

Psychopathological intersection between obsessive-compulsive disorder and post-traumatic stress disorder: scoping review of similarities and differences

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Abstract

Introduction: Although post-traumatic stress disorder and obsessive-compulsive disorder have distinct diagnostic criteria, some psychopathological phenomena seem to be shared, which may lead to misdiagnosis and erroneous treatment decisions. This scoping review explores the psychopathological similarities and differences between these two disorders.

Method: The review complies with the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and included articles published in Portuguese, English, or Spanish in the last 50 years indexed in the PubMed database. Case-reports were excluded.

Results: Fifty-three studies with different designs were included (30 [56.5%] were cross-sectional studies; eight [15.1%] were case-control studies; one [1.9%] was a cohort study; three [5.7%] were clinical trials; nine [17%] were reviews/systematic reviews; and two [3.8%] were meta-analyses). The main psychopathological aspects described by the studies included were flashbacks x obsessions; avoidant behavior (AB); depressive, anxious, and somatic symptoms; sexuality, sleep, and appetite; psychiatric comorbidities; and suicidality. The intersection between clinical features seems to occur in the extrinsic psychopathological dimension.

Conclusion: The disorders' core psychopathological symptoms (intrinsic characteristics) are distinctly different, since flashbacks and obsessions are consequences of different predominant defective mental functions: the former derives from defective memory, the latter from defective thought. Along the same lines, the ABs observed in the two disorders are products of different purposes and inner necessities.

Keywords: Post-traumatic stress disorder, obsessive-compulsive disorder, psychopathology, scoping review.

Introduction

Although post-traumatic stress disorder (PTSD) and obsessive-compulsive disorder (OCD) have distinct diagnostic criteria according to the DSM-5,¹ they seem to share some psychopathological phenomena, which could lead to misdiagnosis and, thus, to erroneous treatment decisions.² For example, Green³ reported that anxiety, insomnia, distressing and recurrent dreams, flashback imagery, intrusive thoughts, irritability, poor

concentration, avoidant behavior (AB), and detachment were present for 70% of PTSD patients. While some of the abovementioned symptoms may also be present for OCD patients (anxiety, insomnia, intrusive thoughts, irritability, poor concentration, and ABs), others, such as flashbacks, are not always easily distinguished from obsessions. To make the comparison even more complex, patients with OCD report increased frequency and severity of stressful life events (SLE) (including traumatic events) in the 6 months prior to the onset of

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symptoms,⁴ and close to 60% of OCD patients mention some SLE, making their occurrence a risk factor for comorbidity of PTSD with OCD.⁵

Trying to understand the psychopathological overlap in PTSD-OCD comorbidity, Auxéméry⁶ postulates that when PTSD patients re-experience, they become anxious; that hyper arousal increases anxious reactivity; and that avoidance strategies may increase anticipatory anxiety, reinforcing the existence of a “post-traumatic OCD” and also of many other “post-traumatic anxiety disorders.” Rather than OCD, Freud would probably have used the term “obsessional neuroses,” since after a traumatic event (such as, for example, a patient who heard from a fellow army officer a description of a Chinese torture method in which a large pot containing a live rat was strapped to the buttocks of the victim, and the rat, encouraged by a red-hot poker, would gnaw its way out through the victim’s anus), patients would exacerbate some defense mechanisms, such as rationalization, doubt, undoing, and displacement.⁷ However, Lafleur et al.⁸ did not find a relationship between the specific type of OCD symptoms exhibited and a history of psychologically traumatic events in children with OCD. It has also been argued that the severity of the traumatic event could predict obsessive-compulsive symptoms (OCS).⁹ More recently, after reporting that 19.1% of 1,001 OCD patients also had PTSD, Fontenelle et al.¹⁰ elegantly proposed a continuum of distinct phenotypes of OCS in this context, ranging from pure OCD, passing through pre-traumatic OCD, post-traumatic OCD with previous OCS, and post-traumatic OCD without previous OCS, as can be seen in the adapted Figure 1.¹⁰ On the other hand, other authors found no relation between

traumatization or PTSD and OCD when compared to healthy controls.¹¹

Besides the possibility of misdiagnosis, the relevance of the intersection between PTSD and OCD lies in the fact that some specific aspects of the comorbidity could interfere with treatment response or adherence,¹² such as the association with a lower level of insight,¹³ higher levels of OCS severity,¹⁰ higher suicidality,^{10,14-16} and higher prevalence of psychotic features,¹⁷ including dissociation.¹⁸⁻²¹ However, unexpectedly, Shavitt et al.²² found that OCD patients with PTSD exhibited a greater magnitude of response when compared with OCD patients without PTSD in specific OCD symptom dimensions.

Although other literature reviews have been carried out on this comorbidity, none has comprehensively explored the intersection between the psychopathological aspects of the two conditions, with a special focus on differentiating between symptoms that aid in differential diagnosis in a didactic manner. Thus, the main objective of this review is to explore the psychopathological similarities and differences between the two disorders, specifically comparing aspects such as flashbacks and obsessions; the occurrence of ABs; the presence of depressive, anxious, and somatic symptoms; sleep pattern; appetite; sexuality; psychiatric comorbidities, and suicidality, with the intention of providing a basis for future neurobiological and therapeutic studies.

