THE POST TRAUMATIC STRESS DISORDER (PTSD) AS A CIVILIZATION CHALLENGE

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ABSTRACT
The Post Traumatic Stress Disorder (PTSD) is an important factor which affects modern societies. Not only is it linked with military personnel, but it also influences people who work in stressful conditions. It has always been part of the mental problems inherent in societies, causing many devastating effects. Currently medicine is making progress in PTSD treatment, but it still requires further investment into abilities to diagnose and treat such cases. The paper covers the overview of the PTSD, treatment approaches and current discoveries in that area.

KEYWORDS
Post Traumatic Stress Disorder, preventive medicine, military medicine.

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Introduction

The contribution of armed forces to peace missions is an important input into the stabilization of regions or nations endangered by a potential crisis and an outbreak of war. It requires expenditure to prepare and equip soldiers for the specific terrain and weather conditions in a certain crisis area. Such deployments are part of Polish armed forces missions and have been conducted under banners of the United Nation, NATO or the European Union. The first deployment took place in 1953 on the Korean Peninsula within the Neutral Nations Supervisory Commission followed by many international assignments. During those missions, especially the NATO Stabilization Force, KFOR (Kosovo Force), the International Security Assistance Force in Afghanistan or the Iraqi Freedom, many soldiers either lost their life or were wounded. Moreover, many of them suffered from PTSD (Post Traumatic Stress Disorder), requiring special treatment to support them and allow them to return to military service or civilian life. According to the Military Institute of Medicine, 7-10% suffered from PTSD symptoms with the various level of impact on their health[1]. The deployments abroad in the combat zone are related to intense pressure emerging from the following: new duties different from dai-

[1] Interview with Lieutenant colonel Radoslaw Tworus, PhD, the Head of Psychiatry and Combat Stress Clinics (Military Institute of Medicine), *Leczenie PTSD u żołnierzy z wykorzystaniem komory hiperbarycznej*, [Treatment of PTSD in soldiers using the hyperbaric chamber], the Military Institute of Medicine, Warsaw 01 January 2015, http://www.wim.mil.pl/aktualnoci-topmenu-19/medycyna-w-mundurze/1909-polska-agencja-prasowa-leczenie-ptsd-u-zolnierzy-z-wykorzystaniem-komory-hiperbarycznej (accessed: 01 March 2019).

ly activities, real and immediate danger to life, unknown cultural, religious and climate conditions, separation from family, usually new and rotating comrades; etc. Although military personnel is prepared and trained before any mission, still the stress level may exceed the soldier's ability to adapt to the new environment, which causes additional traumatic stress. It is necessary to highlight that PTSD is not exclusively related with a combat situation but it may affect any person during daily life. Moreover, what needs to be pointed out is the fact that PTSD „despite being the fifth most common psychiatric disorder, is correctly diagnosed less than 20% of the time"[2]. PTSD "is easy to miss and difficult to live with", which implies that this syndrome also has a great impact on patient's family members and friends.

The aim of the paper is to familiarize readers with the Post Traumatic Stress Disorder and point out important factors that influence military and civilian participants of any military operation both inside and outside of the country. The better understanding of reasons and consequences of PTSD is very important for commanders and soldiers so that they could act according to the real needs of the ones suffering. This paper presents the definition and sources of PTSD followed by various treatment approaches utilizing both psycho- and pharmacotherapy meant for people affected by the disorder. The research is based on available sources published in academic journals and other data coming from organizations dealing professionally with PTSD, including veterans' associations.

Definition of the Post Traumatic Stress Disorder

PTSD is a medically recognized condition described as "the complex somatic, cognitive, affective, and behavioral effects of psychological trauma"[3] that leads to social and interpersonal dysfunction. An affected person reacts to some extent while being reminded of the encountered trauma. Patients experience recurrent flashbacks, intrusive thoughts, flashbacks, sleep disturbance and nightmares. The disorder may be caused by multiple traumatic events such as the combat situation, death of comrades or their wounds, being ambushed or taken as a prosier and tortured. U.S. Army recognizes PTSD as "psychological trauma, by definition, [that] involves a crisis situation which makes the person feel he is changed for the worse. The implication is that the victim has suffered psychological injury and bears the psychological scars"[4]. The U.S. Department of Veterans Affairs defines it as "an anxiety disorder that can occur following the experience or witnessing of a traumatic event. A traumatic event is a life-threatening event such as military combat, natural disasters, terrorist incidents, serious accidents, or physical or sexual assault in adult or childhood"[5].

