

The position statement of the working group on the treatment of post-traumatic stress disorders in adults

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Summary

Post-traumatic stress disorder (PTSD) is a mental distress that occurs after participation in traumatic events such as the experience of natural disaster, car accident, terrorist attack or armed conflict, being a victim of sexual assault, tortured, physically abused, traumatized or being in any other life-threatening situation. The trauma victim does not always have to be directly threatened with physical harm. The disorder may develop also as a result of an acute reaction to stress caused by participation in situation in which another person suffers so unimaginable that the further normal life of a witness becomes impossible. Patients are often convinced that they lose previous ability to exist irretrievably. Globally, PTSD is an increasingly recognized disorder. It can be predicted that in Europe, due to the ongoing war in Ukraine and the migration crisis, the frequency of severe disorders related to traumatic stress will systematically increase. In recent years, there has been a significant progress in knowledge and the development of methods for counteracting PTSD. The empirically confirmed forms of treatment include psychotherapeutic and pharmacotherapeutic interactions. The proposed recommendations were developed by a team of experts in the field of psychiatry, clinical psychology, psychotherapy, and primary care to present guidelines for therapeutic procedures in medical and psychological practice. The position statement of the working group was developed in line with evidence-based practice in a three-stage procedure including: literature review, the issue discussion and development of the unified expert position.

Key words: post-traumatic stress disorder, clinical recommendations, post-traumatic stress therapy

Introduction

The term post-traumatic stress disorder was firstly formulated after Vietnam war and become common use in 1980, when it was included in third edition of *Diagnostic And Statistical Manual of Mental Disorders* (DSM) published by American Psychiatric Association [1]. However, a number of medical descriptions of symptoms among victims of previous armed conflicts show that this phenomenon has accompanied humans since ancient times. The important contribution to understand this disorder was performed by American cardiologist Jacob Mendez Da Costa, who has formulated the term “soldier’s heart” during Civil War. Due to his profession, he focused on the somatic symptoms of a prolonged stress reaction [2]. Da Costa’s syndrome included stabbing chest pain, anxiety, fatigue, heart palpitation, dyspnea, dizziness, hyperventilation, and limb paresthesia [3]. Furthermore, during Seven Years’ War the Austrian doctor Joseph Auenbrugger documented symptoms such as excessive physical exhaustion, anger, irritability, anxiety, and depression. This syndrome was called nostalgia due to homesickness, which caused permanent personality change [4]. During World War I soldiers were treated for shell shock, which involved physical and mental ailments caused by trauma as a result of participation in military operations, such as artillery fire or bombing [5, 6]. On the other hand, during World War II the consequences of chronic stress, tortures, hunger, and physical suffering were observed in concentration camp prisoners, who were further diagnosed with concentration camp syndrome, which in terms of the specificity of somatic and psychological symptoms was related to the modern understanding of PTSD [7]. The symptoms of anxiety and depression, accompanied by permanent personality changes with co-occurring difficulties in functioning, were studied and described by Antoni Kępiński, who called it KZ Syndrome [8]. Decades later, the results of his team’s research were used in the development of the concept of post-traumatic stress disorder [9]. The gradual development of the understanding of the consequences of trauma and the many years of observation and treatment of victims contributed to the evolution of methods of diagnosis and therapy.

Post-traumatic stress disorder may occur not only in military operations participants but in anyone regardless of ethnic origin, nationality, culture or age. PTSD is a mental disorder that occurs after participation in traumatic event such as the experience of natural disaster, car accident, terrorist attack or armed conflict, being a victim of sexual assault, tortured, physically abused, traumatized, or being in any other life-threatening situation. The trauma victim does not always have to be in the position of the person directly threatened with physical harm. The disorder may be developed also as a result of an acute reaction to stress caused by participation in situation in which another person suffers so unimaginable that the further normal life of witness becomes impossible. The characteristic symptoms of PTSD are as follows: insomnia, recurrent traumatic memories (flashbacks), low self-esteem, alienation, avoiding situations associated

with trauma, and intensification of negative emotions. Patients are often convinced that they lose previous ability to exist irretrievably [10, 11].

Post-traumatic stress disorder is a serious mental disorder that is often a therapeutic challenge for healthcare professionals. However, effective treatment and recover are possible through the use of proper psychotherapeutic and pharmacological interventions [12].