Methods

This scoping review complies with the recommendations of the Preferred Reporting Items

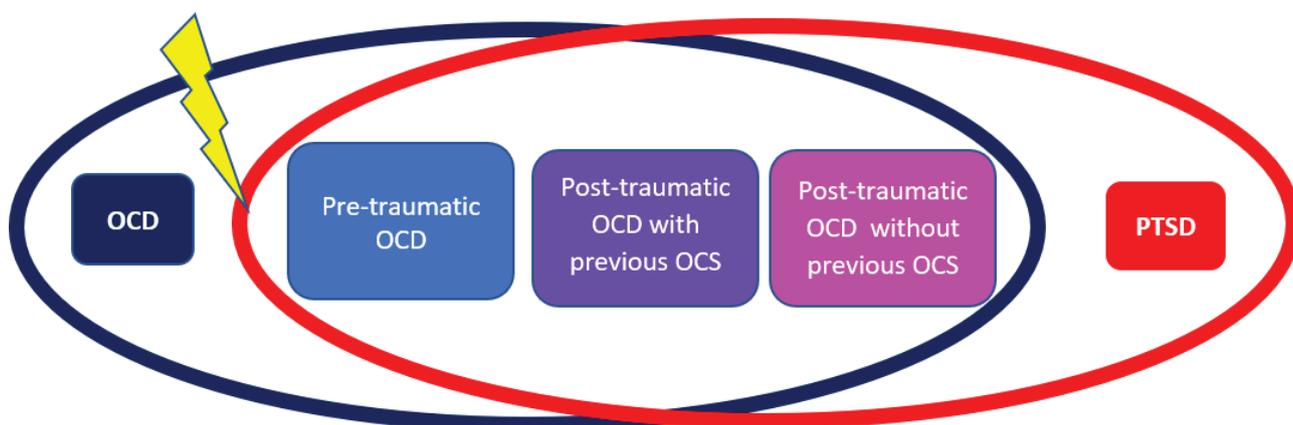


Figure 1 - Illustration of a possible psychopathological intersection continuum between obsessive-compulsive disorder (OCD) (dark blue circle) and post-traumatic stress disorder (PTSD) (red circle). After a traumatic event (yellow bolt), three situations may occur: 1) PTSD in patients with pre-traumatic OCD (real comorbidity) (light blue square); 2) PTSD in patients with previous obsessive-compulsive symptoms (OCS) (purple square); and 3) post-traumatic OCD (pink square). Neurobiologically, post-traumatic OCD may be linked to PTSD (adapted from Fontenelle et al.¹⁰).

for Systematic Reviews and Meta-Analyses (PRISMA)²³ and was based on the following Boolean searches: "Obsessive-Compulsive Disorder AND Post-Traumatic Stress Disorder," "Obsessive-Compulsive Disorder AND trauma," "obsession AND Post-Traumatic Stress Disorder," "obsession AND trauma," "obsession AND flashback," and "Obsessive-Compulsive Disorder AND flashback." The inclusion criteria were: journal articles published in Portuguese, English, or Spanish, in the last 50 years (1971-2021), indexed on the PubMed database, with abstracts available, and involving humans. Case-studies were excluded. Literature searches and selection were conducted by three researchers, two of them acting as independent and blinded reviewers (RR and JVBF). First, a search was conducted on the PubMed database. All articles and abstracts initially retrieved (n = 592) were analyzed and those that were appropriate were selected. Both reviewers used the same inclusion and exclusion criteria mentioned above and compared their results

with one another. Any disagreements that occurred during the initial process of analysis and selection were resolved by a third researcher (YAF). While reading the full text of the remaining papers, the authors searched for the following: any definitions or psychopathological features of the terms "obsession" and "flashbacks"; presence and description of AB; any clinical aspect or mention of depressive, anxious, or somatic symptoms; any mention of specific features of sleep, appetite, or sexuality due to the core psychopathological aspects of the disorders (but not due to the treatment); the main psychiatric comorbidities of both disorders; and any descriptive aspect of suicidality. The references of the papers selected were also reviewed. The results of the search are illustrated in Figure 2. No restrictions were established for the references the authors used to help them formulate the discussion section. Table S1 (online-only supplementary material) lists details of the search results.

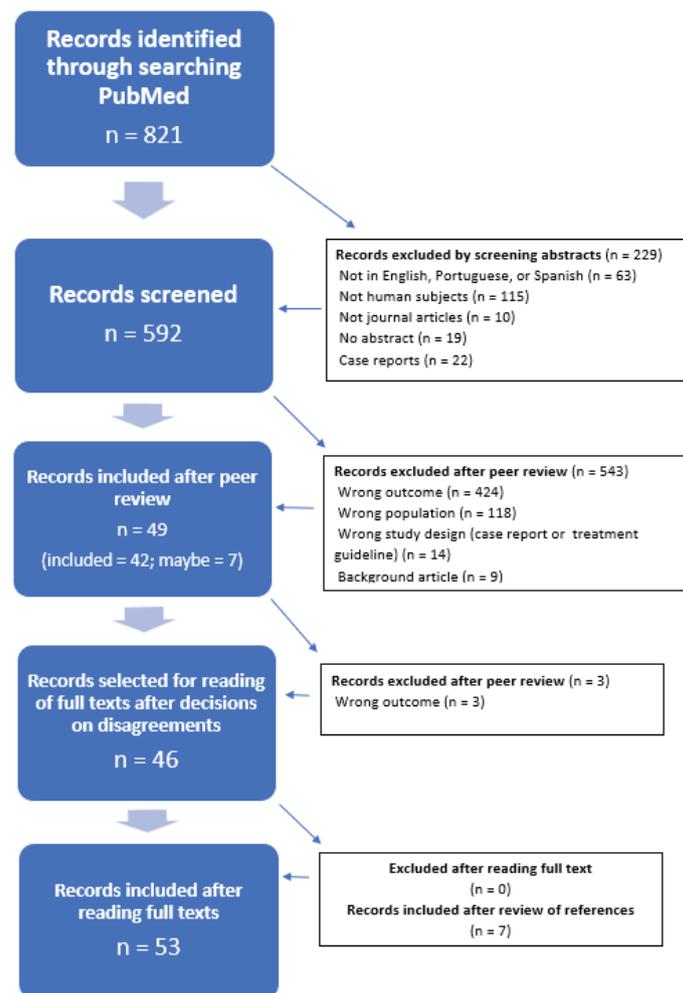


Figure 2 - Flowchart illustrating study selection according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Results

Fifty-three studies with a variety of research designs were included in this psychopathological review: 30 (56.5%) were cross-sectional studies; eight (15.1%) were case-control studies; one (1.9%) was a cohort study; three (5.7%) were clinical trials; nine (17%) were reviews/systematic reviews; and two (3.8%) were meta-analyses. Table 1 summarizes the studies reviewed, indicating each study's research design, population, and sample size or number of studies or references reviewed, and the OCD and PTSD instruments used to investigate the main clinical symptoms of both disorders. The main results are presented and discussed below Table 1, but, to summarize, the main psychopathological aspects of OCD and/or PTSD aspects described in the studies were as follows: only five papers compared the phenomenology of the intersection between the concepts of flashbacks and obsessions; the occurrence of AB in both disorders was investigated in only one study; four authors studied the concomitant depressive symptoms in both disorders; the concomitant anxious and somatic symptoms in both disorders were covered in 19 studies; aspects of sleep (six papers), appetite (four papers), and sexuality patterns (nine papers) have not yet been compared directly between OCD and PTSD in the literature; and the most common psychiatric comorbidities of each disorder were described in 14 studies, including suicidality (specifically in 12 studies), which was considered a transdiagnostic phenomenon for the purpose of this study.

