23:685-696.
- Switzer G.E., Dew M.A., Thompson K., et al: *Posttraumatic stress disorder and service utilization among urban mental health center clients*. *Journal of Traumatic Stress*,1999, 12:25-39.
- Sutker P.B., Allain Jr. A.N., *Assessment of PTSD and other mental disorders in World War II and Korean conflict POW survivors and combat veterans*. *Psychological Assessment*, 1996,8, 18-25.
- Sutker P.B., Galina Z.H., West J.A., et al., *Trauma-induced weight loss and cognitive deficits among former prisoners of war*, *Journal of Consulting and Clinical Psychology*, 1996, 58, 323-328.
- Fontana A., Rosenheck R., Spencer H., Gray S., *The long journey home XV. Treatment of posttraumatic stress disorder in the Department of Veterans Affairs: Fiscal year 2006 service delivery and performance*. West Haven, CT: Northeast Program Evaluation Center. Retrieved October 24, 2008, from <http://vawww.nepec.mentalhealth.va.gov>.
- Heim C., Nemeroff C.B., *The Role of Childhood Trauma in the Neurobiology of Mood and Anxiety Disorders: Preclinical and Clinical Studies*. *Biological Psychiatry*, 2001, 49: 1023-1039.
- Kolk, Bessel A. Van, *Psychobiology of Posttraumatic Stress Disorders*, *Textbook of Biological Psychiatry*, ed. Panksepp, J., Wiley & Sons Publ., 2004,319-338.
- Fletcher K.E., *Childhood posttraumatic stress disorder*, EJ Mash and R Barkley (eds), *Child psychopathology*, 1996, 242-246.
- Fischer G., Reidesser P., *Tratat de psihotraumatologie*,Ed. Trei, 2001, Bucuresti.
- World Health Organization, *International Classification of Diseases and Related Health Problems, tenth revision (ICD 10)*, WORLD Health Organisation, Geneva, 1992.
- Stone A.A, *Post-traumatic stress disorder and the law: critical review of the new frontier*, *Bull. Am.Acad. Psychiatry Law* 21,1993,23-26.
- Kristiansson M., Sumelius K., Sondergaard H.P, *Post-traumatic stress disorder in the forensic psychiatric setting*, *J.Am.Acad. Psychiatry Law* 32, 2004, 399-407.
- Jovanovic A., Jasovic-Gasic M., Ivkovic M., Milavanovic S., Damjonovic A., *Reliability and validity of DSM IV Axis V scales in a clinical sample of veterans with post-traumatic stress disorder*, *Psyhiatr. Danub.*20, 2008, 286-300.
- Daud A., Skoglund E., Rydelius P.A., *Children in families of torture victims: Transgenerational transmission of parents' traumatic experiences to their child*. *International Journal of Social Welfare*, 2005, 14, 23-32.
- Daud A., Rydelius P.A., *Comorbidity/Overlapping Between ADHD and PTSD in Relation to IQ Among Children of Traumatized/Non-Traumatized Parents*, *Journal of Attention Disorders*, 2009,13, 2.