

Posttraumatic stress disorder as a diagnostic entity – clinical perspectives

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Throughout history the consequences of psychological trauma and characteristic symptoms have involved clinical presentations that have had different names. Since the inclusion of the category of Posttraumatic Stress Disorder (PTSD) in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) with the symptomatic triad of re-experiencing the traumatic event, avoidance behaviors, and hypervigilance, this entity has been a source of controversy. Indeed, some authors have denied its existence, even considering it a diagnostic invention. In this article we review, from the clinician's perspective, historical aspects as well as the development of the nosological classifications and the contributions from the neurosciences that allow the consideration of the full validity of this diagnosis as a form of psychobiological reaction to psychological trauma.

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Introduction

What could a Vietnam War veteran, a female sexual abuse victim, a young man who has experienced an automobile accident in which his sister died, a father who has suffered burns to a large portion of his face, a girl who witnessed the death of her mother during a flood, a teenager who has been a victim of cyber bullying, and a liver transplant patient possibly have in common? Most likely the diagnosis of posttraumatic stress disorder (PTSD). This reactive disorder to a traumatic event occurs in certain clinical contexts with a prevalence above 20%.¹ It has been estimated that 70% of the population experiences at least one traumatic event in their lifetime, from childhood to old age.²

The Vietnam War and the 2001 terrorist attacks on the Twin Towers and Pentagon are examples of recent events that have probably generated a major emotional impact in many subjects who have PTSD symptoms or the full-blown presentation of PTSD. PTSD has been widely discussed in the mass media, allowing the general population to become familiar with this diagnosis. Also, PTSD is an important issue in public health due to the individual, and family, consequences in community and society, as well as the financial burden that it

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implies, and the challenges that have to be faced by the development of preventive strategies.³

But, what is PTSD and how is it conceptualized? The war registries include well-known descriptions of soldiers who had to leave the battlefield due to acute psychological symptoms, which occasionally persisted for a long time. There are tales from Deuteronomy, historians, and classic writers (Homer, Shakespeare, and Goethe) with characters presenting symptoms that constitute today's PTSD.

Goethe was very keen to identify the emotional effect produced by shell explosions as a traumatic event and emphasized that those symptoms are not accompanied by physical damage. This fine observation can be related to different trials that took place after the recent wars in Afghanistan and Iraq, where mild traumatic brain damage was linked to the appearance of PTSD.^{4,6}

For the clinician, analysis of the psychopathological phenomena and their evolution, together with a possible neurobiological correlation and the therapeutic response, constitute central elements to facilitate diagnostic constructs. PTSD has evolved from its first clinical descriptions in soldiers to the development of models focused on symptoms within a network analysis perspective. The psychotraumatology field is an area of increasing progress and presents great challenges for clinicians as well as researchers.

PTSD is a clinical condition of great complexity, fully valid in clinical populations as well as communities; this has been the subject of many studies and continues to be a source of many controversies. The goal of this paper is to review certain arguments that help the clinician to clarify if PTSD corresponds to a diagnostic entity, or can be exclusively considered within psychiatric pathology; if it should be approached as a systemic disease or is best included as an operational syndromic diagnosis.

History, definitions, and diagnostic criteria

Different names have existed for a group of symptoms that today are conceptualized as PTSD. Initially, the symptomatology observed in soldiers was key to identifying this new field of psychopathology. Toward the end of the 19th century, the concept of traumatic neurosis arose from the psychoanalytic current of thought, in which stress was put on the psychic conflict as a trigger

of posttraumatic symptoms. This diagnosis was applied to the civilian population: to railroad accident survivors who presented psychological symptoms.

