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A review of selected psychotherapies for PTSD, their efficacy and treatment guidelines in adults

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Summary

Aim. Around 2.5% of Poles will develop post-traumatic stress disorder (PTSD) during their lifetime. Recent events, i.e. the pandemic and the war in Ukraine, are the factors that will increase the number of people dealing with PTSD. Owing to that, this paper aims to review and familiarise readers with the available scientific evidence on psychotherapies of PTSD provided in Poland.

Method. A review of meta-analyses of randomised controlled trials and a review of the most recent treatment guidelines concerning PTSD.

Results. The best available evidence points to high efficacy of cognitive-behavioural therapy (CBT) with prolonged exposure and Eye Movement Desensitisation and Reprocessing (EMDR). Humanistic therapy also proves effective to a certain degree, but not as effective as therapies that use exposure to stimuli and memories associated with trauma. There is no evidence of the efficacy of psychodynamic therapy and methods based on polyvagal theory. Organisations preparing guidelines recommend primarily CBT and EMDR.

Conclusions. Efficacious treatment of PTSD should include a protocol with a component of exposure to trauma-related memories and stimuli. It is recommended to use such therapies in the psychotherapeutic treatment of PTSD.

Key words: trauma, psychotherapy, *evidence-based practice*

Introduction

The prevalence of post-traumatic stress disorder (PTSD) in Polish epidemiological studies in the general population is estimated at 2.25% during the lifetime and 0.4% in the last 12 months, which translates to roughly over 700 thousand and 130 thousand people, respectively [1]. Those results are close to estimates from other European

countries [2]. However, recent events associated with the SARS-CoV-2 pandemic and the war in Ukraine may increase the number of people dealing with traumatic stress-related disorders. Symptoms of PTSD are associated with severe suffering, increased risk of disability, other mental disorders, general health problems and suicide [3], which poses a serious health issue and is a challenge for health care systems. Because of that, this paper aims to review up-to-date studies and treatment guidelines of psychotherapies for PTSD.

Recent events will probably result in an increased risk of PTSD population-wise. The first circumstance is the SARS-CoV-2 pandemic. Despite ongoing discussions about whether a pandemic fulfils the hallmarks of a traumatic event [4], studies undoubtedly show that pandemics are associated with elevated levels of stress and an increased risk of PTSD [5]. The newest meta-analysis reveals a very high incidence of PTSD after pandemics (around 19%) [6]. Even if these estimates are inflated, the consequences of the pandemic should be deemed substantial for the occurrence of trauma-related disorders.

The second event is the war in Ukraine. In the case of armed conflicts, the rise in the number of people who have PTSD is inevitable. This increased risk applies not only to war veterans but also to civilians residing in the areas of conflict [7] and refugees [8]. Because of that, the possibility of an armed conflict on the territory of Poland is not the only possibility of increased risk of PTSD. We may refer here to the phenomenon of vicarious trauma [9]. Mechanisms associated with vicarious trauma are most often attributed to professionals, e.g. medical personnel; however, they may also relate to volunteers and people engaged in helping Ukrainian refugees. Also, it should be emphasised that there is a possible cumulative effect of different traumas and stressors [10]. The situations described above point out the elevated risk of PTSD diagnoses population-wise in the years to come and a need for efficacious psychotherapeutic treatments in the near future.

In analogy to clinical medicine, in psychotherapy the approach of Evidence-Based Practice (EBP) is used. It is structured on three pillars – the best available scientific evidence, preferences and values of the clients and knowledge and expertise of the professionals [11, 12]. Even though this approach is not free from criticism, [e.g. 13, 14], EBP is the dominating method used to develop treatment guidelines in the therapy of various disorders [e.g. 15, 16], including PTSD [17].

Aims and method

This review aims to present the results of clinical studies and treatment guidelines concerning psychotherapies for PTSD. Such review is essential in the context of elevated risk of PTSD and the general requirement of informing clients/patients about the efficacy of the carried out psychotherapies. To date, there is no comprehensive

Polish literature on the efficacy of psychotherapies for PTSD. Additionally, it is an opportunity to bridge the gap between scientific results and clinical practice [18].

We employed an unsystematic review to summarise studies' results and guidelines. Because of the breadth of data, it was decided to focus on the most recent meta-analyses of clinical studies. Such systematic reviews and meta-analyses are deemed the highest scientific evidence level [19]. In this work, we also presented treatment guidelines concerning chosen therapeutic methods. We chose guidelines from the American Psychological Association [20], the United Kingdom's National Institute of Health and Care Excellence [21], the Australian Psychological Society [22] and the U.S. Department of Veteran Affairs and Department of Defense [23].