PTSD is well related to combat stress, which has always been part of any war or conflict. However, only in the 17th century was the first attempt made to define it, and it was "originally called the 'Swiss disease' due to its manifestation in Swiss villagers

[2] *Combined Therapy Shows Promise for PTSD*, Psychiatric Times, Volume 20, Issue 2, 01 February 2003 https://www.psychiatrictimes.com/comorbidity-psychiatry/combined-therapy-shows-promise-ptsd (accessed: 03 March 2019).

[3] B.A. Van der Kolk, D. Pelcovitz, S. Roth, F. S. Mandel, A. McFarlane, J. L. Herman, *Dissociation, somatization, and affect dysregulation: the complexity of adaptation of trauma*, Am J Psychiatry, July 1996.

[4] *FM 22-51, Leaders' Manual for Combat Stress Control*, Headquarters, Department of the Army, Washington DC, 29 September 1994, para 6-2.

[5] *What is posttraumatic stress disorder (PTSD)?* National Center for PTSD, U.S. Department of Veterans Affairs, http://www.ncptsd.va.gov/ncmain/ncdocs/fact_shts/fs_what_is_ptsd.html (accessed: 05 March 2019).

who were involuntarily placed in rouge armies"[6]. The First World War period recognized the term as "shell shock" and "combat neurosis". During the Second World War, "battle fatigue became a popular term in military medicine that is still used in many of the discussions of combat stress today" and "the disorder gained its widespread recognition as a result of the Vietnam War"[7], where "approximately 30% of males and 26% of females who participated in the Vietnam War had PTSD at some point during their lives"[8]. According to U.S. Army Leaders' Manual for Combat Stress Control, the "combat stress behavior is the generic term which covers the full range of behaviors in combat, from behaviors that are highly positive to those that are totally negative"[9]. The positive aspects include strength, endurance, and high alertness, and consequently, tolerance to combat and combat deployment conditions. The negative ones lead to misconduct stress behaviors and even criminal acts such as mutilating the dead on the side of the enemy, killing prisoners and non-combatants, torture, brutality, indiscipline, combat or refusal to obey orders, and desertion[10]. The manual recognizes the term battle fatigue as an equivalent of combat stress reaction or combat fatigue affecting many aspects of soldier's functions and actions. The symptoms of battle fatigue could include simple fatigue or exhaustion, anxiety, depression, memory loss, physical dysfunction or some uncommon symptoms as "disorganized, bizarre, impulsive or violent behavior, total withdrawal, or persistent hallucinations"[11]. Moreover, PTSD is "commonly associated with functional impairment, substance abuse, suicidal ideation, impulsivity and violence, as well as increased utilization of medical care"[12]. In general, there are many consequences of PTSD effecting life including[13]: somatic complaints and medical illnesses, poor quality of life, negative body image, impaired memory and intimacy, increased burden to spouse/partners/family, partner abuse, social dysfunction, and suicidal tendency.

According to experts from UK-based Charity for Veterans, the mental health of affected servicemen and women is called 'Combat Stress', and there are four major clusters of symptoms[14]. The first one is related to re-experiencing symptoms, where the past memories of experiences improperly stored in the brain reoccur as memories or nightmares. The second one is a hyperarousal symptom, also seen as a primary indication that makes a person very irritated, anxious, on the edge, denying proper sleep and rest and slowly adversely affecting interpersonal relationships with the family or

6 B.A. Moore, G.M. Reger, *Historical and contemporary perspectives of combat stress and the Army Combat Stress Control Team*, in: C.R. Figley, W.P. Nash (eds.), *Combat stress injury: Theory, research, and management*, Routledge psychosocial stress series. New York, Routledge, Taylor & Francis Group 2007, pp. 161-181.

7 Ibid.

8 Ibid.

9 *FM 22-51, Leaders' Manual for Combat Stress Control*, op. cit., para 2-9.

10 For details see table 2-2 and Chapters 3, 4 in: *FM 22--51*, op. cit. para 2-9, Chapters 3 and 4.

11 Ibid., para 5-3.

12 J. Lieberman, *Solving the Mystery of Military Mental Health: A Call to Action*, Psychiatric Times 18 December 2018, https://www.psychiatrictimes.com/ptsd/solving-mystery-military-mental-health-call-action (accessed: 03 March 2019).

