Revista Ibero-Americana de Humanidades, Ciências e Educação — REASE

doi.org/10.51891/rease.v12i3.23846

POST-TRAUMATIC STRESS DISORDER: DIAGNOSTIC UPDATES, NEUROBIOLOGICAL MECHANISMS, AND EVIDENCE-BASED INTERVENTIONS

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ABSTRACT: Post-traumatic stress disorder (PTSD) is a prevalent and disabling psychiatric condition associated with significant functional impairment, reduced quality of life, and high rates of psychiatric comorbidity. Advances in diagnostic classification, neurobiological research, and therapeutic approaches have expanded understanding of PTSD; however, challenges remain in translating scientific knowledge into effective clinical practice.**Objective:** To provide an integrative and clinically oriented review of PTSD, synthesizing updated diagnostic frameworks, neurobiological mechanisms, and evidence-based pharmacological and psychotherapeutic interventions.**Methods:** A narrative review of the literature was conducted using PubMed, SciELO, and international clinical guidelines, prioritizing systematic reviews, meta-analyses, and key randomized controlled trials. Diagnostic criteria from DSM-5-TR and ICD-11 were examined alongside neurobiological models and treatment evidence. **Results:** PTSD is characterized by dysregulation of cortico-limbic circuits, alterations in stress-response systems, and abnormalities in multiple neurotransmitter pathways. Trauma-focused psychotherapies and first-line pharmacological treatments, including selective serotonin reuptake inhibitors and serotonin–noradrenaline reuptake inhibitors, constitute the core of evidence-based management. Emerging interventions, such as neuromodulation techniques and pharmacologically assisted psychotherapy, show promise in selected clinical contexts but require further empirical validation. **Conclusion:** PTSD should be conceptualized as a multidimensional disorder resulting from interactions between neurobiological vulnerability, traumatic exposure, and psychosocial factors. An integrative and multimodal treatment approach remains essential to optimizing clinical outcomes. By bridging diagnostic, neurobiological, and therapeutic perspectives, this review contributes to a comprehensive understanding of PTSD and highlights pathways for individualized psychiatric care and future research.

Keywords: Post-traumatic stress disorder. Trauma-related disorders. Neurobiology. Diagnostic classification. Pharmacological treatment. Trauma-focused psychotherapy. DSM-5-TR. ICD11.

INTRODUCTION

Post-traumatic stress disorder (PTSD) is a prevalent and potentially disabling psychiatric condition that develops following exposure to traumatic events involving actual or threatened death, serious injury, or sexual violence (AMERICAN PSYCHIATRIC

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ASSOCIATION, 2022). The disorder is associated with substantial functional impairment, reduced quality of life, increased healthcare utilization, and elevated risk of psychiatric comorbidities, including major depressive disorder, substance use disorders, and suicidality.

Although historically associated with combat-related trauma, PTSD is now widely recognized across diverse clinical contexts, including interpersonal violence, accidents, natural disasters, medical trauma, and chronic exposure to stressors. Despite growing awareness, PTSD remains frequently underdiagnosed and undertreated in routine psychiatric practice, partly due to clinical heterogeneity, symptom overlap with other mental disorders, and variability in trauma exposure (WORLD HEALTH ORGANIZATION, 2019).

Recent revisions of international diagnostic classification systems have refined the conceptualization of PTSD and expanded its clinical implications. The DSM-5-TR defines PTSD through symptom clusters encompassing intrusion, avoidance, negative alterations in cognition and mood, and hyperarousal, whereas the ICD-11 proposes a more streamlined model and formally distinguishes PTSD from complex PTSD (C-PTSD) (AMERICAN PSYCHIATRIC ASSOCIATION, 2022; WORLD HEALTH ORGANIZATION, 2019). These differences have important implications for clinical assessment, treatment planning, and prognostic evaluation.