Methodology

The working group was established on the initiative of the national consultant in the field of psychiatry Professor Piotr Gałecki and a national consultant in the field of clinical psychology Professor Bernadetta Izydorczyk. The scientific team consisted of national consultants in the field of psychiatry, clinical psychology and family medicine, as well as their appointment of mental health specialists with many years of clinical experience. The position statement of the working group was developed by the group of experts as part of three-stage procedure including: selected literature review, the issue discussion and development of the unified expert position. Literature analysis was carried out on the basis of electronic databases: PubMed/MEDLINE, Embase, Web of Science, EBSCO, as well as guidelines of national and international opinion-forming institutions, characteristics of medicinal products, and selected publications or own material provided by participants in the working group. The search was limited to studies in English and Polish from the last 20 years (2003–2023). The following keywords were used in the search: “post-traumatic stress disorder,” “psychotherapy,” “pharmacotherapy,” and “traumatic stress” (individual key words and combinations were entered using the operators AND, OR, or both.

The materials were discussed at online working meetings. In the article, the diagnostic-therapeutic process of post-traumatic stress disorder and other stress-related disorders in the face of ongoing migration crisis caused by Russian invasion of Ukraine were discussed. Following part II of the publication concerns on therapeutic procedure.

Post-traumatic stress disorder in ICD-11 and DSM-5 classifications

According to ICD-11, post-traumatic stress disorder is characterized by:

- (1) reliving a traumatic event in the form of vivid, intrusive memories, flashbacks or nightmares;
- (2) avoidance of thoughts, memories, activities or people related to or reminding about the event;
- (3) persistent sense of threat in the form of increased vigilance.

The symptoms presented above persist for at least a few weeks and cause a significant deterioration in the achievement of the main life tasks (personal, family, social, educational, professional) [13].

DSM-5 distinguishes four main ranges of symptoms:

- (1) recurrent, intrusive memories of a traumatic event;

- (2) avoiding stimuli related to trauma;
- (3) negative changes in cognitive abilities and moods associated with the traumatic event and/or numbness;
- (4) increased agitation and reactivity manifested by increased sensitivity to potential threats [14].

The classification also takes into account the dissociative subtype, which occurs in 12–30% of people diagnosed with PTSD [15, 16].

Guidelines for the treatment of PTSD around the world

In recent years, many countries have developed guidelines for the diagnostic and therapeutic management of post-traumatic stress disorder. The literature includes recommendations prepared, among others, by the American Psychiatric Association (APA) [17], American Psychological Association (APA) [14], Australian Mental Health Centre (part of the National Council of Health and Medical Research – NHMRC) [18, 19], International Society for Traumatic Stress Studies (ISTSS) [20], National Academy of Medicine (NAM, also known as Institute of Medicine – IOM) [21], National Institute for Health and Care Excellence (NICE) [22], Department of Veterans Affairs and Department of Defense (VA/DoD) [10], and the World Health Organization (WHO) [23]. These recommendations have been prepared in accordance with evidence-based knowledge of psychological and pharmacological forms of trauma therapy. All reports, except the IOM, confirm the benefits of pharmacological treatment [14, 24].

Therapeutic procedure

Treatment of post-traumatic stress disorder allows the trauma victim to regain a sense of control over their own life. Psychotherapy is the first-line treatment, although sometimes pharmacological interventions are also required, especially to relieve the severity of symptoms. A step-by-step therapeutic procedure, presented in the form of a decision tree, is illustrated in Figure 1 [10].

Contrary to current therapeutic practices, specialist help for people exposed to traumatic stress is inadvisable on the initial stage and should be limited to providing simple, kind support and ensuring safety in physical and mental dimension. Often it does not require participation of professionals and may be provided by, e.g., volunteers not prepared in mental health domain. Treatment is required only in a later stage, surely depending on needs and indications. The clinical picture of traumatic stress disorders may be different. Starting from the occurrence of emotional dysregulation and increased reactivity till emotional withdrawal in the form of numbness, alexithymia and dissociation. Alternating states are also possible [11, 25].

An important aspect of the therapeutic management of PTSD is the monitoring of suicidal threat [26]. Numerous studies confirm that PTSD is a significant risk factor for suicidal ideation and behavior and increases the risk of death compared to people who have experienced trauma but have not developed post-traumatic stress disorder.

It is worth emphasizing that PTSD is one of the few mental disorders that distinguishes people who are thinking about taking their own lives from those who are trying to commit suicide [27]. According to a meta-analysis of May and Klonsky, PTSD is significantly more common in people who attempted suicide than in those who had only thoughts [28]. *Columbia-Suicide Severity Rating Scale (C-SSRS)* is a useful tool for assessing suicidal risk in therapeutic management. The tool has been translated into more than 140 languages and provides individuals and institutions with the opportunity to undergo virtual free certification training in more than 20 languages. No experience or knowledge of mental disorders is required for the use of the C-SRSS [29, 30].