To address the Polish reality, it was decided to present and discuss results concerning the most popular psychotherapeutic modalities in Poland, i.e. psychodynamic, cognitive-behavioural and humanistic [24] and modalities which are gaining popularity in Poland in recent years as therapies for trauma-related disorders, i.e. Eye Movement Desensitisation and Reprocessing (EMDR) and methods associated with the polyvagal theory. Additionally, the summarisations of guidelines for psychotherapies were compared to analogue ones concerning pharmacotherapy of PTSD.

Diagnostic criteria of PTSD and acute stress disorder

According to DSM-5 [25], to diagnose a trauma-related disorder (PTSD and acute stress disorder, ASD), the patient must have been exposed to a traumatic event, i.e. actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways: (1) directly experiencing the event(s); (2) being an eyewitness to a traumatic event; (3) learning about a traumatic event(s) that happened to a relative or a friend; (4) being repeatedly or extremely exposed to details of traumatic events (e.g. first responders collecting human remains or police officers being repeatedly exposed to information about child abuse).

PTSD is placed in the diagnostic category of "trauma – and stressor-related disorders". It is most often diagnosed soon after a traumatic experience [26], and rarely do the symptoms develop fully after six months or more (late-onset PTSD). Four core groups of symptoms according to DSM-5 are:

1. Re-experiencing trauma – in the form of nightmares, recurring and intrusive memories of trauma, dissociative reactions (e.g. flashbacks), in which a person feels or acts as if the traumatic event is occurring.
2. Avoidance of stimuli, situations, places, memories and thoughts associated with trauma
3. Negative changes to cognitive processes and mood associated with the traumatic event, like troubles in remembering important details of the traumatic event(s);

persistent and excessive negative beliefs about self, people and the world ("the world is a dangerous place", "no one is to be trusted", "my brain/nervous system is permanently damaged"); persistent and distorted views about causes and consequences of the traumatic event(s), which often lead to blaming oneself and others. Persistent negative emotional states – anxiety, horror, anger and shame and troubles in expressing positive emotions, feeling detached from others, and loss of motivation to engage in important activities.

4. Marked changes in reactivity and arousal patterns associated with the traumatic event. Irritability and outbursts, auto-destructive behaviours, e.g. self-harm, excessive vigilance and exaggerated startle response, trouble concentrating and sleep disturbances.

Symptoms must manifest themselves or markedly intensify after a traumatic event, must last at least a month and not be attributable to any other factors, like general health or substance use. If the temporal criterium is not met (i.e. a month has not passed), then ASD is diagnosed. ASD presents itself in about 20% of people who experienced a traumatic event, while about 80% of people who experienced ASD will develop PTSD as a consequence [27].

Efficacy of chosen psychotherapies for PTSD

Cognitive-behavioural therapy (CBT) with prolonged exposure

Two basic protocols for trauma therapy were created in the frame of CBT. The most often used and researched is the prolonged exposure protocol [28], and the second one is the cognitive processing therapy [29]. Both models are based on prolonged exposure and confronting oneself with safe but anxiety-triggering situations, images and memories. The therapy consists of in vivo expositions to the situations and stimuli that trigger anxiety or avoidance; prolonged exposure in which patients gradually approach trauma-related memories; and restructuring of beliefs associated with the traumatic experience. The aim of the therapy is to teach the patient how to safely return to traumatic memories with a gradual decline in distress and anxiety. Desensitisation to stimuli associated with trauma reduces the activity of the amygdala, which is the storage for emotional memory [30].

There are more studies of prolonged exposure than cognitive processing therapy [31]. Both therapies are being recommended as the treatment of choice for traumatic stress disorders (cf. Table 1). Meta-analyses indicate their high efficacy compared to waitlist or treatment as usual controls [32] or pharmacotherapy. The most important meta-analytical results show that protocols with prolonged exposure are more efficacious than therapies in which there is no exposure to trauma-related stimuli [33–35].

Eye Movement Desensitisation and Reprocessing (EMDR)

Another therapeutic approach created specifically for the treatment of PTSD is EMDR. The theoretical basis of this method is still discussed, and there is no consensus about its mechanisms of action [36, 37]. One of the approaches assumes that the desensitisation of traumatic memories is accompanied by engagement of working memory (through bilateral stimulation, most often forced horizontal eye movements) during exposure to those memories [38].

The efficacy of EMDR was confirmed in many clinical trials. A summary of these findings in meta-analyses shows that EMDR is more efficacious than waiting lists and similarly efficacious to cognitive-behavioural therapies [32, 39–41]. At the same time, it should be noted that a meta-analysis of EMDR in veterans with PTSD did not show a visible advantage of this method. However, the authors noted that this result was determined in the major part by the small number of studies utilising various methods on small samples [42].