Advances in neurobiological research have further contributed to understanding PTSD as a disorder of dysregulated stress response and maladaptive fear processing. Alterations in cortico-limbic circuitry, dysfunction of stress-response systems, and abnormalities in multiple neurotransmitter pathways have been consistently reported, providing a rationale for current pharmacological and psychotherapeutic interventions (HOSKINS et al., 2015).

From a therapeutic perspective, trauma-focused psychotherapies remain central to PTSD management, while pharmacological treatment plays a crucial role in patients with moderate to severe symptoms or comorbid psychiatric conditions. Emerging interventions, including neuromodulation techniques and pharmacologically assisted psychotherapy, have generated increasing interest, although their role in routine clinical practice remains under evaluation (MITCHELL et al., 2021).

Scientific Contribution and Clinical Relevance

This review provides an integrative and clinically oriented synthesis of post-traumatic stress disorder by systematically connecting diagnostic frameworks, neurobiological

mechanisms, and evidence-based interventions. Unlike traditional narrative reviews that address these domains separately, the present article offers a unified conceptual model that highlights how advances in diagnostic classification and neurobiological research inform therapeutic decision-making in clinical practice. By bridging theoretical knowledge and real-world psychiatric care, this review contributes to a more comprehensive understanding of PTSD and supports individualized, multimodal treatment strategies.

Epidemiology of Traumatic Exposure and PTSD

Exposure to traumatic events is highly prevalent worldwide and represents a major public health concern. Large-scale epidemiological studies indicate that a substantial proportion of the global population experiences at least one potentially traumatic event during their lifetime, although prevalence rates vary significantly across regions and sociocultural contexts (WORLD HEALTH ORGANIZATION, 2019).

The COVID-19 pandemic introduced an unprecedented form of collective trauma characterized by sustained threat to life, loss of loved ones, social isolation, economic instability, and disruption of healthcare systems. Evidence suggests that this global crisis contributed to an increase in trauma-related mental health conditions, including PTSD, anxiety disorders, depressive symptoms, and sleep disturbances.

Importantly, exposure to traumatic events alone is not sufficient to result in PTSD. The conditional risk of developing the disorder depends on multiple factors, including the nature of the traumatic event, individual vulnerability, and contextual influences. Interpersonal violence, particularly sexual violence and intimate partner violence, is associated with the highest conditional risk of PTSD (LEWIS et al., 2020).

Sex-related differences in PTSD prevalence have been consistently documented. Although men are more frequently exposed to traumatic events, women exhibit a higher conditional risk of developing PTSD. Childhood and adolescent trauma confer greater risk for chronic PTSD and psychiatric comorbidity.

Cumulative trauma exposure further amplifies vulnerability. Individuals exposed to multiple traumatic events across the lifespan demonstrate higher rates of PTSD, greater symptom severity, and increased comorbidity with mood, anxiety, and substance use disorders. Moreover, PTSD is associated with elevated suicide risk, underscoring the clinical relevance of early identification and comprehensive intervention.

Resilience and Protective Factors

Despite the high prevalence of traumatic exposure, most individuals do not develop PTSD. This observation highlights the central role of resilience, increasingly conceptualized as a dynamic and multidimensional process rather than a fixed individual trait.

Protective factors associated with resilience include social support, emotional regulation capacity, perceived self-efficacy, adaptive coping strategies, and access to mental health resources. Stable interpersonal relationships and positive affect may buffer the psychological impact of trauma and reduce the likelihood of persistent psychopathology (WORLD HEALTH ORGANIZATION, 2019).

From a clinical perspective, recognizing resilience does not imply minimizing trauma-related suffering but identifying strengths that can be leveraged during treatment. Integrating resilience-oriented perspectives into PTSD care supports a comprehensive and patient-centered approach.

Diagnostic Criteria and Clinical Classification of PTSD: DSM-5-TR

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), post-traumatic stress disorder is classified within the group of trauma- and stressor-related disorders and is diagnosed following exposure to a traumatic event involving actual or threatened death, serious injury, or sexual violence (AMERICAN PSYCHIATRIC ASSOCIATION, 2022).