The OCD and PTSD specific instruments most used were (see Table 1 for further details): 1) for OCD: Y-BOCS (Yale-Brown Obsessive Compulsive Scale); DY-BOCS (Dimensional Yale-Brown Obsessive-Compulsive Scale); DOCS (Dimensional Obsessive-Compulsive Scale); and R-OCI or OCI (Revised Obsessive-Compulsive Inventory Scale); 2) for PTSD: PDS (Posttraumatic Stress Diagnostic Scale); DES (Dissociative experience scale); and CTQ or CTQ-SF (Childhood Trauma Questionnaire, full version or Short Form; and PCL-5: PTSD Checklist for DSM-5; 3) Non-specific instruments (used to diagnose or to confirm diagnoses): SCID-I (Structured Clinical Interview for DSM-IV Axis I disorders); and SADS (Schedule for Affective Disorders and Schizophrenia, adult or Kiddie forms; and other psychometric instruments: MFDS (Multidimensional Fear of Death Scale); C-LFDS (Collett-Lester Fear of Death Scale). The DY-BOCS was only used by Brazilian authors, and only one team of authors used the MFDS and C-LFDS (in three different papers).

Discussion

Although only one paper directly compared OCD and PTSD patients,³⁷ most of the authors used one group of patients (OCD or PTSD) or "at-risk healthy subjects" to investigate the occurrence of symptoms (using validated instruments) specific to the other diagnostic group. Thus, it was also necessary to select those papers to help to understand the scoping concepts considered as possible confounding issues in differential diagnosis between OCD and PTSD.

Psychopathological intersection between OCD and PTSD

Flashbacks and obsessions

Although conceptually easy to distinguish, both phenomena share some features, which may, in fact, contribute to some patients finding it difficult to differentiate between them on self-report measures.²

Flashbacks. Pierre Janet described how memories of traumatic experiences are dissociated from normal consciousness, resulting in powerful and uncontrollable re-enactments of the events.⁶¹ The most striking characteristics of this traumatic re-experiencing in PTSD are its involuntary and uncontrollable nature, the strong sensory impressions, and the sense of "nowness," or of the event occurring in the present.³¹ The DSM-5 and the proposed ICD-11 PTSD criteria have adopted a definition in which flashbacks are seen as existing along a continuum between extreme episodes (in which individuals even lose contact with their surrounding environment for periods of minutes or more) and any intrusive memories that are accompanied by a sense of reliving the event in the present.^{1,31,62} Some patients describe flashbacks as "a type of memory that you experience as markedly different from those memories of the event that you can retrieve at will, and in some cases, leading even to distorted time perception."³¹ Currently, there is enough evidence to support the position that flashbacks involve a perceptual memory system, which is distinct from ordinary episodic memory.³¹ While vivid memories are associated with additional activity in medial temporal lobe structures (such as the hippocampus), dual representation theory predicts that flashbacks may be associated with increased activity in motor areas and the insula and amygdala, but reduced activity in the medial temporal lobe.^{31,63}

Obsessions. Esquirol described OCD as a disorder in which the sufferer is "chained to actions that neither reason nor emotion have originated, that conscience rejects, and will cannot suppress."⁶⁴ Pierre Janet