Psychodynamic therapy

Psychodynamic therapy for trauma is based on two separate models. One relates to a single traumatic event, and the second relates to long-term traumatic experiences during childhood [43]. Because of the nature of our review, we will concentrate on the former one. Psychodynamic therapy analyses internal conflicts, defence mechanisms that patients use to maintain unawareness of desires, feelings, impulses, and attachment patterns experienced before and after trauma [44].

Unfortunately, there is only a single randomised controlled trial (RCT) of psychodynamic therapy of trauma in the literature. This study compared psychodynamic therapy of trauma with desensitisation and hypnotherapy [45]. Results showed that psychodynamic therapy is as similarly efficacious in reducing avoidance and general mood improvement as the two other methods but is not as efficacious in reducing intrusive thoughts.

Due to the lack of meta-analyses, it will be helpful to refer to a review comparing therapeutic approaches with the exposure component with approaches which do not have it in their protocols. There are studies (unfortunately non-randomised and with small groups of participants) that verified the efficacy of interpersonal therapy and cognitive therapies without prolonged exposure. Results of this review point out a greater efficacy of therapies with exposure [35]. As Schottenbauer et al. [43] state, most clinicians are convinced that psychodynamic therapy is more suited for working with patients with a history of complex traumas.

Humanistic therapy

The main aims of humanistic psychotherapies are interpersonal growth and overcoming existential and developmental conflicts [46]. Emphasis is placed on empathy, creating a safe and working relationship between the client and the therapist, and construction of meaning for the patient's experiences. In PTSD, such an approach is Present-Centered Therapy (PCT), which was first developed as an active control condition devoid of exposure to trauma-related stimuli [35].

The first review of studies on PCT was published in 2014 [47], and it demonstrated similar efficacy between PCT and cognitive therapies. However, the newest meta-analysis does not corroborate these results [32]. PCT is more efficacious than a waitlist or treatment as usual control but not as efficacious as cognitive therapies. However, it should be noted that this method was a subject of a small number of clinical trials.

Analyses showed an interesting preliminary result that PCT has a smaller proportion of dropouts than exposure-based therapies [47]. However, again the newest review did not corroborate this result, where the mean percentage of dropouts in PCT was 20%, and for trauma-focused cognitive-behavioural therapies was 13% [48].

Therapies based on polyvagal theory

The polyvagal theory assumes that trauma leads to the dysfunction of the ventral vagal nerve, which results in changes in the heart rate and impairment of striated muscles of the face and head [49]. In therapy, the patient learns about three levels of autonomic arousal. The first one is the dorsal vagal state, responsible for the lowest level reactions, i.e. freezing and conviction of being left alone. The second one, called the sympathetic state, is responsible for mobilising the fight or flight reaction. The patient experiences anxiety in this state and is convinced that the world is dangerous. The third state is the ventral vagal state, associated with feeling safe and connected to other people. It is possible thanks to the "vagal brake", which limits the heart rate to seventy-two beats per minute. During the therapy, the client learns to identify each state of the vagal nerve activation, their triggers and methods of switching between those states (e.g. change of breathing rhythm through movement, sounds, and interactions with others).

Literature on the polyvagal theory does not include any references to studies on the efficacy of specific methods [49, 50]. A literature search in PubMed results in a single record [51]. It reviews six articles, of which four present results on PTSD. All of these studies, which were to verify the utilisation of the polyvagal theory in the treatment of PTSD (under the authors' assumption), concerned mindfulness therapy and their original authors did not refer to the polyvagal theory. Additionally, none of the studies demonstrated the influence of psychotherapy for PTSD on the cardiopulmonary

system, which is one of the postulated mechanisms of change in psychotherapies based on the polyvagal theory. Currently, there are no psychotherapy studies supporting the premise of this approach.

Table 1. **Summary of treatment guidelines and available studies of various therapies for PTSD**

Therapy	Guidelines	Number of studies on the efficacy of therapy	Studies' results
Cognitive-behavioural therapy with prolonged exposure	APA – strong recommendation NICE – strong recommendation APS – strong recommendation VA/DoD – strong recommendation	Several meta-analyses and systematic reviews with various populations and types of traumas; several dozen randomised controlled trials	66% do not meet diagnostic criteria for PTSD after therapy [34]; 82.5% did not relapse even after 10 years after the therapy [52]. Average dropout is at about 13% [48]. Confirmed mechanism of action of reduction of amygdala activation [53]
EMDR	APA – conditional recommendation NICE – recommended for people with trauma other than combat-related or when a patient has a preference for this method APS – strong recommendation Va/DoD – strong recommendation	Several meta-analyses and systematic reviews with various populations and types of traumas; several dozen randomised controlled trials	64% do not meet diagnostic criteria for PTSD after therapy [34]; in another meta-analysis, patients had a 43% higher chance of not meeting diagnostic criteria in comparison to waitlist control [54]; the average dropout at about 18% [48]
Brief psychodynamic therapy of trauma	APA – conditional recommendation NICE – no recommendation APS – no recommendation Va/DoD – no recommendation	One randomised controlled trial and several non-randomised ones	Reduction of symptom severity and increase in feeling safe; about 14% of patients in the RCT dropped out [48]
Humanistic therapy (Present-Centered Therapy)	APA – no recommendation NICE – no recommendation APS – when the recommended therapy is not available, or the patient has a preference for therapy without trauma-focus VA/DoD – analogous to APS	Few randomised controlled trials	Efficacious in comparison to waitlist control or treatment as usual, but less efficacious than exposure-based therapies [32]; average dropout is about 20% [48]

