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The global assessment of OCD

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ABSTRACT

Obsessive Compulsive Disorder (OCD) is a common mental disorder that often causes great sufferance, with substantial impairment in social functioning and quality of life and affects family and significant relationships. Notwithstanding its severity, OCD is often not adequately diagnosed, or it is diagnosed with delay, leading often to a long latency between onset of the OCD symptoms and the start of adequate treatments. Several factors contribute to the complexity of OCD's clinical picture: early age of onset, chronic course, heterogeneity of symptoms, high rate of comorbidity with other psychiatric disorders, slow or partial response to therapy. Therefore, it is of primary importance for clinicians involved in diagnosing OCD, to assess all aspects of the disorder.

This narrative review focuses on the global assessment of OCD, highlighting crucial areas to explore, pointing out the clinical features which are relevant for the treatment of the disorder, and giving an overview of the psychometric tools that can be useful during the screening procedure.

1. Introduction

Obsessive Compulsive Disorder (OCD) is the 4th most common mental disorder [1] and its 12 months estimated prevalence in Europe ranges from 0.1 to 2.3% [2]. Frequent comorbidities with Axis I and Axis II disorders have been identified [3], including Depression, Simple Phobias (22%), Social Phobia (18%), Eating Disorders (17%), Alcohol Dependence (14%), panic disorder (12%) and Tourette's syndrome (7%) [4] as well as increased rates of suicidality.

Patients with OCD suffer a substantial impairment in quality of life and social functioning [5]. Despite the fact that OCD can cause significant disability, with the World Health Organization (WHO) ranking OCD as one of the 10 most debilitating conditions [6], OCD is often under diagnosed, and the average duration of untreated illness has been estimated at 17 years [7].

It is therefore crucial that the screening and the assessment process of OCD is robust and evidence-based [8] so that an early and accurate diagnosis can be made. It is also essential that comorbidities are assessed and that a comprehensive cognitive-behavioural assessment is done, in order to develop a well-tailored treatment plan. Fineberg et al. [9] issued a position statement where the gold standards of the OCD assessment were outlined. In this narrative review, starting from the above-mentioned position statement, we will expand to outline the essential steps for the global assessment of OCD. Psychometric tools have been selected based on their frequency in the literature as well as their availability and ease of use in daily clinical practice.

A global OCD assessment should be conducted by a Multi-Disciplinary Team (MDT), ideally comprising of a Psychiatrist, Clinical or Counselling Psychologist and/or Cognitive Behavioural Therapist, and an Occupational Therapist (OT). This might not always be possible and may vary depending on different health care systems or different health care organisations.

2. Screening

An evidence-based assessment is an essential prerequisite of evidence-based treatment [8]. The use of validated measures aids the process of identifying, differentiating and rating the severity of OCD

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symptoms, during the assessment process.

Brief self-report measures are ideal instruments for the preliminary identification of symptoms and their severity since they are 'cost-effective, require minimal training to administer and interpret, and have the advantage of removing potential interviewer bias's [8]. An instrument designed for active screening purposes which is extremely easy to administer is the Zohar-Fineberg Obsessive Compulsive Screen (ZF-OCS). There are 2 versions available, comprising of either 5 or 6 questions [10,11]. Both have shown excellent sensitivity and good specificity [12] for detecting patients who were later confirmed as having a diagnosis of OCD according to DSM5. It has been used to screen for the presence of OCD both in psychiatric and non-psychiatric settings [14]; the advantage of this screening tool is that is not time consuming and can be used to screen broad, non-clinical populations. The Obsessive-Compulsive Inventory, OCI [13] is a widely used, self-rated measure which was devised to help determine the severity of OCD; it comprises of 42 items that generate a total score, as well as scores on seven subscales (washing, checking, doubting, ordering, obsessing, hoarding, and mental neutralising); each item is rated on a 5 point (0- 4) Likert scale of symptom distress. Although it was developed to score OCD severity, if times allows, it can also be used as a screening tool. A score of 40 or more suggests the presence of OCD. The revised version of the OCD is the Obsessive-Compulsive Inventory-Revised (OCI-R) [14], it is shorter in length than the OCI (comprising of 18 questions) making it more suitable for screening [15,16]. Like the OCI, it has a 5 point symptom distress scale and a score of 21 or more suggests the presence of OCD. Compared to the ZF-OCS, the OCI and OCI-R are more comprehensive screening tools which have the advantage of giving an indication on severity, and we would therefore recommend their use over the ZF-OCS in a clinical population and when the presence of OCD is already suspected.

3. The clinical assessment

3.1. Diagnosis

OCD was previously categorised as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM)-4 [17] but has since been moved the category of 'Obsessive-Compulsive and Related Disorders' within the DSM-5 [18].

To meet the diagnostic criteria for OCD within the DSM-5, an individual must fulfil the following criteria:

A) There must be a presence of obsessions and/or compulsions. Obsessions refer to a persistent thought, urge or image. They must be experienced as intrusive and unwanted, and for most people, cause marked anxiety or distress. Attempts to ignore, supress, or neutralise the obsessions with a thought or action (i.e., compulsions) are also a key feature. Compulsions are defined as repetitive behaviours or mental acts that the individual feels driven to perform in response to an obsession or according to rigid rules. The aim of the compulsion is to reduce the distress associated with the obsession or to prevent something harmful from occurring but may be unrelated or excessive.