The principles of therapeutic management in the treatment of post-traumatic stress disorder are presented in Figure 1.

Psychotherapy

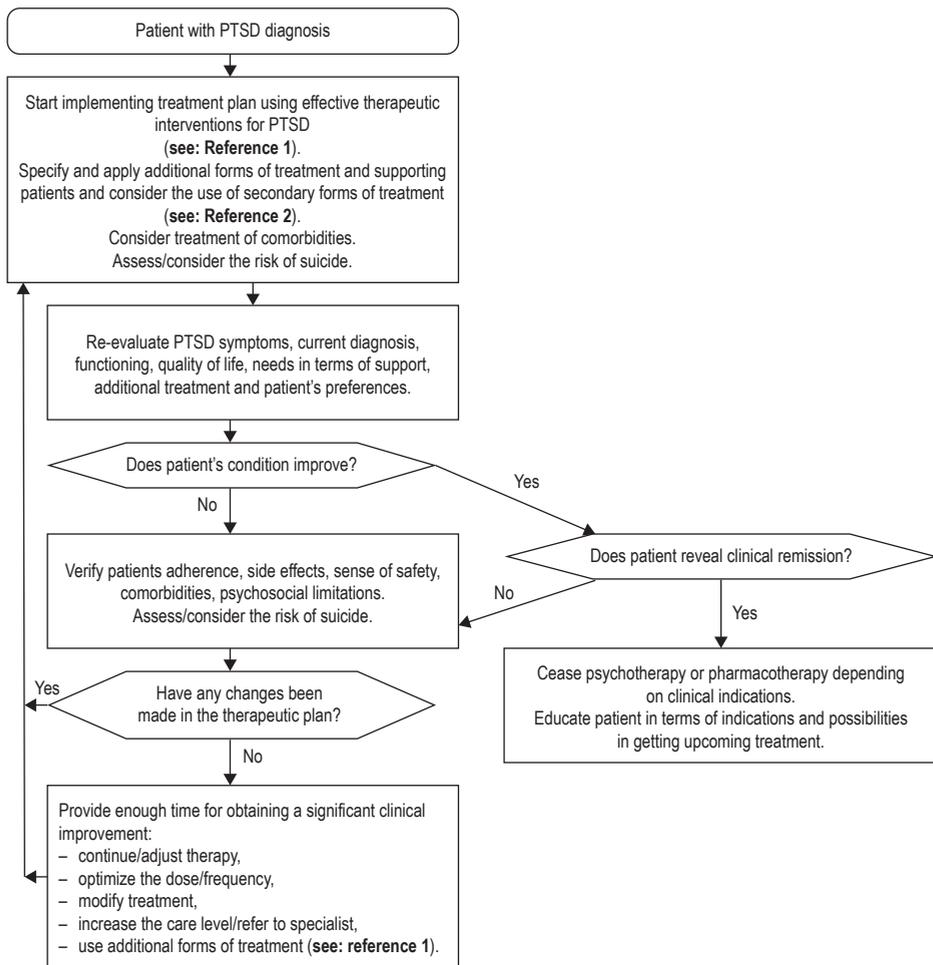
Psychotherapy of PTSD is focused on reducing the severity of symptoms and cognitive stiffness, improving coping with the experience of trauma, reducing comorbidity, minimizing secondary disability, restoring stable self-esteem, and improving the quality of life [31]. Patients may get emotional relief by eliminating anxiety causing tension, gloom. They are taught to cope with tough feelings, being a consequence of trauma, such as sense of disappointment, grief, frustration as a result of family and work problems. Therapeutic work allows regain the joy and improve interpersonal and social relations.

The dominant psychotherapeutic paradigms used in PTSD treatment are different varieties of cognitive behavioral therapies. The point is to change the patterns of thinking and emotional experience. Psychotherapy is based on discussion on trauma or concentration on source of experienced fears. The types of psychological treatment include not only individual but also group and family systems therapy [14, 32, 33].

Strongly recommended forms of psychotherapy

Cognitive behavioral therapy (CBT)

Cognitive behavioral therapy (CBT) concentrates on mutual dependencies of cognitive, emotional and behavioral processes. Therapy usually includes 12–16 individual or group sessions. Therapeutic techniques are used to decrease severity of symptoms and improve functioning. Patients are encouraged to transform existing patterns of thinking and assumptions to identify those dysfunctional, leading to negative convictions and prediction of dangers. The aim is to re-conceptualize the cognitive meaning of the traumatic experience, the way of self-perception and ability to cope with obstacles [34, 35].