The DSM-5-TR conceptualizes PTSD through four core symptom clusters: intrusion, avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity. These clusters reflect complex interactions between cognitive, emotional, and neurobiological processes and provide a clinically useful framework for assessment and diagnosis.

Intrusion symptoms include recurrent, involuntary, and distressing memories of the traumatic event, nightmares, dissociative reactions such as flashbacks, and intense psychological or physiological distress when exposed to trauma-related cues. Avoidance refers to persistent efforts to evade trauma-related memories, thoughts, feelings, or external reminders associated with the traumatic event.

Negative alterations in cognition and mood encompass persistent negative beliefs about oneself, others, or the world, distorted blame of self or others, diminished interest in significant activities, emotional numbing, and feelings of detachment or estrangement. Alterations in

arousal and reactivity include hypervigilance, exaggerated startle response, irritability, sleep disturbances, and concentration difficulties.

The DSM-5-TR also includes clinically relevant specifiers that highlight the heterogeneity of PTSD presentations. The dissociative subtype is characterized by prominent depersonalization or derealization symptoms and is associated with greater symptom severity and functional impairment. The delayed expression specifier applies when full diagnostic criteria are not met until at least six months after the traumatic event, underscoring the importance of longitudinal assessment in clinical practice (AMERICAN PSYCHIATRIC ASSOCIATION, 2022).

From a clinical perspective, the DSM-5-TR framework supports a dimensional understanding of PTSD symptomatology and facilitates individualized diagnostic evaluation and treatment planning. However, differences between DSM-5-TR and other diagnostic systems, such as ICD-11, have important implications for clinical practice and research, particularly regarding case identification and classification.

ICD-11 and Complex Post-Traumatic Stress Disorder

The International Classification of Diseases, Eleventh Revision (ICD-11), proposes a more streamlined conceptualization of post-traumatic stress disorder, emphasizing three core symptom domains: re-experiencing the traumatic event in the present, avoidance of trauma-related reminders, and a persistent sense of current threat manifested by hypervigilance or exaggerated startle (WORLD HEALTH ORGANIZATION, 2019).

This simplified diagnostic structure was designed to enhance clinical utility and diagnostic specificity across diverse healthcare settings. Compared to the DSM-5-TR, the ICD-11 model prioritizes core phenomenological features of PTSD and reduces symptom overlap with other psychiatric disorders, which may improve diagnostic clarity and cross-cultural applicability.

A major innovation of the ICD-11 is the formal recognition of complex post-traumatic stress disorder (C-PTSD) as a distinct diagnostic entity. In addition to the core symptoms of PTSD, C-PTSD includes disturbances in self-organization, characterized by affect dysregulation, persistent negative self-concept, and difficulties in interpersonal relationships. This diagnosis is particularly relevant for individuals exposed to prolonged or repeated

traumatic experiences, such as childhood abuse, domestic violence, captivity, or chronic interpersonal trauma (WORLD HEALTH ORGANIZATION, 2019).

The distinction between PTSD and C-PTSD has significant clinical implications. Patients with C-PTSD often present with greater functional impairment, higher rates of psychiatric comorbidity, and more complex treatment needs. Trauma-focused interventions may be insufficient when applied in isolation, and phased treatment approaches that integrate emotional regulation, interpersonal functioning, and trauma processing are frequently required.

From a research perspective, differences between DSM-5-TR and ICD-11 frameworks have implications for prevalence estimates, case identification, and outcome assessment. Clinically, integrating both diagnostic systems may facilitate a more comprehensive understanding of trauma-related psychopathology and support individualized treatment planning.