Table 1 - Summary of the 53 studies selected for inclusion in the review

Study	Study design	Population (n)	Specific OCD/PTSD instruments used
Afari ²⁴	Meta-analysis	71 studies	-
Auxéméry ⁶	Review	89 references	-
Avdibegovic ²⁵	Cross-sectional	PTSD (n = 217)	HTQ
Ay ¹⁵	Cross-sectional	OCD (n = 67)	Y-BOCS, CTQ
Badour ²⁶	Cross-sectional	PTSD (n = 49)	PDS, OCI-R
Barzilay ¹⁷	Cross-sectional	Healthy youths (n = 7,054)	Kiddie SADS
Bond ²⁷	Cross-sectional	Spouses (n = 31) and close relatives (n = 25) of hospitalized patients with acute burns	MPSS-SR
Brady ²⁸	Review	77 references	-
Brakoulias ²⁹	Cross-sectional	OCD (n = 3,711)	Y-BOCS, SCID-I
Brewin ³⁰	Review	51 references	--
Brewin ³¹	Review	47 references	-
Ferrão ³²	Case-control	OCD (n = 1,001)	DY-BOCS, Y-BOCS, SCID-I
Fontenelle ²¹	Case-control	OCD (n = 34)	THQ, DES, OCI
Fontenelle ¹⁰	Case-control	OCD (106 patients with OCD after PTSD [post-traumatic OCD], 41 patients with OCD before PTSD [pre-traumatic OCD], and 810 OCD patients without PTSD [non-traumatic OCD])	DY-BOCS, Y-BOCS, SCID-I
Forbes ³³	Cross-sectional	PTSD (n = 835)	DSM-IV criteria
Fostick ³⁴	Cross-sectional	Veterans	DSM-IV criteria
Franklin ²	Case-control	Veterans	DOCS, PCL-5
Gershuny ³⁵	Open clinical trial	OCD (n = 15)	DSM-IV criteria
Gershuny ¹²	Cross-sectional	OCD (n = 104)	Naturalistic retrospective chart reviews of pre-treatment clinical intake files
Grabe ¹¹	Cross-sectional	OCD (n = 210), controls (n = 133)	German version of the SADS - Lifetime Version for Anxiety Disorders (DSM-IV)
Gros ³⁶	Cross-sectional	Veterans (n = 854)	MINI, PDS
Huppert ³⁷	Case-control	OCD (n = 128), PTSD (n = 109), other anxiety disorders (n = 63), college students (n = 40)	R-OCI, PDS
Iverach ³⁸	Review	231 references	-
Kessler ³⁹	Cross-sectional	National Comorbidity Survey (n = 5,877 persons)	DSM-III-R PTSD module from the Diagnostic Interview Schedule and the CIDI
Khosravani ¹⁶	Case-control	OCD (n = 70) and controls (n = 60)	CTQ-SF, Y-BOCS, DOCS
Kroska ⁴⁰	Cross-sectional	At-risk adolescents (n = 51) and a group of college students (n = 400)	ETI-SR-SF, AFQ-Y , R-OCI
Lafleur ⁸	Cross-sectional	OCD (n = 278)	CY-BOCS, Kiddie SADS-E (Epidemiological Version)
Liu ⁴¹	Cross-sectional design with gene-environment interaction	PTSD (n = 1,131)	PCL-5
Lochner ¹⁹	Case-control	OCD (n = 110)	DES, CTQ
Lochner ²⁰	Cross-sectional	OCD (n = 83)	DES, CTQ
Mataix ⁴²	Review (editorial)	6 references	-
Menzies ⁴³	Cross-sectional	OCD (n = 171)	MFDS, VOICI, C-LFDS
Menzies ⁴⁴	Cross-sectional	OCD (n = 98)	MFDS, VOICI, C-LFDS
Menzies ⁴⁵	Cross-sectional	OCD (n = 79)	MFDS, VOICI, C-LFDS
Merrill ⁴⁶	Cross-sectional	OCD (n = 104)	Naturalistic retrospective chart reviews of pre-treatment clinical intake files
Miller ⁴⁷	Meta-analysis	24 studies	-
Morina ⁹	Cross-sectional	PTSD (n = 51)	R-OCI, PDS
Nacasch ⁴⁸	Cross-sectional	PTSD (n = 44)	SCID
Nissen ⁴⁹	Cross-sectional	OCD (n = 317)	Medical records
Ojserkis ⁵⁰	Cohort	OCD (n = 266)	YBOCS, SCID, DSM-IV
Pellegrini ⁵¹	Systematic review	61 studies	-
Richards ⁵²	Review	290 references	-
Ruscio ⁵³	Cross-sectional	National Comorbidity Survey (n = 2,073 persons)	DSM-IV

Continued on next page

Table 1 (cont.)

Study	Study design	Population (n)	Specific OCD/PTSD instruments used
Semiz ¹⁸	Cross-sectional	OCD (n = 120)	YBOCS, TEC, DES
Shavitt ²²	Randomized clinical trial	OCD (n = 219)	YBOCS, DYBOCS
Sikharulidze ⁵⁴	Cross-sectional	Veterans (n = 2,799)	PCL-5
Stein ⁵⁵	Review	171 references	-
Torres ¹⁴	Cross-sectional	OCD (n = 582)	DY-BOCS, Y-BOCS, SCID-I.
Torres ⁵⁶	Cross-sectional	OCD (n = 955)	DY-BOCS, Y-BOCS, SCID-I
Torresan ⁵⁷	Cross-sectional	OCD (n = 858)	DY-BOCS, SCID-I
Unsel ⁵⁸	Cross-sectional	Adult cancer patients (n = 1,017)	PTSS-10
Valderrama ⁵⁹	Case-control	OCD (n = 605)	
Wheaton ⁶⁰	Randomized controlled trial	OCD (EX/RP [n = 40]), risperidone (n = 40), and placebo (n = 20))	SCID-I

Population studied and instruments used: only one (2.4%) of the 42 studies that included patients/subjects directly compared obsessive-compulsive disorder (OCD) and post-traumatic stress disorder (PTSD) patients; 25 (29.5%) included OCD patients; six (14.3%) included PTSD patients; four (9.5%) included war veterans (whom authors infer to have PTSD); and six (14.3%) investigated healthy specific or community volunteers.

EX/RP = exposition/response prevention; n = sample size.

Non-specific instruments: AFQ-Y = Avoidance and Fusion Questionnaire-Youth; CIDI = Composite International Diagnostic Interview; C-LFDS = Collett-Lester Fear of Death Scale; DSM-IV = lifetime Diagnostic and Statistical Manual of Mental Disorders, 4th ed.; Kiddie SADS-E = Kiddie Schedule for Affective Disorders and Schizophrenia (Epidemiological Version); MFDS = Multidimensional Fear of Death Scale; MINI = Mini International Neuropsychiatric Interview; SADS = Schedule for Affective Disorders and Schizophrenia; SCID-I = Structured Clinical Interview for DSM-IV Axis I disorders.

Obsessive-compulsive disorder instruments: CY-BOCS = the Children's Yale-Brown Obsessive Compulsive Scale; DOCS = the Dimensional Obsessive-Compulsive Scale; DY-BOCS = Dimensional Yale-Brown Obsessive-Compulsive Scale; R-OCI or OCI = Revised Obsessive-Compulsive Inventory Scale; VOCI = Vancouver Obsessive Compulsive Inventory subscale; Y-BOCS = the Yale-Brown Obsessive Compulsive Scale.