13 S.J. Wimalawansa, *Causes and Risk Factors for Post-Traumatic Stress Disorder: The Importance of Right Diagnosis and Treatment*, Asian Journal of Medical Science, Volume-5(2014), p. 2; J.R. Davidson, D. Hughes, D.G. Blazer, L.K. George, *Post-traumatic stress disorder in the community: an epidemiological study.* Psychological Medicine, Volume 21 Issue 3, September 1991. 717-718; A.C. McFarlane, M. Atchison, E. Rafalowicz, P. Papay, *Physical symptoms in post-traumatic stress disorder.* Journal of Psychosomatic Research, Volume 38 issues 7, October 1994, pp. 715-726; M. Lipton, W. Schaffer, *Physical symptoms related to post-traumatic stress disorder (PTSD) in an aging population.* Military Medicine, Volume 153 Issue 6, June 1988, 316-318.

14 *What is PTSD?* Combat Stress for Veterans; Mental health, Leatherhead 2019, https://www.healthline.com/health/mental-health/hyperarousal#outlook (accessed: 01 March 2019).

friends. It could result in the explosion of anger or panic attacks at very short notice. The third cluster changes the way of thinking, overall mood and an approach to the external world negatively, which results in the emergence of an image of hopeless future, depression and lack of trust in personal abilities. The final symptom is linked with avoidance emerging from negative thoughts, bad memories, and poor self-assessment. As a result, former soldiers, both men and women, avoid exposure to places, situations or people linked with their traumatic past and they lack interest in past duties[15]. Physical symptoms may include chronic pain, headaches, stomach pain, diarrhoea, tightness or burning in the chest, muscle cramps or low back pain[16]. The symptoms make the daily life difficult as any reminiscences of traumatic experience could be easily activated by words, persons, locations or situations linked with the source of problems.

Table 1. Commonly recognized reasons of PTSD according to selected sources.

Healthline Media	NHS UK	FM 22-51, Leaders' Manual for Combat Stress Control
✓ exposure to trauma during combats	✓ serious road accidents	✓ Loss of friends, buddies, and loved ones
✓ physical abuse during childhood	✓ violent personal assaults, such as sexual assault, mugging or robbery	✓ Injury or death to innocents (especially women and children).
✓ sexual assault	✓ a traumatic birth	✓ Atrocities (done, condoned, or just observed)
✓ physical assault	✓ prolonged sexual abuse, violence or severe neglect	✓ Seeing grossly mutilated bodies or wounds
✓ threats from a person carrying a weapon	✓ witnessing violent death	✓ Lack of respect; lack of ceremony and 'closure' for deceased friends
✓ a vehicular or sports accident	✓ military combat	✓ Lack of apparent meaning or purpose to the sacrifice
✓ natural disasters	✓ being held hostage	✓ being a Prisoners of War or hostage
✓ robbery or mugging	✓ terrorist attacks	✓ serving a medical or mortuary services
✓ fire	✓natural disasters, such as severe floods, earthquakes or tsunamis	----
✓ kidnapping	✓a diagnosis of a life-threatening condition	----
✓ torture	✓ an unexpected severe injury or death of a close family member or friend	----
✓ plane crash	----	----
✓ a life-threatening medical diagnosis	----	----
✓ terrorist attack	----	----

Sources: What causes hyperarousal? Healthline Media, New York, https://www.healthline.com/health/mental-health/hyperarousal#causes (accessed: 01 March 2019); Post-traumatic stress disorder (PTSD), NHS UK, 27 September 2018, https://www.nhs.uk/conditions/post-traumatic-stress-disorder-ptsd/causes/# (accessed: 01 March 2019); FM 22-51, Leaders' Manual for Combat Stress Control, Headquarters, Department of the Army, Washington DC, 29 September 1994, para 6-2.

[15] *Objawy PTSD* (PTSD syndromes), Psychika.com.pl, http://psychika.com.pl/ptsd/objawy/ (accessed: 03 March 2019).

[16] *Post-Traumatic Stress Disorder*, Mental Health America http://www.mentalhealthamerica.net/conditions/post-traumatic-stress-disorder (accessed: 05 March 2019).