**Reference 1. Treatment initiation**

1. Refer the patient to individual psychotherapy tailored to his/her needs.
2. If individual trauma psychotherapy is not available or is not preferred by the patient, start pharmacotherapy or psychotherapy focused on trauma
3. If options 1 or 2 are impossible to achieve or turned out to be ineffective, arrange other forms of psychotherapy or pharmacotherapy

Reference 2. Additional treatment and supporting needs

- Consider treatment of comorbid diseases.
- Consider symptomatic treatment (e.g., sleep, pain).
- Encourage the use of social support.

Graph legend

	Clinical state
	Point of decision requiring answer "yes" or "no"
	Taking actions in therapeutic process

Graph. Therapeutic procedure in post-traumatic stress disorder [10].

Cognitive processing therapy (CPT)

Cognitive processing therapy (CPT) serves to reduce PTSD symptoms. Usually includes 12 individual or group sessions. It allows the patient to learn the ways of questioning and modifying non-adaptive convictions related to trauma. The re-conceptualization of the traumatic experience is to not allow the negative effects of trauma to adversely affect the patient's life. The therapy includes psychoeducation about PTSD, as well as cognitive and emotional functioning. Patients become more aware of the relation between thoughts and emotions and identify automatic thoughts that enhance the occurrence of PTSD symptoms. At a later stage patients describe their most difficult traumatic experiences and break the pattern of negative thoughts and feelings related to trauma. On the last stage, patients use acquired competences to evaluate and modify convictions about traumatic event. These efforts may allow the patient to use adaptive strategies to cope with daily life [36].

Cognitive therapy

Cognitive therapy concentrates on modifying pessimistic evaluations and memories about trauma to identify and break the pattern of behaviors and thoughts that distort patient's daily functioning. Individual or group sessions are held once a week for the three subsequent months. On the first stage of treatment, patients obtain help in understanding the meaning of traumatic memories and the influence of pessimistic evaluation of these experience to increased sense of threat. Afterwards, the new perspective is integrated with traumatic memory. At the last stage of therapy, patients resign from non-adaptive strategies of coping with trauma which, despite their temporary usefulness, promote the persistence of symptoms. It allows to develop new strategies and overcome experienced struggles [37, 38].

Prolonged exposition (PE)

Prolonged exposition (PE) is an intervention strategy to overcome fear. By avoiding anything that reminds them about trauma, patients with PTSD strengthen fear and anxiety. Therapy allows to understand that memories and emotional states related to trauma do not pose a real risk and should not be avoided. This type of therapy takes place in weekly individual sessions and usually lasts three months. Therapist conducts psychoeducation of the patient and teaches him/her breathing techniques to cope with anxiety. In the safe conditions of the therapeutic relationship, exposure is carried out both in an imaginary form during therapeutic sessions and *in vivo*, where, as part of a homework assignment, the patient is confronted with anxiety stimuli outside of therapy. The patient is supported by the therapist in setting challenges and gradual overcoming of emotions occurring during the confrontation with anxiety stimuli [39, 40].

Conditionally recommended forms of psychotherapy

According to accessible knowledge, types of therapy presented below may lead to improvement in mental health and reduction of PTSD symptoms, although the evidence is not that strong as for the previously mentioned therapies [41].

Brief eclectic psychotherapy (BEP)

Brief eclectic psychotherapy (BEP) combines elements of cognitive behavioral and psychodynamic therapy. Therapeutic work focuses on shame and sense of guilt and is based on therapeutic relation between the patient and the therapist. Treatment includes 16 individual weekly sessions. Each session has a specific purpose. This type of therapy is addressed to someone who experienced single trauma. At the beginning the traumatic experience is discussed during session as if it is happening in the present. Patient is taught relaxation techniques intended to control difficult emotions. Further stages of therapeutic work allow to transfer the traumatic experience to the past in order to not affect patient's current life [42, 43].

Eye movement desensitization and reprocessing (EMDR)

Eye movement desensitization and reprocessing (EMDR) is a structured individual form of therapy that usually lasts from 6 up to 12 sessions (one or two sessions per week). Sessions may take place on consecutive days. As a part of the therapy, the patient recalls a traumatic experience simultaneously experiencing bilateral stimulation caused by the eyeball movement, which reduces the intensity and clarity of emotions related to trauma [44–46].