On the other hand, traumatic hysteria (from Janet and Freud) could have dissociative and amnesiac phenomena, that have become relevant as PTSD predictors when they appear as the initial trauma response. In this respect, World War I left as a legacy the incorporation of "shell shock" as a diagnosis, the importance of early treatment of the acute post-trauma symptoms on the battle front (today named psychological first aid), and finally the concern for those soldiers who required prolonged hospitalizations, who were discharged from the army, and could receive economic compensations for the psychiatric symptoms. The recognition of shell shock as a diagnosis of disease was also controversial, and its critics stated that it was only to justify the high number of deserting soldiers.⁷

During the Vietnam War many soldiers were decommissioned for psychiatric reasons, being diagnosed with Post-Vietnam Syndrome. This definition was adopted in 1970 and had huge repercussions in the psychiatric environment and the media.⁸

A 1972 trial with a group of United Nations Peace Corps soldiers during the Congo civil war did not find any differences in the prevalence of psychological manifestations and/or mental disease among those exposed and not exposed to combat.⁹ This result confirms that the condition of volunteer soldiers could be a protective factor for the appearance of PTSD.

It is important to point out that the 1952 first edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* included the diagnosis of Gross Stress Reaction, in which the core issue was the overwhelming fear response to an extreme stressor in a subject with normal personality. This diagnostic category did not appear in *DSM-II*. During the preparation of the *DSM-III* the discussion to reinstate that diagnosis arose. Nancy Andreasen led the study group and defined the new PTSD construct in 1980.¹⁰ PTSD was conceptualized based on three main groups of symptoms: re-experiencing the traumatic event, avoidance behavior, and hyper-vigilance phenomena.

In 2001, Summerfield criticized PTSD diagnosis and stated that this corresponded with an invention that was useful for sociopolitical and not medical reasons, and argued that having a psychiatric diagnosis did not necessarily imply having a disease.¹¹

In *DSM-5*, PTSD migrated from the group of Anxiety Disorders to a new group named Trauma- and Stressor-Related Disorders. Among its diagnostic criteria are included 20 symptoms divided into four groups: intrusion symptoms, persistent avoidance of stimuli, negative alterations in cognition and mood, and alterations in hypervigilance and reactivity.¹² A dissociative subtype is also recognized; this is under full study to develop better therapeutic alternatives, as it presents a severe progression in most cases.¹³

In the upcoming 11th version of the *International Classification of Disease (ICD-11)*, the diagnostic criteria for PTSD will include six symptoms that fall into three major categories: re-experience, avoidance of traumatic memories, and feelings of continued threat which are expressed by excessive hypervigilance or exaggerated alertness.¹⁴

An important aspect to determine if the symptomatology in fact corresponds with PTSD is related to the number of criteria according to the diagnostic system being used. In that sense, a series of diagnostic models have arisen in an attempt to assess symptoms more accurately.¹⁵⁻¹⁸ Ideally the chosen model should neither be very complex, which would make its application difficult, nor so simple that it cannot identify those patients with symptoms that are characteristic of PTSD.

Recently the *DSM-5* criteria were compared with those of the proposed *ICD-11* in three groups of trauma victims and it was found that for university students with the three-factor *ICD-11* model (re-experience, avoidance, and threat) the frequency of PTSD was lower than in the 7-factor hybrid model of *DSM-5* of Armour et al¹⁹ that includes intrusion phenomena, avoidance behavior, negative cognitive as well as mood disorders, anhedonia, externalizing behaviors, anxious hypervigilance, and dysphoric hypervigilance. On the other hand, no differences were found for patients with chronic pain and military personnel using both diagnostic systems.²⁰ Thus, the use of a diagnostic system will influence the precision that can be achieved in identifying those patients with PTSD.

The traumatic event

It is essential to establish what constitutes a traumatic event. Are the characteristics of the experienced event enough to categorize the event as traumatic, or is it from the subject's reaction that a traumatic connotation can

be given to a certain experience? Initially the traumatic event was associated with war situations and focused on soldiers' experiences, such as life-threatening experiences, the deaths or serious injuries of their partners and comrades, or atrocities suffered in captivity or concentration camp experiences. Once the term PTSD was officially included, the stressor qualified as traumatic only when it exceeded the usual life experiences.