B) The obsessions or compulsions are time-consuming and cause clinically significant distress or impairment in functioning.

C) & D) The symptoms are not attributable to the effects of a substance, another medical condition or due to the symptoms of another mental disorder.

In routine clinical practice, use of structured/semi structured interviews is not always necessary or practical, however, in selected cases, might provide additional useful information. The MINI international neuropsychiatric interview [19] and the Structured Clinical Interview for DSM5 (SCID5)[20] are the most widely used interviews.

It is important to have a comprehensive overview of the obsessions and compulsions. However, patients with OCD often suffer a degree of shame [21] impacting on their willingness to disclose certain obsessions (particularly sexual intrusions and those related to fear of causing harm to others). The YBOCS symptoms checklist [22] is a helpful tool identifying past and current obsessions and compulsions; this can complement the self-rated OCI [16].

3.2. Assessment of severity

The most widely used clinician-rated measure for OCD severity [23,24] is the Yale-Brown Obsessive Compulsive Scale, Y-BOCS [22]. It includes a symptoms checklist and a severity scale. The checklist comprises of 69 obsessions and compulsions, grouped by theme (e.g., scrupulosity, washing, aggressive, contamination, sexual, hoarding, symmetry somatic, checking, counting, repeating and miscellaneous.), which is helpful in collecting information about the whole range of obsessions and compulsions across the lifespan. The severity scale comprises of 5 questions, each with a score from 0 to 4. A score from 0 to 7 indicates subclinical OCD; 8-15 indicates mild OCD, 16-23 moderate OCD, 24-31 severe OCD and 32-40 extreme OCD.

3.3. Symptom dimensions

Despite being a unitary nosological entity, the psychopathology of OCD encompasses a variety of heterogeneous phenomena. Symptom subtypes of OCD have been identified based on the predominant obsessions and compulsions.

The identification of OCD subtypes might influence the treatment choice. For example, it has been suggested that OCD characterized by sexual or religious obsessions and absence of overt compulsions have been associated with lower response to ERP and SSRIs [25,26] and one might consider earlier augmentation with low dose antipsychotics and cognitive therapy in these subtypes.

Factor-analyses of the Yale-Brown Obsessive-Compulsive Scale-Symptom Checklist (YBOCS-SC) [22] have been performed to determine clinical subtypes based on the thematic content of the obsessions and compulsions. Denys [27] used a Self-report measure (the Padua Inventory revised)[28] as well as the YBOCS and identified 6 consistent symptom clusters: (1) contamination obsessions and cleaning compulsions, (2) sexual/religious/somatic obsessions and checking, (3) high risk assessment and checking, (4) impulses and fear of loss of control, (5) need for symmetry and exactness, and ordering and counting compulsions, and (6) rumination, reaching the conclusion that using both tools is recommended so that the whole spectrum of obsessions and compulsions is factored in.

The Dimensional Yale-Brown Obsessive Compulsive Scale (DY-BOCS) [29], developed in 2006, consists of different of semi-structured scales aimed at assessing and rating the presence and severity of the OCD symptoms dimension. It is available in a self-report version and a clinician-rated version. It assesses the presence and severity of obsessions and compulsions across the domains of harm, scrupulosity, symmetry/just right perception, contamination, hoarding, and miscellaneous (eg, superstitious beliefs and behaviours). It is showing promising results with regards to reliability and validity in identifying subtypes of OCD, although the time burden of administration could represent a major limitation for its utilisation in routine clinical practice.

3.4. Degree of insight

Assessing the degree of insight is important, not only because insight is one of the "specifiers" in DSM5 [18], but also because it is helpful in determining the treatment plan.

Aside from exploring insight during the clinical assessment and requesting a belief-rating during the CBT assessment, rating scales are also available.

Item 11 of the YBOCS [22], provides an insight scale. The insight is graded as follows: 0 = excellent (fully rational thinking), 1= good insight (readily acknowledges absurdity or excessiveness but has some lingering doubts), 2 = fair insight (reluctantly admits absurdity, but

waivers; has some unrealistic fear but no fixed conviction), 3 = poor insight (overvalued ideas; maintains they are not unreasonable or excessive, but acknowledges validity of contrary evidence), and 4 = lack of insight (delusional). Other helpful tools assisting in the assessment of insight in OCD are The Brown Assessment of Beliefs Scale (BABS) [35] and the Overvalued Ideas Scale (OVIS) [31].

3.5. Home visits

In some cases, a home visit will allow for a richer insight into the patient's difficulties, by observing the environment and how some of the rituals occur in the home, for example cleaning rituals or checking routines. With the developments in technology, this can be accomplished to some extent with video conferencing, which is helpful when logistics prevent a home visit during the assessment phase.

3.6. Family assessment

OCD is a disorder that has a significant impact not only on the individual but affects family members and significant relationships [32,33]. Family members may have an important role to play in the maintenance of the patient's difficulties. This can include giving reassurance or being compliant with the patient's requests to perform certain behaviours.