Neurobiological Basis of Post-Traumatic Stress Disorder

Post-traumatic stress disorder is increasingly understood as a disorder of maladaptive stress response and impaired fear regulation, involving dysregulation across multiple neurobiological systems. Evidence from neuroimaging, neuroendocrine, and psychophysiological studies consistently demonstrates alterations in brain circuits responsible for threat detection, emotional regulation, and memory processing, which contribute to the persistence and recurrence of PTSD symptoms (HOSKINS et al., 2015).

One of the most robust neurobiological findings in PTSD is hyperreactivity of the amygdala, a key structure involved in fear conditioning and threat appraisal. Heightened amygdala responsiveness to trauma-related and non-specific emotional stimuli underlies core symptoms such as hypervigilance, exaggerated startle response, and intrusive recollections. In parallel, reduced functional activity in the medial prefrontal cortex, particularly in the ventromedial and anterior cingulate regions, compromises top-down inhibitory control over limbic responses, resulting in impaired fear extinction and difficulty regulating emotional responses.

The hippocampus plays a central role in contextual memory and discrimination between past and present threats. Structural and functional alterations in this region have been associated with impaired contextualization of traumatic memories, leading to intrusive

recollections that are experienced as occurring in the present rather than as past events. Chronic stress exposure and glucocorticoid-mediated neurotoxicity may further exacerbate hippocampal dysfunction, particularly in individuals exposed to prolonged or repeated trauma.

Dysregulation of the hypothalamic–pituitary–adrenal axis represents another hallmark of PTSD. Unlike other stress-related disorders, PTSD is often characterized by paradoxically low basal cortisol levels and enhanced negative feedback sensitivity. This endocrine profile may increase vulnerability to stress sensitization and contribute to exaggerated autonomic responses. Elevated central noradrenergic activity, particularly in the locus coeruleus, has been linked to hyperarousal, sleep disturbances, and trauma-related nightmares, providing a neurobiological rationale for targeting adrenergic pathways in pharmacological treatment.

At the neurotransmitter level, abnormalities in serotonergic, noradrenergic, glutamatergic, and GABAergic systems have been implicated in PTSD. These neurochemical alterations may contribute to impaired synaptic plasticity, maladaptive learning processes, and heightened neural excitability. Emerging evidence also suggests a role for neuroinflammatory processes and epigenetic mechanisms in shaping individual vulnerability and symptom persistence.

Collectively, these neurobiological findings provide a conceptual framework for understanding PTSD as a disorder of distributed neural network dysfunction rather than isolated brain abnormalities. This perspective underscores the rationale for multimodal treatment approaches that integrate pharmacological and psychotherapeutic interventions.

Integrative Conceptual Model of PTSD

An integrative conceptual model of PTSD can be proposed in which diagnostic classification, neurobiological dysregulation, and therapeutic interventions are understood as interconnected dimensions of the disorder. Diagnostic frameworks such as DSM-5-TR and ICD-11 define clinical phenotypes that reflect underlying neurobiological alterations in cortico-limbic circuits, stress-response systems, and neurotransmitter pathways. These neurobiological mechanisms, in turn, provide the rationale for pharmacological and psychotherapeutic interventions targeting specific symptom domains.

From this perspective, PTSD should be conceptualized not merely as a cluster of symptoms but as a dynamic interaction between neurobiological vulnerability, traumatic exposure, and psychosocial context. This integrative model underscores the need for

personalized treatment approaches that combine pharmacotherapy, trauma-focused psychotherapy, and psychosocial interventions. Such a framework may also inform future research by identifying translational pathways between neuroscience and clinical psychiatry.

Clinical Implications of Diagnostic Frameworks

Differences between DSM-5-TR and ICD-11 diagnostic models influence clinical assessment, case formulation, and treatment planning. While the DSM-5-TR provides a more granular symptom-based approach, the ICD-11 emphasizes clinical coherence and functional impairment. Awareness of both systems is particularly important in international clinical contexts and research settings, as diagnostic classification may affect prevalence estimates, treatment eligibility, and outcome evaluation.