Narrative exposure therapy (NET)

Narrative exposure therapy (NET) is a form of traumatic disorders treatment, especially in people with complex and repetitive trauma experiences. It is often used in the therapy of refugee. Sessions are held in small groups or individually. The therapy includes from 4 to 10 therapeutic meetings. As a part of the therapy, patients create chronological narration of their life, primarily concentrating on traumatic experiences, however, also taking into account positive ones. It allows to consider the net of cognitive, affective and sensory memories about trauma in a broader context. Thus the patient creates a consistent autobiography in which the traumatic experience becomes a part of it, not the dominant element [14, 47].

Other types of psychotherapy

Another types of psychotherapy in PTSD treatment are interpersonal therapy (IPT) and psychodynamic therapy (PDT), which concentrate on emotional and interpersonal

aspect of the disorder and may be useful for people whose willingness to expose themselves to trauma is limited [14, 48, 49].

Support groups and self-help groups, where participants can share their experiences and feelings with other people who have experienced similar events, may also be helpful for trauma victims [50].

The effectiveness of particular types of psychotherapy according to specific treatment effects is presented in Table 1.

Table 1. The effectiveness of particular types of psychotherapy based on evidence [14]

Effect	Cognitive behavioral therapy	Cognitive processing therapy	Prolonged exposition	Cognitive therapy	Brief eclectic psychotherapy	EMDR therapy	Narrative exposure therapy
Reduction of symptoms of PTSD ¹	Moderate	Moderate	High	Moderate	Low	Low	Moderate
Serious harms/ adverse effects ¹ (e.g., aggressive and self-injurious behavior, including suicide-related events)	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Withdrawal of diagnosis of PTSD ²	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Low
Remission ²	Moderate	—	Very low	—	Very low	—	—
Prevention/reduction of comorbid depression ²	Moderate	Moderate	High	Moderate	Low	Moderate	Very low
Prevention/reduction of comorbid anxiety ²	Low	Very low	—	Moderate	Low	Very low	—
Prevention/reduction of comorbid pain ²	—	—	—	—	—	—	Very low
Quality of life ²	Very low	Very low	—	Very low	—	—	Very low
Functional impairment ²	Low	—	Very low	Moderate	—	—	—

¹Treatment effects rated as crucial from clinicians' and patients' perspective.

²Effects considered valid but less important.

Psychotherapy of children and adolescent in PTSD

Recommendations for post-traumatic stress disorder treatment in children and adolescents indicate the effectiveness of trauma-focused cognitive behavioral psychotherapy. The treatment process includes from 6 to 12 sessions depending on age, circumstances, maturity level, the course of disorder and severity of symptoms. In some cases the participation of family is required. Eye movement desensitization and reprocessing (EMDR) is an alternative form of therapy recommended for children [51].

Pharmacotherapy

The processing of the anxiety stimuli in people with PTSD is disrupted at the neurotransmitters level. As a result the fight or flight mechanism is triggered too quickly, which manifests by fear, irritability, agitation or avoidance of situations perceived as threatening. Pharmacology is a useful form of reducing severity of PTSD symptoms, mitigating sleeping disorders, depressive and anxiety states, as well as obtaining more positive attitude to life. Pharmacotherapy may not eliminate the symptoms totally, however, it reduces their intensity and relieves mental suffering. This, in turn, is necessary for the patient to decide to participate in psychotherapy.

First-line treatment in PTSD is psychotherapy. However, using medications is indicated when:

- patient decides not to participate in therapy concentrated on trauma;
- psychological influences turned out to be ineffective or patient had little benefits;
- patient has comorbid mental disorders, such as severe depression, which significantly limit the ability to benefit from psychological therapies [51].

Selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitor (SNRIs) are recommended in post-traumatic stress disorder treatment. Four medications (with focus on the first two), which are considered to be most effective in PTSD treatment, are recommended [10]:

- sertraline, daily initial dose 25–50 mg, daily therapeutic dose 50–200 mg [4, 52];
- paroxetine, daily initial dose 10–20 mg, daily therapeutic dose 20–50 mg [4, 53];
- fluoxetine, daily initial dose 10–20 mg, daily therapeutic dose 20–80 mg [4, 41, 54];
- venlafaxine XR, daily initial dose 37.5 mg, daily therapeutic dose 75–225 mg [4, 56].

If a therapeutic effect is obtained, treatment should be continued for at least 12 months and the withdrawal period should be gradual over at least four weeks. At the

treatment stage, the patient should be informed about possible side effects, and when withdrawing the drug, about the withdrawal effects [4].