Death threats, rapes, child abuse, and natural catastrophes were included. Intentional and non-intentional events were clarified in terms of being caused by man or as a result of a natural catastrophe. The initial reaction of fear, horror, or helplessness had special relevance. Later on, the experiences considered to be traumatic were extended and included, for example: motor vehicle accidents, panic attacks, diagnosis of a certain illness, the experience lived by immigrants, psychological family violence, occupational accidents, and spontaneous and provoked abortions, assaults, etc. Since traumatic stressors are no longer extreme, the question arises as to whether it is the response with post-traumatic symptoms that allows the connotation of "traumatic" to be assigned to the event. For instance, the accidental amputation of the distal phalanx of the fifth finger in a cosmetic saleswoman can be a traumatic event. If the integrity of her body and good personal presentation are very important for her job, this accident and its physical consequences can facilitate the development of a PTSD and even progress to a chronic disease, ending in disability pension due to being unable to reinstate her work activity.

In conclusion, the definition of the triggering event as traumatic is a controversial aspect. Is it a trigger per se, or because retrospectively the condition of traumatic is assigned to this stressor due to the posttraumatic phenomena of the one who suffers it? The central issue would be the way in which the subject processes the specific event (ie, guilt or anger) and the appearance of responses of re-experience, avoidance, and hypervigilance.

PTSD is a diagnostic term that very clearly reflects a model of mental disease. An identified psychological stressor is required to generate the classic symptomatic triad together with other psychopathological phenomena. There is also a neurobiological correlate of stress response to threat. In this case the psychological and biological elements of the mental disease intertwine very well. Today's knowledge on PTSD does not allow the

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etiopathogenetic separation between an organic origin and a psychological motivation. Psychological trauma is accompanied by neurobiological manifestations, which are increasingly better identified, in animal models as well as in PTSD patients.²¹⁻²⁷

New constructs for PTSD

ICD-11 is *ad portas* of being launched and, according to factorial models, two diagnostic entities with different symptom profiles have been defined: PTSD and complex PTSD. The first one is characterized by three main symptoms (re-experiencing the event in the present, deliberate avoidance of traumatic memories, and a sense of current threat), which at the same time include two symptoms of each factor. Symptoms profiled in PTSD are based on fear and anxiety caused by trigger stimuli related with trauma. In complex PTSD, there are other psychological symptoms that arise early, repeatedly, and prolonged in time, and have been named Disturbances in Self-Organization, which affect emotional regulation, interpersonal relationships, and identity.

When comparing diagnostic criteria of *ICD-11*, using the International Trauma Questionnaire, with those of the *DSM-5* for PTSD (the PTSD checklist for *DSM-5* or *PCL-5*) in trauma victims it was found that a higher percentage of cases could be detected with this last system.²⁸ Equivalent results were found in a group of Ukrainian adults who were displaced.²⁹ The choice of one diagnostic system or another can have an impact further from the purely medical, in the assignment of handicap pensions or insurance coverage.

PTSD, symptomics, and network models

During the 19th and a large part of the 20th century, psychiatry privileged symptom analysis and progression to define the diagnostic constructs. Neuroscience development in recent years has been progressively incorporating this new knowledge into the etiopathogenesis of mental illnesses; nevertheless we still do not rely on diagnostic systems in which the biological elements have greater importance. Beyond the classical categorical diagnostic approach, the network-based model allows greater comprehension and a better approach to the psychopathological complexity and individual characteristics.³⁰

A research field called Symptomics Research has risen in recent years, which focuses on symptom analysis and its three cornerstones: i) the manner in which a relationship between a certain symptom and biological markers is established, risk factors, therapeutic response, and functional deterioration; ii) potentially causal relations among symptoms based in symptom networks; and iii) a more precise psychopathology at the level of individuals instead of heterogeneous groups of patients.