For practicing psychiatrists, integrating these diagnostic frameworks facilitates a more comprehensive understanding of trauma-related psychopathology. Accurate differentiation between PTSD and C-PTSD can guide therapeutic decision-making, set realistic treatment expectations, and inform prognosis. Ultimately, refined diagnostic classification supports more personalized and effective management strategies for patients suffering from trauma-related disorders.

Pharmacological Treatment of Post-Traumatic Stress Disorder

Pharmacological treatment constitutes a central component of post-traumatic stress disorder management, particularly in patients with moderate to severe symptoms, significant functional impairment, or psychiatric comorbidities. Although trauma-focused psychotherapies are considered first-line interventions, pharmacotherapy often plays a crucial role in reducing symptom severity, facilitating engagement in psychotherapy, and addressing specific symptom domains such as sleep disturbance, hyperarousal, and mood instability (HOSKINS et al., 2015).

Selective serotonin reuptake inhibitors (SSRIs) are widely regarded as first-line pharmacological agents for PTSD. Sertraline and paroxetine are among the most extensively studied medications, while other SSRIs are commonly used in clinical practice. These agents exert their therapeutic effects through modulation of serotonergic neurotransmission, influencing mood regulation, anxiety, and emotional processing. Clinical trials and meta-

analyses demonstrate modest but clinically meaningful reductions in core PTSD symptoms, particularly in re-experiencing and hyperarousal domains (HOSKINS et al., 2015).

Serotonin–noradrenaline reuptake inhibitors (SNRIs), particularly venlafaxine, are also supported by evidence and are frequently considered first-line options. By targeting both serotonergic and noradrenergic systems, SNRIs may offer advantages in patients with prominent hyperarousal, comorbid depression, or partial response to SSRIs. However, response rates remain variable, and a substantial proportion of patients fail to achieve full remission with monotherapy.

Adjunctive pharmacological strategies are often employed to address residual symptoms and clinical heterogeneity. Prazosin, an alpha-1 adrenergic antagonist, has been used to target trauma-related nightmares and sleep disturbances, based on its capacity to reduce central noradrenergic activity. Although early studies demonstrated significant benefit, more recent trials have yielded mixed results, underscoring the importance of individualized patient selection.

Atypical antipsychotics, such as quetiapine and risperidone, have been used as adjunctive treatments in patients with severe hyperarousal, irritability, or comorbid psychotic features. However, evidence supporting their routine use remains limited, and concerns regarding metabolic and neurological adverse effects necessitate careful risk–benefit assessment. Mood stabilizers, including lamotrigine and valproate, may be considered in selected cases, particularly when affective instability or comorbid bipolar features are present, although robust evidence is lacking.

Sleep disturbances, which are highly prevalent in PTSD, often require targeted intervention. Sedating antidepressants, non-benzodiazepine hypnotics, or short-term use of benzodiazepines may be considered with caution, given the risk of dependence and potential interference with trauma processing.

Treatment-resistant PTSD represents a significant clinical challenge. In such cases, inadequate response may reflect delayed diagnosis, insufficient treatment duration, poor adherence, unaddressed comorbidities, or ongoing exposure to stressors. Combination pharmacotherapy, switching between first-line agents, and integration with intensive trauma-focused psychotherapy are common strategies. Nevertheless, clinicians must recognize the limitations of pharmacological escalation and avoid excessive polypharmacy.

Emerging pharmacological approaches, including agents targeting glutamatergic and cholinergic systems, as well as adjunctive neuromodulation techniques, have generated increasing interest but remain largely experimental. At present, pharmacotherapy should be conceptualized as one component of a broader, individualized treatment plan rather than a standalone solution.