Post-traumatic stress disorder instruments: CTQ = Childhood Trauma Questionnaire; CTQ-SF = Childhood Trauma Questionnaire-Short Form; DES = dissociative experience scale; ETI-SR-SF = Early Trauma Inventory Self-Report Short Form; HTQ = Harvard Trauma Questionnaire; MPSS-SR = Modified PTSD Symptom Scale; PCL-5 = PTSD Checklist for DSM-5; PDS = the Posttraumatic Stress Diagnostic Scale; TEC = Traumatic Experiences Checklist; THQ = Trauma History Questionnaire.

described how obsessions and compulsions develop over three phases: initially characterized by a "psychasthenic" state (indecisiveness, need for perfectionism and orderliness, and restricted emotional expression); followed by a stage of "forced agitations" (need for symmetry, repeating, and checking); and, finally, manifestations of frank obsessions and compulsions (aggressive, religious, and sexual themes).⁶⁵ Whereas flashbacks are classified as a memory disorder, the DSM-5 and ICD-11 define an obsession as a thought disorder: "recurrent and persistent thoughts, images, urges or impulses that are experienced as intrusive and unwanted, and that in most individuals cause marked anxiety or distress."^{1,62} Obsessions may have any universal human content, including aggressive/violence/catastrophes, contamination, sexual/moral/religious, symmetry/order/arrangement, hoarding and many others.⁶⁵ Rachman⁶⁴ postulates that obsessions are caused by catastrophic misinterpretations of the significance of one's unwanted intrusive thoughts. Certain considerations are needed to fully understand the factors that precipitate intrusive thoughts and those linked to vulnerability to them.⁶⁶ Vulnerability may be due to dysregulation of one or more than one of the following neurocircuits: 1) the fronto-limbic circuit which is involved in producing emotional responses, such as fear and anxiety; 2) the sensorimotor circuit which produces and controls motor behavior and integration of sensory information; 3) the ventral cognitive circuit

which is involved in self-regulatory behavioral control; 4) the ventral affective circuit which processes and responds to reward; and 5) the dorsal cognitive circuit which mediates executive functions (e.g., working memory, planning) and regulation of emotion.⁶⁶⁻⁶⁸ Since it can be difficult to dissociate behavior and cognition in clinical practice (one leads to the other and vice-versa), we decided to describe all five circuits here, even when identifying that some circuits seem to be more behavioral (compulsive) than cognitive (obsessive).

Thus, Table 2 attempts to summarize the most prevalent similarities and differences between psychopathological aspects of flashbacks and obsession. According to Fontenelle et al.,¹⁰ comorbidity between PTSD (flashbacks) and OCD (obsessions) is not uncommon, leading some of the features described below to be present in the same patient, at least for a period of time.

Avoidant behavior

An AB can be understood as any voluntary act aimed at preventing real or imaginary contact with situations, places, objects, thoughts, or images perceived as dangerous and/or with the potential to activate anxiety or undesirable cognitive phenomena (thoughts or memories).⁶⁷ Such ABs can be explained by the "Mowrer two-stage model"⁶⁸: in a first stage, an initially neutral stimulus becomes an aversive stimulus due to successive pairings of that stimulus with unpleasant

emotions (classic conditioning); in a second stage, the individual starts to avoid or rid themselves of the discomfort caused by the stimulus now conditioned. If performing the AB is followed by relief, the probability of repeating it increases (negative reinforcement or operant conditioning),⁸¹⁻⁸³ turning it into a possible mechanism of the association between trauma and obsession-compulsion.⁴⁰

According to the DSM-5, ABs are essential for a diagnosis of PTSD, but not for OCD.¹ Forbes et al.³³ postulated that requiring active avoidance helped to define the unique aspects of PTSD and reduced spurious diagnoses of PTSD in those with depression (reducing this comorbidity by 44%). Corroborating this, Liu et al.⁴¹

described a relation between the serotonin transporter gene-linked polymorphic region (5-HTTLPR), interacting with trauma exposure to increase general risk for symptoms of PTSD, including ABs. Meanwhile, AB is described in almost 70% of OCD patients⁶⁰ and has been related to higher severity, to the contamination/cleaning subtype, and to a reduced probability of remission.⁴⁹ Thus, it is unequivocal that AB may represent not only a structural, but also a learned psychopathological feature which interferes in the presentation and in the treatment response. For PTSD, the ABs seems to happen *a posteriori* (based on reasoning from known/real past traumatic facts or events rather than on assumptions or predictions), as an attempt to avoid triggering

Table 2 - Psychopathological clinical aspects of flashbacks and obsessions: similarities and differences

	Flashbacks	Obsessions
Related to a traumatic event ^{1,5,8,11,17,21,26,38,55,60,69-74}	+++	+
Involuntary/intrusive nature ^{1,2,6,11,24-30}	+++	+++
Uncontrollable/difficult to control nature ^{1,2,6,11,24-30}	+++	+++
Intermittent nature ^{1,2,6,11,24-30}	+++	+++
Sense of "nowness" ^{1-3,6,24-27}	+++	-
Loss of contact with the surrounding environment for periods of minutes or more ²⁴⁻²⁷	+++	++
Distorted time perception ^{1,2,6,11,24-30}	+++	+
Interferes with attention/concentration ^{1,2,6,11,24-30}	+++	+++
Indecisiveness/doubt ^{1,11,24-37}	-	+++
Causes marked anxiety or distress ⁴⁹⁻⁶⁵	+++	+++
Leads to somatic symptoms ⁶²⁻⁶⁵	+++	+++
Recurrent and persistent ^{1,2,6,11,24-37,67,68}		
Thoughts	-	+++
Images	+++	+++
Sounds	+++	+
Smells	+++	-
Tastes	++	-
Urges	-	+++
Impulses	+++	+++
Occurs while sleeping ⁷⁵⁻⁸⁰	+++	-
May become chronic ^{1,2,6,11,24-30}	+	+++
Egosyntonic (poor insight) ^{1,13,24-26}	+	+++
Genetic inheritance/familial ^{1,26,29}	-	+++
Neurocircuit dysfunctions ^{1,6,10,13,20,25-27,29,31,32}		
Motor areas (supplementary motor area)	+++	+++
Insula	+++	+++
Amygdala	+++	++
Medial temporal lobe	+++	+++
Prefrontal cortex	-	+++
Striatum (putamen and caudate)	-	+++
Thalamus	-	+++
Inferior frontal gyrus	-	++
Orbitofrontal cortex	-	+++
Nucleus accumbens	-	+++

+ = weakly related/low possibility/prevalence; ++ = moderately related/ moderate possibility/prevalence; +++ = strongly related/high possibility/prevalence.

negative memories or feelings directly related to the event. Such an AB is easily understood as reasonable or rational by the patient or by anybody else. In contrast, in OCD, ABs occur to prevent suffering from imaginary or exaggerated harmful situations, places, objects, or thoughts. Sometimes, but not always, OCD patients perceive the motivation underlying the AB to be reasonable/rational, but other people almost always easily understand it as nonsense or even absurd and do not agree with the AB.