There is some progress in the trials that research PTSD symptoms, by means of network structures, in different populations of patients (refugees, terrorist attack victims, adults with prior history of institutional abuse during their infancy, and adult victims of childhood sexual abuse).³¹⁻³⁴ While the methodological issues of these trials are complex, some promising results have been obtained in relation to the connections among different factors that integrate the network among symptoms, identifying those that are key. For example, in a group of severely traumatized refugees, the central symptom found was emotional cue reactivity and the intrusive phenomena were related to difficulty in remaining asleep. This clinical profile allows a better treatment approach.³¹

Within this approach it would be desirable to include temporal and dynamic data that facilitate the modeling of a temporal dynamic of the causal systems through time, and thus offer better prevention strategies or more specific interventions according to a more personalized perspective in medicine. It is also important to have more specific relationships available between symptoms and neurobiological variables. This new approach to psychopathology offers a change in paradigm from a static view as it occurs with the *DSM* or *ICD* systems, in which the symptoms are seen as passive consequences of the underlying disorders, to a dynamic one of causal influences and vicious circles as proposed by Armour et al.³⁵

The contributions of Research Domain Criteria

Since 2009, National Institute of Mental Health has been developing a classification system that includes diagnostic elements contributed by neuroscience, cognitive sciences and other areas that contribute information for a new nosology that facilitates more

personalized medicine for mental disorders. The Research Domain Criteria (RDoC) project, conceived as a research tool and not for clinical application, is based on the fact that mental disorders affect the brain and compromise specific areas and circuits that participate in behavior, cognition, and affectivity. As a result, the diagnosis must be wider than the *DSM* categories and also include symptoms as well as biological features.

The five domains into which the RDoC matrix is divided are the systems with negative value, systems of positive valence, cognitive systems, social processes, and alert/regulatory systems.

On the basis of this, we can understand that *DSM* categories cannot be considered as references, but, starting from information that is gathered, new diagnostic groups should arise based on symptoms with a neurobiological correlate, which could facilitate new therapeutic and preventive strategies. RDoC criteria for PTSD have been designed for adults as well as for children.^{36,37} After reviewing the criteria for PTSD research, Schmidt and Vermetten have proposed incorporating emotional and stress regulation constructs, and consciousness status, which will allow the better identification of some subtypes of PTSD.³⁸

The theoretical model of the hyperarousal subtype of PTSD is a good example to understand the complementation of the symptoms with the neurobiological basis that support them according to RDoC criteria.³⁹

The psychological trauma

Psychological trauma and one of its consequences, PTSD, include central elements of the human being. Vulnerability to having a maladaptive response in the face of a threat and resilience to adequately cope with a traumatic event are conditions that pertain to each subject with biological and psychosocial factors in its construction. Clinical exploration of a traumatic situation or the suspicion of its presence is difficult for the health professional as well as for the subject who has experienced it; and thus it is often avoided. Being the victim of a traumatic event and not being able to adapt, can be considered as a psychological or moral weakness, and could even constitute a stigma. It is not infrequent either that feelings of guilt arise, which makes it even more difficult for PTSD treatment.

In the biological response to a traumatic stressor, acute and chronic manifestations cause disorders of dif-

ferent body systems, which allow us to state that PTSD is considered a systemic pathology. In different groups studied, somatic comorbidities have been found with cardiovascular, gastrointestinal, and respiratory pathologies, with chronic pain, sleep disorders, obesity, metabolic syndrome, immunological disorders, and even accelerated aging. There is also a higher prevalence of risk factors such as high body mass index, and cigarette and alcohol consumption.⁴⁰⁻⁴⁷ All of these pathologies make PTSD treatment difficult, requiring comprehensive management.

As in other mental disorders, the spectrum concept has also been included in the area of psychotraumatology. With this approach, all the peritraumatic manifestations can be incorporated, from some initial isolated symptoms to the consolidation of a presentation of chronic progression. The different varieties of PTSD as acute/chronic, delayed appearance, simple/complex, hypervigilance/dissociated types, and its comorbidities: psychiatric (anxiety and depressive disorders, substance abuse, personality disorders among the most frequent) and medicine should allow for future development of constructs that hopefully will be more specific in the clinical as well as neurobiological aspects to be able to establish personalized treatments.