Psychotherapeutic Approaches and Integration with Pharmacological Treatment

Psychotherapy constitutes a cornerstone in the treatment of post-traumatic stress disorder and is particularly effective when integrated with pharmacological strategies. Trauma-focused psychotherapies aim to modify maladaptive cognitive, emotional, and behavioral responses associated with traumatic memories, promoting symptom reduction and functional recovery (HOSKINS et al., 2015).

Trauma-focused cognitive behavioral therapy (TF-CBT) is among the most extensively studied interventions and has demonstrated efficacy in reducing core PTSD symptoms across diverse populations. This approach combines cognitive restructuring, exposure techniques, and skills training to address distorted beliefs, avoidance behaviors, and emotional dysregulation. By facilitating controlled exposure to trauma-related memories and cues, TF-CBT supports extinction learning and cognitive reappraisal, processes that are often impaired in PTSD.

Eye movement desensitization and reprocessing (EMDR) is another evidence-based modality that has gained widespread acceptance. EMDR integrates bilateral sensory stimulation with guided recall of traumatic memories, aiming to reduce emotional distress and promote adaptive information processing. Although its precise mechanisms remain under investigation, EMDR has demonstrated comparable efficacy to trauma-focused CBT in multiple randomized controlled trials.

Beyond trauma-focused approaches, supportive and psychodynamic psychotherapies may also play a role in selected cases, particularly in patients with complex trauma histories or significant interpersonal difficulties. These modalities may contribute to the integration of traumatic experiences into broader narratives of identity and meaning, complementing symptom-focused interventions.

From a clinical perspective, integration of psychotherapy and pharmacotherapy is often essential to optimize outcomes. Pharmacological treatment may reduce symptom severity, improve sleep, and attenuate hyperarousal, thereby enhancing patients' capacity to engage in

trauma-focused interventions. Conversely, psychotherapy addresses trauma-related cognitions and behaviors that are less responsive to medication alone. Coordinated treatment planning, interdisciplinary collaboration, and patient-centered decision-making are critical to optimizing therapeutic outcomes.

Furthermore, phased treatment models have been proposed for patients with complex PTSD, in which stabilization and emotional regulation precede intensive trauma processing. Such models reflect the clinical reality that trauma-related psychopathology often requires flexible and individualized therapeutic trajectories rather than uniform intervention protocols.

Emerging and Novel Treatments

In recent years, growing interest has emerged in novel and adjunctive interventions for post-traumatic stress disorder, particularly for patients who do not respond adequately to conventional treatments. These emerging approaches reflect advances in neuroscience, psychopharmacology, and digital health, and highlight the need for innovative strategies to address treatment-resistant PTSD (MITCHELL et al., 2021).

Pharmacologically assisted psychotherapy, especially interventions involving 3,4-methylenedioxymethamphetamine (MDMA), has attracted considerable attention. Phase 3 clinical trials suggest that MDMA-assisted therapy may produce substantial and sustained reductions in PTSD symptoms when combined with structured psychotherapeutic protocols. Proposed mechanisms include enhanced emotional engagement, reduced fear response, and increased therapeutic alliance. Despite promising findings, regulatory approval, long-term safety, and ethical considerations remain under evaluation (MITCHELL et al., 2021).

Neuromodulation techniques, such as repetitive transcranial magnetic stimulation (rTMS), have also been explored as potential treatments for PTSD. By targeting prefrontal cortical regions implicated in emotional regulation, rTMS may modulate dysfunctional neural circuits associated with fear and stress processing. Although preliminary findings are encouraging, variability in stimulation protocols and clinical outcomes underscores the need for further research before widespread clinical implementation.

Digital interventions, including app-based therapies and telepsychiatry, have expanded access to mental health care, particularly in underserved populations. These tools may support symptom monitoring, psychoeducation, and delivery of structured psychotherapeutic content.

However, evidence for their standalone efficacy remains limited, and they are best conceptualized as adjuncts to established evidence-based treatments.

Overall, emerging treatments should be considered within a cautious and evidence-informed framework. While innovative interventions hold promise for addressing unmet clinical needs, their integration into routine practice requires rigorous empirical validation and careful ethical and regulatory oversight.