"Family accommodation" is a term used to describe the involvement of family in OCD. Literature focuses on family accommodation of OCD in children and adolescents; however there has been an increasing awareness of the influence of family accommodation in adult sufferers of OCD. Family members might adapt or change their behaviours to alleviate or prevent the patient's distress and therefore, be maintaining the disorder. Family accommodation could serve the function of reducing the patient's anxiety who may otherwise become aggressive/frustrated. Family members might provide reassurance, participate in completion of compulsions and often provide the means to complete rituals [34]. Conversely, the family may not understand OCD and may become frustrated and critical, which may inadvertently increase the patient's anxiety.

In a robust OCD assessment, it is important to ensure that the family accommodation is not overlooked [33] as it could be a predictor for poorer treatment outcomes [34]. Therefore, the family needs to be an integral part of the assessment process and the treatment plan may need to include elements of family interventions. Family accommodation can be assessed by first, discussing it with the patient and if appropriate, by inviting the family into the assessment to both support information gathering and be involved in treatment planning, which can improve compliance with treatment [35] and help the family being emotionally supportive and consistent whilst not accommodating the OCD [36].

Family accommodation can be measured by the Family Accommodation Scale which has both a clinician and a self-rated version [37,38].

3.7. Family history

Studies conducted on twins found that heritability estimates in OCD ranges from 45% to 65% [39]. Family studies showed an increased risk of OCD in first-degree relatives of patients with OCD of around 23% [40,41] with variable odd ratios between 11 and 32 in one study and 8 in another study [42]. A study conducted on 80 probands with OCD, found that that family members of patients with OCD had a higher rate of obsessions and compulsions than family members of controls, with a stronger correlation found for those probands who had early onset OCD [40]. As there have been reports of poorer treatment outcomes when there is a positive family history of tics, and positive family history of anxiety disorders [43], it is important to collect an accurate family history which will also help understand the impact that OCD has on the family and whether a supportive assessment should be offered for the carers and offspring.

3.8. Age of onset

Typically, OCD starts early in life and has a long duration, with the mean age of onset being 19.5 years [44]. Focusing on determining the age at which the OCD began, and the course of illness is an important part of the assessment. The division between childhood-onset and adult-onset OCD is not clear cut and several discrepancies exist in the literature about the specific age to consider if patients have either a child or adult OCD onset, with some authors defining early-onset OCD as onset before the age of 18 [45], and others [46] defining it as having onset before puberty. It has been suggested that OCD with onset in childhood may have unique phenomenological features and risk factors relative to adult onset cases [47], having a higher degree of familiarity [48], being more frequent in males [49–51], showing familial aggregation of OCD and tic disorders [51–53], and showing high rates of psychiatric comorbidity, especially with disruptive behaviour disorders, anxiety disorders, and tic disorders ([54–56], which should prompt the screening for further comorbidities, including hoarding disorder [57]. Some studies have reported greater severity of symptoms in patients with early onset OCD [58,59]. Although some authors [48,60] reported a poorer response to treatment in early onset OCD, this has not been replicated consistently [61].

3.9. Gender

The incidence of OCD has two peaks with a bimodal distribution, with different gender distributions: the first peak occurs between ages 7-12 and is more characteristic of males, while the second peak occurs in early adulthood, around age 21 and is more characteristic of females [62]. Recently, the National Comorbidity Survey Replication (NCS-R) study [49] showed that age of onset differs significantly for males and females with nearly a quarter of males having onset before the age of 10 and females having onset more typically after age 10, with the highest incidence during adolescence. Higher frequency of insidious onset and chronic course among males and more episodic course among females has been reported be precipitated in reproductive life events such as the menarche and in the peripartum or postpartum period, posing women in these life spans more at risk of developing OCD than the general population[63,64]. Some differences in gender-related phenotypic expression of OCD have been observed in a literature review [65] showing that male patients are more likely to present more sexual-religious and aggressive obsessions, and greater comorbidity with tic and substance use disorders and female patients presenting with more contamination/cleaning obsession and greater comorbidity with eating and impulse-control disorders.

3.10. Duration of Untreated Illness (DUI)

Duration of Untreated Illness (DUI), defined as the latency between the OCD onset to the first adequate pharmacological treatment, has recently become an object of investigation in OCD. Different factors might play a role in delaying the first treatment, with one of them being the frequent reluctance, for patients with OCD to seek help [66–68]. A longer DUI has been associated with higher disability in work, social and family life [69], and poorer response to SSRIs [70,71]; it is therefore important to explore the DUI at assessment.

3.11. Current and previous pharmacological therapy

Despite treatment, approximately half of the patients with OCD fail to respond to first line interventions [72–74]. Response to treatment is generally defined as a reduction of 25–35% at the YBOCS [22]. Treatment resistant OCD is generally defined as failure to respond to adequate trials of first line therapies without achieving satisfactory response [75,76]. Taking an accurate pharmacological history, to include the dose and duration of medication in the current and previous treatment

trials, exploring the reasons for stopping and changing the medication if appropriate, as well as the side effects, is of vital importance to determine the next treatment steps.