As presented in the table, there are some common reasons and many of them are linked to combat situation[17]. The U.S. Marine Corps developed the Combat Operational Stress Continuum Model supporting commanders at all levels to recognize a status of subordinates: ready, reacting, injured and ill. The aim of the model is to "be utilized by leaders as an aid to recognize and respond appropriately to the entire spectrum of possible symptoms of combat and operational stress"[18]. The publication was the result of experiences from the "Operation Iraqi Freedom" that followed insurgency fought mainly in urbanized terrain. The complexity of that war caused many cases of PTSD as according to U.S. Department of Veterans Affairs: "15.7% of Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) deployed Veterans screened positive for PTSD compared to 10.9% of non-deployed Veterans"[19]. Among them 20.6% of deployed Marines and 18.6% of land forces troops suffered from PTSD; additionally also some 10.9% of non-deployed veterans suffered, showing that it was exclusively a combat related case. In comparison, PTSD affects annually around 14 million American adults, which is about 4.4% of the adult population[20]. Jeffrey A. Lieberman estimates that "more than 2 million troops have already been deployed to the wars in Iraq and Afghanistan with no end in sight. Almost a third of all service-persons in these ongoing conflicts suffer from some clinically significant mental conditions, the poster child for which is PTSD, and their complications of suicide, addiction and domestic or other-directed violence"[21].

The detection of PTSD requires an effort of military medical services as quite often soldiers do not want to talk about the trauma, or they are afraid of the reaction of their superiors and colleagues. Early diagnosis is vital as it allows for the fast reaction and prevents the worsening of symptoms. PTSD is treated very seriously in U.S. armed forces where Combat Stress Control Teams are part of any operation, being trained and equipped to deal with such cases based on four principles: proximity, immediacy, expectancy, and simplicity.

A recognized approach to PTSD treatment

The PTSD treatment is a very complicated and long-lasting process, which does not guarantee full recovery. The symptoms often reoccur when a patient experiences another stressful situation. There are individual, group or combined therapies that constitute a support system for a patient. The involvement of family members and their education about that specific domain is of great importance as it enhances the understanding of the complexity of PTSD and supports recovery. The specific treatments aim to improve self-confidence, teach what to do when symptoms occur, and enhance the awareness of potential consequences of the disorder. The possi-

[17] B.A. Moore, G.M. *Reger, Historical and contemporary perspectives of combat stress and the Army Combat Stress Control Team*, op. cit.

[18] *Combat Stress. A concept for Dealing with the Human Dimension of Urban Conflict*, United States Marine Corps, 16 May 2007, 24 and Appendix A.

[19] PTSD in Iraq and Afghanistan Veterans, U.S. Department of Veterans Affairs, based on research report: E. K., Dursa, M. J. Reinhard, S. Barth, A. Schneiderman, *Prevalence of a positive screen for PTSD among OEF/OIF and OEF/OIF-era veterans in a large population-based cohort*, Journal of Traumatic Stress, October 2014, https://www.publichealth.va.gov/epidemiology/studies/new-generation/ptsd.asp (accessed: 02 March 2019).

[20] R. Kessler, at al., *Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States*, International Journal of Methods in Psychiatric Research, Volume 21 Issues 3 2012, pp. 169–184.

[21] J. Lieberman, *Solving the Mystery of Military Mental Health: A Call to Action*, Psychiatric Times 18 December 2018, https://www.psychiatrictimes.com/ptsd/solving-mystery-military-mental-health-call-action (accessed: 03 March 2019).

ble therapies include:[22]

- ✓ *Cognitive behavioral therapy* allowing a patient to recognize thinking patterns which caused PTSD symptoms, e.g. negative self-image and thinking that a traumatic event will occur again; this therapy could be in the form of *prolonged-exposure therapy* (PET) and *anxiety management*. According to U.S. Food and Drug Administration, PET is more effective when it involves a "set of techniques designed to help patients confront situations they fear in a safe and systematic way in order to change cognition about the traumatic event. The therapy is usually completed in 10 sessions, which can take place in as few as five weeks"[23]; it is considered to be a standard therapy[24];
- ✓ *Exposure therapy*, which is a type of behavioral therapy to help a patient to confront situations and memories that are traumatic, but in a safe way. By using e.g. virtual reality programs, it enables a patient to adjust behavior to better cope with them;
- ✓ *Eye movement desensitization and reprocessing (EMDR),* which is a combination of exposure therapy with a guided series of eye movements that help a patient work through traumatic memories and change the way they react to them;
- ✓ *Cognitive Processing Therapy* underpinning ability to process traumatic event emotions and learning how to challenge thinking patterns;
- ✓ *Psychodynamic psychotherapy* allowing for the identification of current life situations that trigger traumatic memories and ameliorate PTSD symptoms;
- ✓ *Couples counselling and family therapy* supporting not only a patient but also family members based on common understanding of PTSD reasons and symptoms and consequences to deal with them together.