Depressive symptoms

Depressive symptoms are prevalent in patients with OCD and in patients with PTSD.¹ Accordingly, major depressive disorder (MDD) is the most common comorbidity in OCD patients (up to 2/3 may experience a depressive episode during their lifetime).^{1,84,85} In PTSD, depressive symptoms are also quite common, since “negative mood” is part of the diagnostic criteria for this disorder (Criterion D in the DSM-5). It should be noted, however, that depressed mood in PTSD is associated with a traumatic event, but it can lead to distorted and negative cognitions in relation to the event, decreased interest in activities, and feelings of alienation or inability to feel positive emotions,¹ mimicking major depression and making differential diagnosis complex and difficult to accomplish.⁸⁶ We can speculate that major depression in OCD may occur due to the severity, chronicity, or even the specific content of the obsessions, which may lead patients to feel low self-esteem, guilt, or shame, since the content of some obsessions are not morally or socially acceptable (e.g., sexual, aggressive, blasphemous).

Gershuny et al.¹² and Huppert et al.³⁷ hypothesized that, in addition to the intersection with psychopathological symptoms, depressive symptoms could be a mediating factor in this comorbidity, since the rate of diagnosis of PTSD was higher in patients with OCD who also suffered from depression.^{35,37} Corroborating this hypothesis, in a study with 104 individuals who had this comorbidity, Merrill et al.⁴⁶ found that depressed patients had higher levels of OCS and greater severity of post-traumatic stress symptoms. However, Morina et al.⁹ found that only the severity of the posttraumatic stress symptoms was predictive of OCS, whereas number of traumatic life event types and depressive symptoms were not. How depression may interconnect PTSD and OCD, however, needs further investigation.

Anxious and somatic symptoms

As with depressive symptoms, there is also a high prevalence of anxiety in both OCD and PTSD. The

association with OCD is so clear that in the DSM-III, III-R, and IV it was considered to be one of the anxiety disorders and these symptoms were considered key to syndromic diagnosis.⁵⁵ Despite the change in DSM-5, many experts questioned the decision, considering that anxiety is indeed a central aspect of the clinical presentation of OCD.^{1,42} An association also occurs in PTSD, since evidence shows that people who experience the disorder are at higher risk of anxiety symptoms.^{27,44} Even though the clinical presentation of PTSD can vary according to the severity of the symptoms and to the nature of the trauma experienced, anxiety is certainly a prevalent symptom. For example, 69% of the spouses of patients admitted to an intensive care unit (ICU) had clinically restricted anxiety.⁸⁷

Iverach et al.³⁸ emphasize that fear of death is part of the anxiety spectrum, but can be considered as a transdiagnostic symptom since it is present in several mental disorders. While this fear can lead to safer behaviors and the search for a more meaningful life, when intense or excessive it causes extreme anxiety and leads to maladaptive behaviors.⁴³ In OCD, the fear of dying can be clear in some cases, as in the contamination dimension, for example, the fear of dying or of causing death because of being contaminated is what motivates suffering and repetitive behaviors. The same occurs in the aggressiveness dimension, where the fear of death is central to repetition of symptoms. One example of this is when patients over-check the windows and doors of the home, for fear that a burglar will invade the home and put their lives at risk.^{88,89} Anxiety related to the fear of dying seems to be more prevalent in some specific dimensions, such as contamination, checking, and hoarding, or in patients with obsessive predominance.⁴⁴ Badour et al.²⁶ demonstrated that the intensity of peritraumatic self-focused disgust was significantly related to contamination-based OC symptoms while peritraumatic fear and other-focused disgust were related to posttraumatic stress symptoms. Menzies et al.⁴⁵ suggested in a study with 98 patients with OCD that the presence of fear of dying may increase the risk of comorbidity with anxiety disorders and influence the trajectory of the disorder.

In the clinical presentation of PTSD, autonomic and anxiety symptoms are also more the rule than the exception. Criterion B of DSM-5 mentions that there may be intrusive memories, distressing dreams or intense physiological reactions and Criterion E includes symptoms such as hypervigilance and exaggerated startle response.^{1,44,90} Such symptoms are clinically associated with anxiety, as well as with ABs that are also common in clinical practice and require special treatment in PTSD.³ Since anxiety symptoms are part

of both OCD and PTSD and can also be a comorbid disorder, regular symptom monitoring is important, requiring individualized investigation.^{44,90}

In addition to the correlation with anxiety, associations between PTSD and somatic syndromes have been reported in the literature. Exposure to traumatic events seems to be associated with a higher prevalence of fibromyalgia, chronic pain, and chronic fatigue syndrome.^{24,91} The DSM-5 description of the disorder itself explains that dissociative symptoms and flashbacks are so prevalent in the clinical condition that they are part of the diagnostic criteria.¹ In addition, somatic complaints such as headache, body aches, and gastrointestinal symptoms tend to be more intense in individuals with PTSD than in those without this diagnosis.²⁵ However, Sikharulidze et al.⁵⁴ argue that this correlation is mediated by depressive and anxious symptoms, since it loses statistical significance when patients with PTSD are controlled for these symptoms. Although some somatic obsessions may be present in OCD, the evidence of the relationship between OCD and somatic disorders is not robust as with PTSD. Valderrama et al.⁵⁹ even described, for example, that when a somatic symptom or disorder (such as body dysmorphic disorder, for example) occurs with OCD, PTSD would probably also be present, making it a predictor of presence of BDD symptoms among OCD individuals who have experienced at least one lifetime traumatic event. The absence of evidence is interesting, since most patients with OCD (60-70%) have sensory phenomena, which consist of physical sensations – often aversive – that lead to compulsive behavior.³² This phenomenon has a somatic characteristic, considering that patients actually “feel” the discomfort, even without a real stimulus of the same intensity.^{32,92} Thus, sensory phenomena could be misdiagnosed as “somatization,” but this seems not to occur. One possibility that could explain this is that, when a patient is diagnosed with OCD, clinicians may consider that somatization is part of the disorder and not a comorbidity. Feske⁹³ and Otte⁷⁵ speculate that somatization may also be mediated by depressive symptoms and be causally related to PTSD or OCD.