3.12. Differential diagnosis

When assessing for OCD, it is important to review the appropriateness of the diagnosis, especially evaluating whether any other symptoms are inaccurately considered obsessions and compulsions. For example (1) ruminations occurring in Major Depressive Disorder or Generalised Anxiety Disorder, (2) repetitive stereotyped behaviours which can be present in Psychoses, Tourette's Syndrome and Tic Disorders, mental retardation in organic disorders, (3) obsessive thoughts about body shape or ritualized eating behaviours in Eating Disorders (4) behavioural patterns, (5) interests or restricted and repetitive activities in Autism[77]. OCD has also been described as having had onset after traumatic brain injury [78] or dementia [79], which is important to bear in mind, especially when the OCD has an atypical age of onset (i.e. late in life). Amphetamines have been described to induce OCD in 7% of cases [80] and cocaine has been observed to induce stereotypy and OCD-like symptoms [81]. Additionally, we recommend exploring whether the onset of the worsening of OCD has been precipitated by Clozapine or other Second Generation Antipsychotics [82].

3.13. Functional assessment

With OCD being rated by the WHO amongst the ten most disabling mental disorders by lost income and decreased quality of life and is characterised by high levels of distress, disability and disruption of social and occupational functioning [83,84], it is of fundamental importance to assess the impact of OCD in everyday functioning.

OCD directly affects functional abilities and Activities of Daily Living (ADL) such as: self-care (washing, dressing, cooking), domestic daily tasks, social tasks, leisure and hobbies, difficulties in family relationships and work or occupation [85] and is associated with poor psychosocial adjustment in the long-term [86].

Analysing the patient's daily routine, for example using a detailed timetable, from waking up to going to sleep can provide excellent insight. With OCD often becoming habitual, important features may be missed if the patient is not interviewed in detail; for example, lying in bed for 2 hours on waking ruminating about fears for the day ahead, having a reverse sleeping pattern [87], or large time intervals spent ritualizing are very frequent and can be hard to estimate if not explored thoroughly.

It is also important to determine the degree of self-neglect by exploring how much the patient is eating or drinking each day, the sleep pattern, if health needs are attended to as well as adherence to medication.

A behavioural analysis, where the aim is to discover how the disorder operates on a day-to-day basis, and an "Antecedent-Behaviour-Cosequence" (ABC) model can be utilized, for example to explore a common problem area e.g. toileting, with questioning about all elements of the activity, focusing on thoughts, behaviours, intentions, time scales, their affect and any avoidances. Demonstrating a particular activity during the assessment (e.g. opening a door and walking over a threshold) and exploring the feared consequences from the patient will help exploring the OCD maintenance cycles.

A helpful, short, simple, and cost-effective measure of disability and functional impairment that can be quickly administered and scored is the Sheehan Disability Scale (SDS) [88], a self-administered questionnaire consisting of of three self-rated items designed to measure the extent to which three major domains in the patient's life (work, social life/leisure activities, and family life/home responsibilities) are functionally impaired by psychiatric or medical symptoms. Another useful tool is the Work and Social Adjustment Scale (WSAS), a 5-item scale that investigates an individual's perception of the impact of OCD on work, home management, social and private leisure activities, and close relationships [89].

Recent research has shown that functional impairment is not only attributable to the direct effect of obsessions and compulsions but can also be derived from deficits in social communication skills [90] and neurocognitive functioning [91,92].

Dittrich et al [93] developed the 13-item Cognitive Assessment Instrument of Obsessions and Compulsions (CAIOC-13), a valid and reliable instrument, available in both clinician-rated and patient's rated versions, developed uniquely to explore cognitive difficulties in OCD, which provides a measure of neurocognitive-related functional anomalies, and which can be used for measuring the impact of OCD on everyday function.

The CAIOC-13 explores 13 cognitive-functional domains which appeared linked to the psychosocial impairment in OCD: (1) Difficulty reading, (2) Doubt, (3) Lassitude, (4) Slowness, (5)Indecisiveness, (6) Perfectionism, (7)Circadian rhythms, (8) Anxiety, (9) Procrastination, (10) Flexibility, (11) Executive function, (12) Worrying about the future and 13. Compulsions. This scale has not been examined in relation to neuropsychological tests [99].

In situations requiring a more comprehensive assessment of the functional impairment (i.e., when needing to determine the level of support needed, in severe and chronic OCD, for example when choosing accommodation), an Occupational Therapy assessment might be indicated.

4. Cognitive behavioural assessment of OCD

A Cognitive Behavioural Therapy (CBT) assessment of OCD is best carried out by a Cognitive Behavioural Therapist or Psychologist with CBT training.

Before the assessment is undertaken, it is helpful for awareness to be held that people with OCD feel ashamed about their problems, especially for those with violent, blasphemous and sexual obsessions [21]. It is the assessor's role to make the patient feel comfortable by both validating how distressing OCD can be, alongside normalising intrusions and not reacting with surprise, no matter how disturbing or extraordinary the content.

The assessment process benefits from a funnel approach. Open questions encourage the patient to first give a description of their current difficulties. Psychometric measures can then be used to corroborate this information and review symptoms. Once it has been established how the problem occurs in the present, it is crucial identify whether there is a "critical incident" (trigger event) associated with the onset and to understand how the OCD has developed over time.

A Cognitive Behavioural Therapy (CBT) formulation can then be developed in order to provide a shared understanding of the problem and inform the treatment plan. A pioneering cognitive model for the treatment of OCD was proposed by Salkovskis (1985)[94], which is widely used in clinical practice [95] and which we will refer to for the conceptualisation of the patient's difficulties during the assessment process. The formulation can be drawn out in a diagrammatical form and usually commences by asking the patient for a recent, typical example of when the OCD has been triggered. It is important to explain the nature of obsessions in order to elicit and normalise them: i.e. as unwanted intrusive thoughts, images, impulses or doubts, which are something that we all experience. Sharing a personal example [96,97] can help with the normalising process and encourages disclosure; this is appropriate in this context and evidence suggests that tailored use of therapist self-disclosure is a helpful intervention [98,99].