The abovementioned therapies could be often used in combination, allowing for individualization for a specific patient.

In addition to psychotherapy, two drugs, sertraline and paroxetine[25] have been approved by FDA for use in the treatment of PTSD. Other proposed drugs are venlafaxine and fluoxetine (antidepressants), risperidone (antipsychotic) and topiramate (anticonvulsant), however the research shows concurrent evidence-based psychotherapy to be the only predictor of PTSD diagnosis loss in a patient[26]

Due to the insufficient effects of current pharmacotherapy of PTSD, the research for better alternatives was necessary and has led to the discovery of potential use of MDMA assisted psychotherapy. This substituted phenethylamine provides effects such as increased openness, empathy, positive emotion recognition and greater ease in coping with psychologically challenging memories. MDMA effects are claimed to be mediated mostly by the increased release of serotonin, and to a lesser extend norepinephrine and dopamine and the drug has also some direct action on the 5HT receptors. There is also a significant elevation of vasopressin, ACTH, cortisol and oxytocin observed after the administration of the drug as well as a decrease in amygdala's

[22] *What treatments are available for PTSD?*Healthline Media, New York, https://www.healthline.com/health/mental-health/hyperarousal#causes; *Post-Traumatic Stress Disorder*, Mental Health America, http://www.mentalhealthamerica.net/conditions/post-traumatic-stress-disorder (accessed: 05 March 2019).

[23] *Combined Therapy Shows Promise for PTSD,* op. cit.

[24] S.J. Wimalawansa, Causes and Risk Factors for Post-Traumatic Stress Disorder…, op. cit., p. 5.

[25] J. Lieberman, Solving the Mystery of Military Mental Health: A Call to Action, op. cit.

[26] 26 Feduccia A.A., Jerome L., Yazar-Klosinski B., Emerson A., Mithoefer M.C., Doblin R., *Breakthrough for Trauma Treatment: Safety and Efficacy of MDMA-Assisted Psychotherapy Compared to Paroxetine and Sertraline*. Front Psychiatry. 2019;10:650. Published 12 September 2019. doi:10.3389/fpsyt.2019.00650

activity with a simultaneous increase in the activity of the prefrontal cortex. These effects seem to correspond to MDMA psychological effects[27]

The established protocol for MDMA assisted psychotherapy consists of up to 3 sessions underwent under the influence of the drug and up to 12 sessions without it. The dose used in such a therapy is between 75 and 125mg per session. During the MDMA sessions, a patient is being supported by two therapists who encourage the processing of his or her memories in a non-directive way. These sessions last 8 hours and consist of periods of inner focus alternating with periods of talking with the therapists. Tools such as blindfolds and calming music might be used as well, and patients' vitals are examined periodically. The experience is further integrated and evaluated during non-drug sessions.

The MDMA assisted treatment has shown faster onset, more long-lasting effects, and higher improvement on the Clinical-Administered PTSD Scale and lower dropout rate than sertraline and paroxetine treatment. It is hypothesized that MDMA increases the efficacy of psychotherapy by enhancing fear extinction, therapeutic alliance and social reward during the drug assisted session as well as increasing one's tolerance to distressful thoughts and memories.[28]

Conclusions

PTSD is a very complex case related to medicine and people treatment as it is not easy to properly diagnose and it could even be hidden by patients as of being afraid to be disregarded by environment. Moreover, it is not only about a person as it affects the closer circle, especially the family, therefore the treatment is not exclusively related to a person suffering from that syndrome. The treatment approach must be customized, as "despite treatment with the available psychotherapies and pharmacotherapies, PTSD never fully remits in more than half of patients. Meta-analyses of psychotherapy for PTSD have found short-term improvements compared with baseline only in about 50% to 60% of patients, with the majority continuing to have substantial residual symptoms"[29]. The therapy is challenging, as it requires a coordinated work of qualified personnel, specific expertise and combined treatment. It also requires continuous search for new methods as PTSD is increasingly common as a result of a stressful life in the civilian environment and in crisis and combat situations. The latter is evolving and it is more challenging, especially when operations against irregular forces using unconventional and often cruel methods of fighting are conducted. The medicine is making progress by using new discoveries and research related to brain and human nature allowing for more effective action, nevertheless PTSD is still rather a complex type of mental health, which requires more investments and studies to face it successfully as it will not disappear, but instead the number of complex cases will continue to increase.

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