Other drugs used in PTSD treatment are:

- serotonin reuptake inhibitor trazodone (SSRI), which reveals beneficial effect to the patients with insomnia and nightmares dominating in the clinical presentation [57]. Its effectiveness has been demonstrated especially in the group of patients addicted to alcohol and suffering from obstructive sleep apnea [58]. Trazodone used in doses 50–200 mg prevents insomnia, facilitates falling asleep and inhibits rapid eyes movement, which contributes to reduction of nightmares [59]. American Academy of Sleep Medicine, in its position statement, indicates effectiveness of trazodone in nightmares treatment recommending trazodone use as one of the therapeutic options [60];
- other antidepressive drugs, e.g., mirtazapine (NaSSA – noradrenergic and specific serotonergic antidepressant) [61], amitriptyline (tricyclic antidepressant) [62], phenelzine (monoamine oxidase inhibitor IMAO) [63];
- antiepileptic drug topiramate used in reduction of alcohol consumption in people abusing it and at once suffering from PTSD [64];
- alpha-1 blocker prazosin used in insomnia and nightmares reduction [64, 65];
- beta – blockers, e.g., propranolol, which is also used in conjunction with behavioral therapy to decrease trauma-related anxiety, which can prevent or reduce the later development of PTSD [65];
- benzodiazepines [66];
- antipsychotic drugs, e.g., risperidone [67].

The effectiveness of various types of pharmacotherapy according to specific treatment effects is presented in Table 2.

Table 2. The effectiveness of various types of pharmacotherapy based on evidence [14]

Effect	Fluoxetine	Sertraline	Paroxetine	Risperidone	Topiramate	Venlafaxine
Reduction of symptoms of PTSD ¹	Moderate	Moderate	Moderate	Low	Moderate	Moderate
Serious harms/adverse effects (e.g., aggressive and self-injurious behavior, including suicide-related events) ¹	Very low	Very low	Very low	Very low	Very low	Very low
Withdrawal of diagnosis of PTSD ²	Very low			---	---	---
Remission ²	---	Very low	Moderate	---	Very low	Moderate
Prevention/reduction of comorbid depression ²	Moderate	Low	Moderate	Very low	Very low	Moderate
Prevention/reduction of comorbid anxiety ²	Moderate	Very low	---	Very low	Very low	---
Prevention/reduction of comorbid pain ²	---	---	---	---	---	---
Quality of life ²	Very low	Very low	Very low	---	---	Moderate
Functional deterioration ²	Very low	Very low	Moderate	---	Very low	Moderate

¹Treatment effects rated as crucial from clinicians' and patients' perspective.

²Effects considered valid but less important.

The recommended forms of psychotherapeutic and pharmacological treatment are presented in Table 3.

Table 3. The forms of psychotherapeutic and pharmacological treatment

Treatment	Dose range (number of sessions or mg)	Frequency	Duration	Session duration (minutes)
Prolonged exposition	1–30	Once a week	1–30 weeks	60–120
Cognitive behavioral therapy	4–16	Once or twice a week	4–16 weeks	60–120
Cognitive processing therapy	12–17	Once or twice a week	6–17 weeks	60–90
Cognitive therapy	9–16	Once a week	9–16 weeks	60–90
Short-term eclectic psychotherapy	16	Once a week	16 weeks	45–60
EMDR therapy	3–18	Once or twice a week	3–8 weeks	60–90
Narrative exposure therapy	4–17	Once or twice a week	3–17 weeks	60–120
Fluoxetine	10–80	Everyday	5–12 weeks	N/d
Paroxetine	12.5–62.5	Everyday	10–12 weeks	N/d
Sertraline	20–200	Everyday	10–12 weeks	N/d
Venlafaxine	37.5–300	Everyday	12–24 weeks	N/d

Source: table based on [14].

Psychedelic substances in the treatment of PTSD

In recent years, the use of psychedelic substances for therapeutic purposes has again become an area of scientific research and has come to be recognized as a newly emerging paradigm for the treatment of mental disorders. Psychedelic substances used in the treatment of PTSD are classic serotonergic psychedelics, such as psilocybin or LSD (D-lysergic acid diethylamide) and psychoactive substances in the form of ketamine, MDMA (3,4-methylenedioxymethamphetamine, or ecstasy) and cannabinoids. Psychedelic therapy is based on psychotherapy supported by the use of these psychoactive substances [68].