Clinical Challenges and Practical Considerations

The management of post-traumatic stress disorder in real-world clinical settings is frequently complicated by delayed diagnosis, psychiatric comorbidities, and ongoing psychosocial stressors. Many patients present with overlapping symptoms of depression, anxiety, substance use disorders, or personality traits, which may obscure trauma-related psychopathology and hinder accurate diagnosis (AMERICAN PSYCHIATRIC ASSOCIATION, 2022).

Comprehensive assessment and longitudinal follow-up are therefore essential to avoid misdiagnosis and fragmented care. In clinical practice, the temporal distance between traumatic exposure and symptom onset often contributes to underrecognition of PTSD, particularly in patients with chronic or complex symptom presentations.

Treatment adherence represents another significant challenge. Adverse effects, delayed therapeutic response, stigma, and limited access to specialized psychotherapeutic services can undermine patient engagement. Furthermore, ongoing exposure to stressors, such as interpersonal conflict, socioeconomic instability, or repeated traumatic experiences, may perpetuate symptom severity despite appropriate treatment.

Patients with complex PTSD or histories of prolonged trauma often require phased and flexible treatment approaches. Stabilization, emotional regulation, and interpersonal functioning may need to be addressed before intensive trauma processing can be initiated. These clinical realities underscore the importance of individualized treatment planning and realistic therapeutic goals.

In addition, cultural, social, and contextual factors influence trauma perception, symptom expression, and help-seeking behavior. Awareness of these factors is essential for culturally sensitive assessment and intervention and may contribute to improved treatment outcomes.

Overall, the complexity of PTSD in clinical practice highlights the limitations of standardized treatment protocols and reinforces the need for integrative, patient-centered, and context-sensitive approaches to care.

DISCUSSION AND CONCLUSION

Post-traumatic stress disorder is a complex and heterogeneous condition that emerges from dynamic interactions between neurobiological vulnerability, traumatic exposure, and psychosocial context. Advances in diagnostic classification, neurobiological research, and therapeutic strategies have significantly expanded understanding of PTSD; however, substantial challenges remain in translating this knowledge into consistent clinical outcomes.

This review highlights the importance of integrating diagnostic frameworks, neurobiological mechanisms, and evidence-based interventions within a unified clinical perspective. Differences between DSM-5-TR and ICD-11 models underscore the need for nuanced diagnostic assessment, while neurobiological findings provide a rationale for multimodal treatment strategies. Together, these perspectives support a dimensional and individualized understanding of PTSD, rather than a purely categorical approach.

Current evidence supports trauma-focused psychotherapies and first-line pharmacological agents as foundational components of PTSD treatment. Nevertheless, response rates remain variable, and a considerable proportion of patients experience persistent symptoms or partial remission. This clinical reality emphasizes the limitations of single-modality interventions and the necessity of personalized, integrative treatment plans.

Emerging interventions, including neuromodulation techniques and pharmacologically assisted psychotherapy, represent promising avenues for future research. However, their incorporation into routine clinical practice requires careful evaluation of efficacy, safety, ethical implications, and long-term outcomes. At present, these approaches should be conceptualized as adjuncts to established evidence-based treatments rather than replacements.

From a clinical standpoint, the management of PTSD must account for diagnostic complexity, comorbidity, cultural and contextual factors, and real-world constraints such as limited access to specialized care. Phased and flexible treatment models, particularly for patients with complex trauma histories, may enhance therapeutic engagement and long-term outcomes.

In conclusion, PTSD should be conceptualized as a multidimensional disorder requiring integrative diagnostic assessment and multimodal therapeutic strategies. By bridging diagnostic classification, neurobiological insights, and clinical practice, this review contributes to a more comprehensive understanding of trauma-related psychopathology and highlights pathways for personalized psychiatric care and future research.

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