table continued on the next page

Polyvagal therapy	APA – no recommendation NICE – no recommendation APS – no recommendation Va/DoD – no recommendation	None	No data
Pharmacotherapy	APA – conditional recommendation NICE – conditional recommendation APS – conditional recommendation as a second line of treatment VA/DoD – when the recommended therapy is not available	Meta-analyses of randomised controlled trials	Efficacious in symptom reduction; high degree of relapses
APA – Clinical Practice Guideline for the Treatment of Posttraumatic Stress Disorder American Psychological Association; NICE – National Institution for Health and Care Excellence; APS – The Australian Psychological Society Evidence-Based Psychological Interventions in the Treatment of Mental Disorders; VA/DoD – The Department of Veterans Affairs and the Department of Defense guidelines for PTSD management.			

Discussion

This review aimed to summarise available meta-analyses and treatment guidelines for PTSD. The results are consistent with previous works of similar character [55] and point out that recommended treatments for PTSD are CBT and EMDR. Furthermore, pharmacotherapy or therapies without exposure components may also be used in certain situations. All established therapeutic approaches that utilise exposure to trauma-related memories and stimuli are effective and have lasting effects in the treatment of PTSD. If a therapeutic method does not include the reprocessing of trauma-related memories, the symptom reduction is comparable to relaxation trainings [35]. This happens because the amygdala, as a storage for emotional memory, "saves a copy" of trauma-related stimuli during a traumatic event. Those stimuli become somewhat of an alarm signal, triggered whenever a person happens to be in a situation associated (not necessarily on the autobiographical memory level) with trauma and results in an immediate anxiety reaction [56].

Numerous studies using neuroimaging not only confirm that PTSD patients have elevated profiles of amygdala activations and lowered prefrontal cortex and hippocampal activation but also show that prolonged exposure therapy leads to attenuation of those functional changes in those brain areas [53]. This indicates that therapies offered to PTSD patients should clearly indicate what methods they utilise to desensitise

the amygdala to trauma-related memories. According to available evidence, if such a method is not employed in the therapy, it will be not as effective as therapies that do so.

It is worth mentioning that an important argument for using empirically-verified therapies is the ethical responsibility of respecting clients' subjectivity and obtaining informed consent for providing psychotherapy [57]. Patients may give informed consent only after being informed extensively and impartially about the course, efficacy and possible side effects of a given therapeutical approach [58], which is only possible when relying on the best available scientific evidence. Mentioning this is particularly important in the context of 58% of patients not being informed by therapists about the efficacy of their treatment and 73% not being informed about alternative treatments [59]. In the case of PTSD, this ethical requirement is particularly significant in the context of clear evidence for the efficacy of various psychotherapy methods.

The current review has several limitations. The first one is that it was conducted as an unsystematic review. Simultaneously, reviewing the broad base of literature on psychotherapy of PTSD would significantly exceed the volume of a single paper. The current paper sums up the most up-to-date scientific evidence and treatment guidelines.

Another limitation may be that the paper focused solely on PTSD. Previous studies show frequent comorbidity of PTSD and other disorders [60, 61]. However, it should be noted that psychotherapies with prolonged exposure reduce symptoms of disorders comorbid to PTSD or at least do not exacerbate their symptoms [62]. This review also does not deal with the issue of complex PTSD [63] because it would be beyond the scope of the paper. Another limitation is that the current review focuses on psychotherapy of adults. It is suggested that an analogous review should be prepared for psychotherapy of children and adolescents.

Conclusions

To sum up, the best scientific evidence to date is showing that efficacious psychotherapies for PTSD are methods employing prolonged exposure to memories and stimuli associated with the traumatic event. Psychotherapies that employ exposure methods and are recommended in treatment guidelines of several professional associations as treatment of choice are primarily CBT and EMDR.

Contributions and conflict of interest
This work did not receive any financial support. AE and AŚ are conducting training in CBT with prolonged exposure commercially.

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