Classic hallucinogenic psychedelics are 5-HT_{2A} receptor agonists. Their usefulness in the treatment of PTSD is due to the effect of increasing synaptic plasticity, reducing the reactivity of the amygdala during emotional processing, and increased introspectivity and empathy. In addition, during therapy with the use of classic psychedelics, the patient can gain easier access to traumatic memories and experience a sense of emotional breakthrough. Several preliminary studies on psilocybin-assisted psychotherapy to date indicate efficacy in managing traumatic memories, reducing emotional

avoidance, depression, anxiety, pessimism, and isolation from other people, as well as increasing levels of acceptance, self-compassion and willingness to forgive perpetrators. Despite promising reports, there is still insufficient evidence to consider the method to be significantly useful in the treatment of PTSD [69].

Ketamine is an antagonist of NMDA (N-methyl-D-aspartate) receptors. Since the sixties of the twentieth century, it has been a therapeutic agent used in the treatment of alcohol and heroin addiction. The mechanism of action of ketamine in the treatment of PTSD is ambiguous. One explanation relates to PTSD's disconnection syndrome and the remedial effect of ketamine by rapidly increasing synaptic and neuronal plasticity. Another concept assumes an impact on the glutamatergic system, which plays an important role in the course of memory processes including learning, consolidation of memories and extinction. Study by Feder et al. [70] proves the effectiveness of ketamine in reducing symptoms compared to the control group. However, to date, the number of studies supporting the effectiveness of ketamine is still insufficient [71–73].

MDMA is a substance that increases the release of serotonin, dopamine, norepinephrine, oxytocin, prolactin, vasopressin, and cortisol. Its use in psychotherapy serves to reduce the anxiety response in the situation of exposure to stressful stimuli associated with previous trauma and traumatic memories. In the context of the therapeutic relationship, MDMA, has a beneficial effect on establishing an alliance between the patient and the therapist by mitigating fear and shame reactions, increasing openness, trust and the level of empathy. In addition, it reduces the activity of the amygdala and thus improves the ability to process traumatic memories. Previous research indicates therapeutic possibilities for reducing the symptoms of PTSD. A pooled analysis of six randomized controlled clinical trials, including 105 subjects, revealed a significant reduction in PTSD symptoms compared to the control group. After two treatment sessions with MDMA, 54.2% of subjects did not meet the criteria for PTSD, compared to 22.6% in the control group [71]. Research on MDMA-assisted psychotherapy for PTSD raises hope for drug-resistant post-traumatic stress disorder [74, 75].

Cannabinoids are substances that affect the endocannabinoid system. Their use in PTSD psychotherapy may facilitate the extinction of anxiety reactions and positively affect the ability to process traumatic memories. Currently, a number of clinical trials is being conducted on the use of medical marijuana in reducing symptoms in the course of somatic disorders, such as multiple sclerosis or oncological diseases. Therapeutic effects are observed in relation to the relief of pain or nausea. However, in the context of PTSD treatment, the results remain inconclusive. Although people with PTSD confirm the use of cannabinoids to cope with sleep problems, in the long run they report poorer sleep quality and deterioration of physical health. The use of cannabinoids also increases the likelihood of PTSD symptoms. Negative affect is intensified, and abstinence from substances is associated with symptomatic improvement [76].

Other studies, in turn, confirm the beneficial therapeutic effect. A randomized, cross-sectional study based on the blind method, conducted by Jetly et al. [77], confirmed the therapeutic effect of nabilone (at a dose of 3 mg per day for 7 weeks) – a synthetic cannabinoid with THC-like effects – in terms of reducing symptoms in the form of

nightmares and improving functioning and general well-being compared to the control group. A problematic issue with regard to the use of cannabinoids is the significant risk of misuse of the substance and addiction, which, initially justified and masked by the treatment of stress-related disorders, may lead to worsening of symptoms in the long term. Previous studies indicate that in the case of mental disorders, the recreational use of cannabinoids is more harmful than curative. However, the paucity of randomized clinical trials does not allow a categorical assessment of the therapeutic potential of the substance [76].

The complaint against the use of psychedelic substances in the treatment of psychiatric disorders, including PTSD, is their potential neurotoxicity and increased risk of subsequent abuse of substances administered during therapy. However, given the growing research interest in this direction of treatment resulting from promising preliminary results, undoubtedly, PTSD therapy supported by psychedelics is an area requiring in-depth analysis [78].

Modern technology in the treatment of PTSD

In the treatment of post-traumatic stress disorder, not only traditional forms of therapy are used, but also the achievements of modern technology. The use of virtual reality allows us to improve memory and awareness of the traumatic experience. Currently, this type of influence is used only to help war veterans and people with combat experience. However, the prevalence and general availability of methods based on modern technology make such solutions much more affordable and thus can be predicted to become more accessible as a form of therapeutic assistance for patients in the general population [79].