Patients are sometimes not willing to share the content of their intrusions, especially ones that are repugnant to them or where there are thought-action fusion (TAF) beliefs such as, having the intrusive thought could make it happen (probability TAF) or experiencing it is morally equivalent to carrying it out (morality TAF)[100,101].

Once intrusions have been normalised it is helpful to explain that

OCD develops when a person interprets an intrusion as a signal that they may be responsible for harm to themselves or others unless they take action to prevent it [102–108]. It is helpful to ask the patient what is the worst outcome that they feel or imagine could happen in relation to the intrusion. The downward arrow technique [109] can be used to gain a deeper insight as it elicits the perceived catastrophic consequence, which can in turn provide more insight into the function of the compulsions. When the CBT formulation is reflected back to the patient with understanding, it can provide a welcome relief, particularly when their OCD does not make sense to others. The downward arrow technique can also uncover underlying beliefs, which can be explored further in terms of duration and origin and these information can be added to the formulation in the forms of early experiences and assumptions/ general beliefs underlying the OCD.

In some instances, it can be difficult to generate the associated appraisal of people's intrusions, particularly in chronic OCD where the compulsions have become somewhat automatic and appear to pre-empt the perceived threat [108]. In these instances, it helps to ask the patient what they think would happen if they were unable to avoid triggering situations or perform their neutralising behaviours and if possible, they can be asked to expose themselves to their feared trigger whilst the assessor might explore what is going through their minds whilst not engaging in their compulsions. As this can be challenging, the assessor might model the exposure first.

Another crucial step is to identify the factors maintaining the OCD, by observing the relationship between the appraisal of the intrusion with the related emotional responses (usually anxiety, disgust, shame, and guilt, more specifically, deontological guilt [110,111]) and the strong desire to prevent harm i.e., the compulsions [110]. This can be achieved by asking the patient what they did to prevent harm or to manage the associated distress. This is likely to uncover the neutralising behaviours, which can be overt (i.e. hand washing, checking, seeking reassurance) or covert (mental compulsions). Threat and responsibility appraisals also tend to trigger hypervigilance, selective attention, mood changes, avoidance, thought suppression. All of these safety behaviours will maintain the perceived threat and responsibility appraisals and increase the likelihood of subsequent intrusions, doubt and preoccupation [104,110,112] and it is therefore important to ask directly about them as they can be subtle and/or automatic. In severe cases, when compulsions are burdensome, the patient can avoid the compulsions themselves, for example by restricting fluids to avoid spending time in the toilet, which needs to be considered in the risk assessment and in the functional assessment.

The identified compulsions and other maintenance factors will be added to the diagrammatical formulation and shared with the patient. This will allow the patient to see that their solutions (compulsions) have indeed become the problem as they are maintaining the OCD and can provide the patient with the rationale for engaging in CBT with ERP.

5. Risk assessment

Risk can be related to the OCD itself or to comorbid conditions. Veale et al [113] recommend distinguishing between primary and secondary risks in OCD, with primary risks being those directly arising from the obsessions (i.e., the risk that a patient will act on an obsession), and secondary risks being those related to the "unintended consequence of acting on compulsions and urges to avoid anxiety-provoking situations".

It is important to structure the risk assessment robustly so that all aspect of risk can be considered. Although there are not specific tools available to assess risk in OCD, generic validated tools used in psychiatric settings are available, such as the Sainsbury Clinical Risk Assessment Tool [114], a widely used questionnaire where risk to self, to others, risk of neglect and miscellaneous risks are explored. However, public health organisations tend to use risk assessment tools embedded in their electronic records systems, and when this is the case, it might be advisable to use those rather than a different tool, in order to avoid duplications. If a risk assessment tool is not used, it would be advisable structuring the interview ensuring that all the relevant domains below are explored.

5.1. Risk to self

Historically, OCD has been associated with a relatively low risk of suicide [113,115]. This bias is likely to have led to this risk being underestimated in clinical practice [116]. Systematic reviews and meta-analyses have questioned this historical prejudice: prevalence rates of lifetime suicide attempts in individual with OCD range between 6% and 51.7% with a mean of 14.2%; lifetime suicidal ideation is referred by 26.3 to 73.5% of individuals with OCD [117,118].

A recent meta-analysis confirmed the previous observation: at least one in ten patients with OCD attempts suicide during their lifetime, while nearly half of individuals with OCD have suicidal ideation [119].

The most significant predictors of suicidality are the severity of OCD, the symptom dimensions (aggressive, sexual, and religious obsessions) and the presence of comorbid Axis I disorders, mainly mood disorders and substance abuse [120]. Viswanath and colleagues [120] reported that OCD, when comorbid with Major Depressive Disorder (MDD), is more severe and is associated with a higher risk of suicide. Moreover, MDD has been linked to the presence of hopelessness that, in turn, was found to be a strong predictor of suicidal ideation in OCD [121]. A recent study found that comorbidity between Bipolar Disorder and OCD was associated with suicide attempts with violent methods [122].