To further understand the relationship between anxiety and depression, Lee et al.⁷⁶ examined the factor structure of the combined items from the Beck Anxiety Inventory (BAI) and the Beck Depression Inventory-II (BDI-II) in a psychiatric outpatient population. They suggested that the symptoms could be grouped into five factors: somatic anxiety, cognitive depression, somatic depression, subjective anxiety, and autonomic anxiety.⁷⁶ Along the same lines, extrapolating their results, but to better understand how depressive and anxious symptoms can present in PTSD and/or OD, we could conjecture (but based on clinical experience) that depressive and anxious symptoms could be grouped into cognitive, somatic, autonomic, behavioral (including AB), and emotional (subjective) subgroups, which could help us to distinguish these clusters in PTSD and OCD patients, as summarized in Table 3. Nonetheless, this phenomenological hypothesis requires appropriate future investigation.

Sexuality, appetite, sleep pattern

Obsessive compulsive disorder and PTSD may both interfere in sexuality, appetite, and sleep patterns. Sexuality is often ignored in clinical practice because the therapeutic focus is on symptom reduction, but it has gained attention in the recent literature on the subject.⁷⁷ Evidence shows that individuals with OCD tend to suffer from more dysfunction and less sexual satisfaction than the general population, which contributes to worse quality of life.^{78,79} Many factors may be involved in this relationship, but Pozza et al.⁹² pointed out that patients with the dimension of contamination or excessive sensitivity to disgust seem to be more prone to sexual inhibition, due to anxiety related to imaginary risks. In addition, the DSM-5 emphasizes that in the sexuality dimension, patients may present obsessions, mental images of sexual characteristics that cause suffering, which leads to a relationship with impaired sexuality.¹ When depressive symptoms are associated with the condition, impairment of sexual quality of life is expected, since sexual symptoms also occur in MDD.⁹⁴ OCD also seems to be associated with the compulsive sexual disorder proposed in the ICD-11,⁶² which can

Table 3 - Comparison of occurrence of depressive and anxious symptom subtypes in PTSD and OCD^{48-65,69-74,81-83}

Depressive and anxious symptom clusters	PTSD	OCD
Cognitive	+++	+++
Somatic	+++	+
Autonomic	++	+++
Behavioral	++	+++
Emotional (subjective)	+++	++

+ = weakly related/low possibility/prevalence; ++ = moderately related/moderate possibility/prevalence; +++ = strongly related/high possibility/prevalence; OCD = obsessive-compulsive disorder; PTSD = post-traumatic stress disorder.

also contribute to low sexual satisfaction.⁹⁵ Evidence also points to higher levels of sexual dissatisfaction and dysfunction in PTSD patients.^{96,97} It is possible that when the traumatic PTSD event is of a sexual nature, this association is even more prevalent, considering that intrusive memories, flashbacks, and negative cognitions are causally related to the event, harming future relationships.⁹⁸

Behavioral changes associated with eating occur in many disorders, most of the time causing higher rates of obesity or overweight. However, OCD does not appear to increase this risk, although evidence on the topic is still scarce.⁹⁹ On the other hand, there is much evidence in the literature that PTSD is indeed correlated with obesity and a higher risk of metabolic syndrome.^{69,100-102} It is also possible to speculate that weight gain, obesity, or metabolic syndrome may occur in PTSD or OCD as a consequence of psychopharmacological therapies, since most of the medicines used (antidepressants, mood stabilizers and antipsychotics) seem to increase appetite.⁷⁰

Sleep disorders are prevalent in PTSD, but in addition to occurring after the traumatic event, they also seem to be considered predictive of development of the disorder.^{52,101,102} Like nightmares, insomnia seems to be an important symptom of PTSD, given that cognitive

behavioral therapy aimed at reducing insomnia also reduces PTSD symptoms.¹⁰³ OCD patients also present marked sleep impairment, with severity varying according to the severity of the clinical condition. The type of sleep impairment varies between patients, from reduction in total sleep time or sleep efficiency to delayed specific sleep phases and impairment seems more frequent in patients with more depressive symptoms.^{104,105}

Psychiatric comorbidities

According to the American Psychiatric Association (APA), approximately 3.5% of American adults are affected by PTSD every year, and it is estimated that one in 11 will have a lifetime diagnosis of PTSD.^{1,28,39} The lifetime prevalence of OCD is estimated to be around 1.5%.⁷¹ However, "pure" occurrence is not the rule with either disorder; PTSD has a high rate of comorbidity: 16% of patients have one psychiatric comorbidity, 17% have two, and 50% have three or more; OCD also has a high rate of psychiatric comorbidities, which can exceed 90% of patients.^{53,56,72-74} Since a psychiatric comorbidity may determine a specific psychopathological presentation and can influence the conventional treatment response, we present the most common comorbidities in PTSD and OCD in a comparison table (Table 4). As can be seen,