Many studies on virtual reality that involved U.S. war veterans in Afghanistan and Iraq have confirmed the effectiveness of this type of assistance in alleviating trauma, reducing the severity of suicidal thoughts, managing depression and anger, and generally reducing post-traumatic stress symptoms [80].

Recovery phases

Trauma victims recovery proceeds sequentially. Crisis occurs at each stage. From the perspective of the person providing specialist assistance, it is important to identify the stage at which the patient who requested help is. The following phases are distinguished:

1. The phase of being in danger or calling for help is a period in which a person, after being exposed to traumatic stress, feels still at risk. Characteristic reactions of autonomic nervous system are presented: accelerated heart rate, high blood pressure, rapid breathing, increased muscle activity. There is a strong feeling of anxiety and helplessness. When the sense of threat subsides, there is a feeling of relief and disorientation. The reflections on the causes and consequences of the traumatic experience appear.

2. Phase of denial and emotional numbness to protect against traumatic memories in order to reduce anxiety and stress response. Without specialist help there is a risk of staying in this phase.
3. A phase of intrusive relapses with nightmares, intense mood changes, flashbacks, and severe anxiety. Failed efforts to stop harmful symptoms can trigger pathological and antisocial defense mechanisms. This is the moment when the trauma victim asks for help or plunges into mental degradation.
4. The reflective-transitional phase allows for a broader view of the traumatic experience, which results in more positive and constructive attitude. The future begins dominating the past.
5. Integration phase allows to integrate trauma experience with other aspects from the past, which makes it possible to feel the continuity of own life. Thus, the traumatic event becomes the element from the past and not a state that disturbs the present and it is not threatening in future context [81].

Treatment duration

The duration of treatment is an individual issue. The choice of treatment should be adjusted to patient's needs and limitations, as well as to severity and character of the symptoms. Acute mental ailments usually require less therapeutic sessions than chronic problems. The type of implemented psychotherapy has an impact on the length of treatment process. Cognitive behavioral therapies focus on narrower range, therefore, therapeutic work in a more focused approach, covering more aspects of the patient's functioning, will take longer [62].

In the context of determining the duration of treatment, it should be noted that it is not always possible to clearly define the time needed. Psychotherapy ends when the goals set together with the therapist are achieved. Before starting psychotherapy, the patient participates in consultations allowing the psychotherapist to assess the current mental state and individual needs, and to choose the appropriate therapy form. After beginning the treatment, it is sometimes helpful to reassess the original assumptions, sometimes leading to the setting of new stepwise goals. Studies indicate a beneficial effect of the length of therapy on mental health and the final treatment results. Longer period of psychotherapy may allow for a more complete remission of PTSD symptoms [14, 62, 82].

Recapitulation

Post-traumatic stress disorder is a serious public health problem due to its frequency, chronic nature and degrading effect on the ability of people with disabilities to function normally. Although the genesis of the disorder dates back to antiquity, it still remains the subject of research, analysis and attempts to understand it, which inevitably translates into difficulties in the field of treatment and therapeutic management in everyday clinical practice [83]. This is not supported by the current geopolitical situation related to the war in Ukraine, which significantly affects the number of people

requiring emergency medical and psychological assistance related to the presence of traumatic stress disorders. According to recent research, post-traumatic stress disorder and severe depression are disorders commonly found among refugees and displaced persons. In war-torn countries, the general population has a high prevalence of post-traumatic stress, accompanied by feelings of despair, a tendency to somatization, and anxiety [84].

PTSD is associated with significant health burdens. Recent recommendations for the management of post-traumatic stress disorder include integrated medical and psychological health care, emergency psychotherapeutic interventions and the use of supportive psychopharmacological agents. Recent research on the extent and impact of traumatic stress, as well as strategies for preventing PTSD, has resulted in a better understanding of its impact and more effective public health interventions [85].

The presented article presents a selective review of the current state of knowledge and recommendations as well as practices for the treatment of post-traumatic stress disorder based on selected scientific publications and guidelines proposed by key international opinion-forming institutions responsible for mental health protection. The assumption of the working group was to outline therapeutic recommendations in the field of psychotherapy and pharmacological treatment. For this purpose, a therapeutic scheme of treatment of patients exposed to traumatic stress were presented. Recommended psychotherapeutic techniques and pharmacotherapeutic guidelines were listed. Moreover, the specificity of the course of the therapy process and the healing process in people treated for post-traumatic stress disorder were discussed.

Despite the many available sources and the growing number of studies on PTSD, the need for in-depth analysis of the topic and the development of innovative forms of assistance to people suffering from traumatic stress disorders remains clear.

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