It is therefore paramount to directly explore suicidality when interviewing a patient with OCD, as part of a structured risk assessment, bearing in mind that the patients might not volunteer the information due to shame or due to anxiety about hospital admissions. Early recognition/diagnosis of the disorder and immediate setting of an appropriate treatment plan are essential element for the prevention of suicidality [21].

Intrusive, ego-dystonic thoughts of violent self-injury or self-harm are not uncommon and are not associated with increased risk of self-harm. If someone has an obsessional fear of cutting themselves, it is extremely unlikely that they will act on these thoughts. However, if the idea of harming others is the obsession, the patient might respond by cutting themselves rather than harming someone they love [113].

It is important to factor into the assessment any other co-morbidity that may increase someone's risk of self-harm, such as MDD or Emotionally Unstable Personality Disorder.

5.2. Risk to others

It is common for people with OCD to experience intrusive obsessive thoughts of a violent, aggressive, or sexual nature, and as a result may be subjected to inappropriate safeguarding procedures [113]. These thoughts can be mistaken to indicate risk of these behaviours [115]. These apparent 'primary' risks can be assessed through a thorough understanding of the phenomenology [113]. The nature of OCD, by definition, is that the intrusive thoughts are unwanted and cause distress to the individual [123], are ego-dystonic and recognised as excessive. Therefore, intrusive thoughts of sexual harm or other violence are highly unlikely to be acted upon. Compulsive behaviours usually focus on attempts to neutralise the obsessions, rather than engage in them. Therefore, the existence or the degree of the intrusive thoughts does not indicate a risk of the person engaging in the behaviour, in the absence of any other evidence of risk. An over-cautious approach and misinterpretation of risk associated with obsessive thoughts can be detrimental to the person's mental health, increasing distress and compulsive behaviours to neutralise the thoughts [113].

With regards to risks related to sexual intrusive thoughts, Veale et al [113] identified helpful pointers for assessing the primary risk of patients with OCD compared to patients who do not have OCD and might be at risk of offending. They highlighted important factors to take into

account: (1) in OCD, the thoughts are ego-dystonic (2) a patient with OCD will usually not masturbate to the thoughts, (3) will avoid trigger situations at all costs, (4) will try to make efforts to suppress the thoughts, (4) will experience very frequent or constant occurrence of the thoughts, (5) will experience dominant anxiety, distress and guilt about the thoughts, (6) will often tend to over disclose irrelevant past sexual history, will often (7) want help and seek referrals to mental health services (8) will experience additional obsessive–compulsive symptoms.

When assessing risk to others, it is important to bear in mind potential risk of neglect of dependents, in terms of both their physical and emotional needs, as the need for the person with OCD to attend to their compulsions can be overwhelming [97]

Risk to others can arise in terms of verbal or physical aggression to carers or people in their close network owing to frustration and anxiety if rituals are interrupted or challenged.

5.3. Risk to physical health

Several studies on quality of life reported that individuals with OCD experience more physical symptoms than the general population [124–126]. Physical health issues related to OCD might not get noticed at assessment and treatment [127], and it is therefore important that direct and indirect risks to physical health are factored in at assessment.

Physical health risks stemming from OCD can be summarised as:

Risk of reduced or excessive fluid intake. This can be related to avoidance of the toilet, to fear of contamination from fluids or containers, difficulties in performing the act of drinking or preparing drinks due to compulsive rituals, to the need of drink according to specific rules or to stop drinking to neutralise an intrusion (ie getting a "bad thought" whilst drinking and needing to neutralise it). Drummond et al. [127] reported chronic kidney impairment with elevated blood urea and creatinine in a population of patients with severe and treatment resistant OCD. Assessing fluid intake and if this is of concern, requesting kidney function tests, might help addressing this issue timely and might help reduce the long-term risk of renal damage. It is also worth exploring with the patient whether they are drinking an excessive amount of fluids (this could happen for example due to beliefs that water has cleansing properties, or for the need of drinking compulsively or until it "feels right") as this could lead to hyponatremia, which could be potentially toxic [128].

Risk or reduced food intake: the food intake might also be affected, leading to low or excessive BMI [129]. Poor nutrition can lead to vitamin and iron deficiencies, which is important to assess, by requesting relevant blood tests if appropriate.

Risk of dermatological problems related to excessive washing, and excessive use of detergents or abrasive tools can lead to atopic dermatitis, irritant toxic dermatitis, or dry skin eczema (eczéma craquelé) [130] and interruptions in skin integrity, which can be susceptible to super-imposed infections. It is important to ask directly about this, especially if a remote assessment is conducted, as this might not be spontaneously reported by the patient.

Risk of pressure sores (from sitting on the toilet or staying in bed due to the rituals for prolonged periods of time) or oedema from standing/being stuck due to the rituals can be observed in extremely severe cases of OCD

Metabolic risks; various studies have reported an increased risk of cardiometabolic risk factors in OCD, and particularly obesity, Type 2 Diabetes, and circulatory system diseases, including hypertension and a broad range of cardiovascular diseases [127,131], particularly for venous thrombo-embolism and heart failure [131] and ischaemic stroke [132]. It is therefore paramount that a cardiometabolic assessment, to include family history for cardiovascular diseases and blood lipids is performed.