From the biological perspective it has been established that, while genetic molecular markers can give orientation in relation to the inheritance pattern to present a PTSD, a better indicator of the vulnerability to a peritraumatic response would be to provide phenotypes of traumatic stress spectrum and its genetic load.⁴⁸

One of today's challenges is to establish the true prevalence of PTSD among immigrant, refugee, and asylum-seeker populations. Different study results show very variable figures (9% to 86%),⁴⁹⁻⁵³ but in general these are higher than the local population. We have to consider that risk factors and traumatic events can appear before, during, or after migration has occurred. Thus, future studies require representative and comparable sample sizes (including time of the study, reliability of translations for the interviews, and the different assessment instruments that are used, cultural and religious aspects, etc), to have more precise prevalences.

Another neurobiological aspect to consider is the trans-generational transmission of PTSD, which can be transferred from the mother, a victim of child abuse, to the child. Moog et al found that newborns from these mothers presented a smaller intracranial volume with

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reduction in the cortex gray matter, which allows us to state that the consequences of child abuse can appear from intrauterine life onward.⁵⁴

Finally, it is important to highlight the initiative from the Veterans Administration since 2014, a brain tissue bank of patients that had PTSD that facilitates biological research of this pathology.⁵⁵

Conclusions

Considering the historical evolution of PTSD, from its first descriptions in soldiers to today's definitions that include neurobiological variables and network analysis models, there is no doubt that it constitutes a diagnostic entity. PTSD can be considered a transversal diagnosis through the different scenarios of the human activities. Nevertheless, it is a construct which is in full development conceptually, as well as in the challenge to clarify the different phenotypes that can be present.

The efforts of the neurosciences to discover the neuropathological mechanisms of psychological trauma, to identify biomarkers for vulnerability as well as for resilience, to isolate biological factors that allow the administration of specific drugs, and to be able to establish subgroups of PTSD and specific phenotypes associated with symptomatic profiles that today's classification systems propose, constitute important challenges for research in this area.

The onset of PTSD in victims of traumatic events will depend upon the characteristics of the event and neurobiological and psychosocial risk factors. The critics of the construct, especially from socio-political perspectives, do not take away the validity of observations by clinicians and researchers of patients in medical settings as well as in the community.

As PTSD constitutes a public health issue, it is the physician's responsibility to determine, with the diag-

nosis clinical rigor, and oversee that there is no overdiagnosis or underdiagnosis. PTSD as a psychobiological response to psychological trauma has, and will have, full validity in psychiatric nosology, independent of the name that is assigned to this syndrome.

Comorbidity in psychiatric diagnosis, as in somatic pathology, does not have to dampen PTSD diagnosis, but they are key factors to consider in treatment, since often these same aspects are the ones that make progression difficult and favor chronicity.

Controversies in relation to PTSD diagnosis in recent decades have been more a stimulus for research in different areas, than an obstacle for it. Patients, families, community, health care personnel, researchers, and society as a whole will always have something to say in relation to how a form of human suffering arises.

Today's greatest challenge is constituted by the treatment of the individual patient that presents with PTSD. Interventions are very diverse and go from initial trauma management with psychological first aid, drugs that can potentially prevent the development of PTSD, diverse psychotherapies and pharmacological combinations for the acute onset, eye-movement desensitization and reprocessing therapy, brain stimulation, virtual reality, internet interventions, exercise, meditation, yoga and mindfulness, and even experimental drugs.

Finally, the clinician should choose the most adequate therapy for the individual patient and clinical guidelines, studies of meta-analysis, expert's opinion, results of evidence-based clinical trials and other sources of therapeutic results as well as biological and psychosocial results which will be of use as the painter's palette to design the therapy customized for the patient and strive to keep alive the art component in the exercise of medicine. □

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