Table 4 - Comparison of the main psychiatric comorbidities for PTSD and OCD

	PTSD (%)	OCD (%)
Any psychiatric disorder	37 to 56 ⁷⁸	90 ⁸⁶ to 92 ⁷⁹
Any anxiety disorder	35 to 54 ⁷⁸	76 ⁸⁶
Generalized anxiety disorder	13 to 15 ⁸⁰	8 ⁸⁶ to 35 ⁷⁵
Panic disorder	11 to 13 ⁸⁰	13 to 56 ⁹⁴
Agoraphobia	20 ⁷⁸	8 ⁸⁶
Simple phobia	30 ⁷⁸⁶	32 ⁷⁵ to 43 ⁸⁶
Social phobia	10 to 28 ⁸⁰	19 ⁹⁵ to 44 ⁸⁶
Affective disorders	56 to 78 ⁷⁸	63 ⁸⁶ to 70 ⁷⁵
Major depression	48 ⁹⁶ to 60 ⁷⁸	28 ⁷⁹ to 70 ⁷⁵
Dysthymia	23 ⁷⁸	3 ⁷⁹ to 13 ⁸⁶
Bipolar disorder	16 ⁹⁹ to 20 ¹⁰⁰	10% ⁷⁵
Conduct disorder	24 ⁷⁸	14 ⁸⁶
Substance use disorder	56 to 78 ⁷⁸	39 ⁸⁶
Alcohol abuse/dependence	35 to 52 ⁹⁷	8 ⁷⁵⁶ to 39 ⁸⁶
Drug abuse/dependence	19 to 35 ⁹⁷	2 ⁸⁷ to 22 ⁸⁶
Tic disorders	*	36 ⁷⁵
Separation anxiety	69 ⁹⁸	25 ⁷⁵
Any eating disorders	23 to 25 ¹⁰⁷	14 ⁷⁵

OCD = obsessive-compulsive disorder; PTSD = post-traumatic stress disorder. Based on references.^{1,6,10,11,26,43,44,48,69-72,94,95,97-99,107-111} The prevalence rates were mathematically adjusted. * No epidemiological data (just case reports).

the most common groups of psychiatric comorbidities for both PTSD and OCD are affective disorders (almost 50 and 68%, respectively), anxiety disorders (almost 55 and 75%, respectively), and substance use/abuse/dependence (almost 78 and 36%, respectively),^{28,50,73,106} although prevalence rates differ between the two disorders. Differing values between studies for each disorder may reflect different methodological aspects and discrepancies between recruitment strategies employed at primary and tertiary services. For example, Torresan et al.⁵⁷ found some differences between male and female OCD patients concerning specific psychiatric comorbidities, including PTSD, which were related to female, but not to male gender. Similarly, other authors found higher prevalence of OCD in a specific population of veterans.^{34,36,48} It is worth stressing that comorbidity of PTSD with OCD increases the severity of OCD, especially the compulsions.⁴⁷

Suicidality

More than 50% of PTSD patients seem to present some lifetime aspect of suicidality: almost 40% report ideation, 9% have planned suicide, and 10% have attempted suicide since the traumatic event.^{29,109,112} Almost one-third attempt suicide more than once.¹¹² Although some may conjecture that this could be due to comorbid depression, a 2-year prospective analysis indicated that PTSD only at baseline was predictive of greater risk of suicide ideation and attempts than major depression disorder,^{110,111} and even patients with residual PTSD symptoms or subclinical PTSD presentation seem to have greater risk for suicide ideation.¹¹³ Rojas et al.¹¹³ suggested that alcohol dependence was a critical comorbid risk factor for acquiring the capability for suicide attempts. A US study with a large sample ($n = 5,877$) found that people with PTSD were almost three times more prone to suicidal ideation (odds ratio [OR] = 2.79) and suicide attempts (OR = 2.67).¹¹⁴ Although none of the other anxiety disorders were significantly associated with suicidal ideation or attempts, more recent data shows that OCD patients have higher suicidality than found in previous studies. Pellegrini et al.⁵¹ conducted a systematic review and meta-analysis in which pooled prevalence was 13.5% for suicide attempts, 27.3% for current suicidal ideation, and 47.3% for lifetime suicidal ideation. Severity of obsessions, certain specific obsession content types (e.g., unacceptable thoughts, sexual/religious) comorbid disorders (e.g., substance use, intermittent explosive disorder), depressive/anxious symptoms, and history of suicidality increased the risk,^{14,51,115,116} whereas compulsions had a comparatively protective effect.⁵¹

Thus, both PTSD and OCD are strongly related to suicidality, although the reasons and risk factors may differ between the two disorders. Some authors seem to relate it to factors such as co-occurrence with major depression (and/or depressive symptoms), but others suggest that suicidality may be a psychological feature independently related to each of the disorders, constituting a transdiagnostic phenomenon.¹¹⁶ Since we can calculate a determination coefficient (r^2), which is the proportion of the variance in the dependent variable that is predictable from the independent variable(s), we could use the results from some authors to try to describe how much of the severity of the disorders may contribute to suicidality severity. For example, as described by Liu et al.¹¹⁷ in a sample from China, the correlation between the severities of PTSD and suicide was $r = 0.46$, indicating that 21% of the severity of PTSD contributes to the severity of suicidality. Similarly, in a sample from India, Dhyani et al.¹¹⁸ observed that the correlation between the severities of OCD and suicide was 0.68, which indicates that the severity of OCD may contribute to 46% of the severity of suicidality.

Final considerations

Since PTSD and OCD are both prevalent and share some psychopathological features (such as ABs, depressive, anxious, and somatic comorbid aspects, suicidality, psychiatric comorbidities, and interference with sexuality, appetite, and sleep patterns), it could be argued that they could share some common neurobiological aspects and belong to the same spectrum of disorders. However, the intersection of their characteristics seems to occur in the extrinsic psychopathological dimension. The core psychopathological symptoms (intrinsic characteristics) are distinctly different, since flashbacks and obsessions are consequences of different predominant defective mental functions: the former derives from defective memory, the latter from defective thought. In the same way, the ABs observed in each disorder are derived from different purposes and inner necessities.

Comorbidity of PTSD and OCD needs further and adequate investigation since post-traumatic OCD with previous OCS and post-traumatic OCD without previous OCS may signal distinct neurobiological and/or genetic aspects.

Some limitations of this scoping review derive from the fact that only one database was used and the search was limited to three publication languages. The scarcity of exploratory psychopathological studies including both disorders (no studies were found that compared PTSD,

OCD, and PTSD+OCD groups, for example) restricted the availability of robust evidence to better describe other similar or distinct aspects of these disorders, such as genetic/familial history, neuroimaging results/neurocircuitry, or neurophysiological or neuropsychological examination findings.

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