Table 1
Points to focus on when taking a family history.

Family history	Reference
Familiar history of autoimmune diseases	Mataix-Cois et al., 2017 [151]; Murphy et al., 2010 [152]
Multiple miscarriages	Matthiensen, 2012 [153]
History of an inflammatory event during pregnancy	Hansen et al., 2021 [149]

6. Neurocognitive assessment

Evidence shows that patients with OCD differ from healthy controls across a range of different cognitive-functional domains [133]. Deficit in response inhibition (as measured with go/no-go tasks and stop signal reaction time (SSRT) tasks) are common in patients with OCD together with reduced cognitive flexibility, as examined in the Intradimensional/Extradimensional set shifting paradigm [134–136]. Patients with OCD also exhibit delays and impairment in goal directed planning [134,136,138–140]. Cognitive inflexibility and impaired executive functioning appear to represent core traits of OCD, however, other domains such as processing speed, visuospatial memory, decision making and error monitoring processing [135–137,141] have also been reported as being affected in OCD.

As highlighted in the "functional assessment" section, these cognitive traits are thought to adversely affect psychosocial and occupational functioning, and therefore a routine assessment of cognitive functioning could inform the likelihood of recovery [91,92]

Asking direct questions about possible cognitive difficulties is a good starting point in daily clinical practice. However, when more details are required, the above-mentioned CAIOC-13 [93], a self-reported scale which can be used to assess the main cognitive and executive impairments that are hypothesized to underpin the impact of obsessive-compulsive symptoms on functioning. Depending on the severity of the neurocognitive deficits, imaging investigations might be required.

7. Immunological assessment

Due to the large amount of evidence for inflammation and immune changes in OCD, an immunological assessment, especially for treatment-resistant patients, and for patients with acute or recent sudden onset, could have a potential impact on the treatment plan.

Swedo et al [142] coined the term PANDAS, or "paediatric autoimmune neuropsychiatric disorders associated with streptococcal infections", suggesting for the first time a link between OCD and immune changes. PANDAS are a subtype of acute-onset OCD hypothesised to be caused by an autoimmune response to group A streptococcal infection [143] in which antibodies against group A β-haemolytic *Streptococcus* (GABHS) cross-react with autoantigens in the basal ganglia and in cortical structures and lead to behavioural and motor disorders [144–146].

The immunological assessment of OCD should include (1) familiar and personal history of inflammations and infections, (2) if clinically relevant, screening of clinical symptoms of inflammation (3) laboratory testing for inflammation.

7.1. Familiar and personal history of inflammation and infections

Collecting a family history (Table 1) focused on inflammation and immunological aspects is important, as multigenerational studies showed that 43% of patients with OCD are more likely to have an autoimmune disease compared to controls [147]. Also, 20% of mothers of children affected by PANDAS have been found to have at least one autoimmune disease [148].

OCD has been observed to be occasionally linked to the maternal transfer of serum neuronal antibodies after an inflammatory event in

Table 2
Studies supporting the use of laboratory markers when suspecting an immunological or inflammatory aetiology.

Laboratory markers	
Parameters	Reference
Reduced levels of IL-1β in OCD, as compared to healthy controls. Raised IL-6 in treatment-naïve OCD compared to healthy controls.	Gray and Bloch, 2012 [158]
Increased Cytokines and Tumour Necrosis Factor alpha (TNFα)	Rao et al., 2015 [159] Cappi et al, 2015 [160]
Increased Neutrophil-to-lymphocyte ratio (NLR) and platelet-to-lymphocyte ratio (PLR), in OCD compared to healthy controls.	Herdi et al., 2020 [161]
C Reactive protein: reported to be elevated in OCD with a strong association with psychiatric symptoms' severity	Turna et al., 2020 [162]
Increased percentages of total monocytes and CD16+ monocytes in OCD compared to controls.	Rodriguez et al., 2017 [163]
Increased anti-basal ganglia antibodies (ABGAs) and anti-streptolysin O antibodies (ASO) in patients with PANS compared to controls	Lamothe et al., 2018 [164]; Murphy et al., 2015 [165]
Reduced ferritin levels in patients with PANS compared to healthy controls.	Chan et al., 2021 [166]
Decreased vitamin D and B12 levels in adults with OCD compared to controls	Marazziti et al, 2021 [167]; Yazici et al 2018 [168].

pregnancy; it is therefore important to screen for any history of inflammatory events in pregnancy [149] Immune causes have also been implicated in the pathophysiology of recurrent, spontaneous miscarriages [150], and it is therefore important to explore pregnancy history and history of miscarriages.

Infections that have relevance in the immunological assessment and are (Table 2): (1) streptococcal and non-streptococcal throat infections, which have been associated not only to PANDAS but more in general with OCD and other psychiatric disorders correlated to basal ganglia circuitries' dysfunction [154], (2) a recent history of Covid-19 infection or vaccine since new studies hypothesised that an exacerbation or new onset of OCD symptoms could be related to Covid-19 infection [155], (3) a history of atopy, psoriasis, and inflammatory bowel disease including Crohn's disease, ulcerative colitis and chronic constipation.

Assessing for the presence of tics is also paramount as historical streptococcal infections are associated with tic disorders [156] and tics might be linked with inflammation [157].

7.2. Laboratory testing

Having explored immunological and inflammation aspects, if there are grounds to believe that immunological or inflammatory factors might contribute to the OCD, it might advisable be to investigate further with further investigations (Table 2). Some of these investigations are relatively cost efficient.

7.3. Application

Despite a strong correlation between OCD and different inflammatory as well as rheumatological biomarkers, in in both adult and paediatric populations [169], there is no current guidance or recommendations about their use in clinical practice. Future studies are needed to determine the utility and cost effectiveness of inflammatory and rheumatological biomarkers. If there is suspicion that inflammation could be contributing to severity and/or treatment resistance, a rheumatological consultation may be requested. Although studies have shown that anti-inflammatory drugs, such as celecoxib or NAC, could be prescribed as an adjuvant [170,171], further studies are needed to determine the safety and efficacy of anti-inflammatory medications, for the management and control of OCD symptoms in both adults and children.

Table 3
Lifetime comorbidity of obsessive-compulsive disorder with other DSM-IV disorders (NCS-R).

	Percentage of OCD cases with comorbid disorder
Any anxiety disorder	75.8%
Any mood disorder	63.3%
Any impulse-control disorder	55.9%
Any substance use disorder	38.6%
Any disorder	90.0%

8. Assessment of psychiatric comorbidities

Obsessive-Compulsive Disorder (OCD) often co-occurs with other psychiatric disorders. In the National Comorbidity Survey Replication (NCS-R), of all the respondents that met criteria for lifetime OCD (according to DSM-IV criteria), 90% also met the diagnostic criteria for another lifetime disorder (see Table 3) [172]. Comorbidity is therefore highly frequent and has crucial clinical and therapeutic implications, consideration must be given to screening for these disorders in the assessment of OCD.

8.1. Assessment of comorbidity with anxiety disorders

Anxiety Disorders are the most common comorbidity with OCD and can occur in 75.8% of cases [44] the most common being with Social Anxiety, followed by Specific Phobias, Panic Disorder, Post Traumatic Stress Disorder (PTSD) and Generalised Anxiety Disorder [172,173]. Patients with OCD and comorbid anxiety disorders have an earlier onset of illness that is associated with prior life events, less compulsions, more aggressive and hoarding obsessions, pathologic doubts, checking, and cognitive compulsions [120] and more suicidality [174]. The Beck's anxiety inventory [175] is a helpful, self-reported tool designed to screen for the presence of anxiety; however, it is important to screen for all the specific anxiety disorders during a comprehensive assessment of OCD. The presence of PTSD should be assessed if trauma is reported or suspected, as its presence can influence the treatment plan (i.e. in the presence of "mental contamination", the underlying trauma might need to be addressed prior or contemporaneously to the OCD). The Impact of Events Scale-Revised [176] is a 22-item self-report measure that assesses subjective distress caused by traumatic events; it is a very helpful tool that can be utilised in conjunction with the diagnostic criteria to screen for the presence of PTSD.

8.2. Assessment of comorbidity with mood disorders

8.2.1. Unipolar mood disorders

Major Depressive Disorder (MDD) is one of the most frequent comorbid diagnoses with OCD [177–179]. Although comorbidity rates differ largely due to methodological differences, approximately one third of patients with OCD suffer from a current comorbid Major Depressive Disorder (MDD), and about two-third have lifetime comorbidity of MDD [120,180–183]. Common genetic factors for the two clinical conditions could be considered [173,184], but depressive symptoms could be regarded as a consequence of the OCD burden and consequent decrease in quality of life [185–187]. The onset of OCD often predates onset of MDD [44,188] and MDD is associated with more severe obsessive-compulsive symptoms, suggesting that depressive symptoms can occur in response to the distress and functional impairment associated with OCD [120,179,183,189,190]; moreover, it has been observed that if obsessive compulsive symptomatology decreases in the long term, depressive symptoms decrease too [191]. When comorbid with MDD, OCD shows more frequent female gender, higher number of hospitalisations, greater comorbidity with other anxiety

disorder and caffeine abuse, higher number of suicide attempts and overall greater disability [189,192,193]. Patients with OCD and MDD more frequently have religious, sexual, philosophical, existential, odd or superstitious obsessions [194] and OCD with poorer insight [195]. The care seeking behaviour is also affected by MDD with an increased delay between onset of the obsessive compulsive symptoms and requests for treatment[196]. Serotonin Re-uptake Inhibitors (SRIs), drugs with antidepressant activity too are the first line treatment for OCD. SRIs are equally effective for OCD with or without concomitant depression, although at different dosages (low/medium for depression, high for OCD) and with different onset of action (2 weeks for depression, at least 4 weeks for OCD). Severe depression may represent a barrier for behavioural intervention in OCD [193].

8.2.2. Bipolar mood disorders

The possible association between OCD and Bipolar Disorder (BD) has had growing interest over the course of the last two decades [197]. Clinical and epidemiological studies suggest that comorbidity between these two conditions is highly prevalent: in a recent review, patients with a primary diagnosis of OCD showed rates of BD comorbidity ranging from 6 to 10% with a higher prevalence of BD type II, while patients with primary BD were found to have comorbid OCD in 11 to 21% of the cases [198–200]. Comorbidity with OCD was found to be associated with an episodic course of obsessive compulsive symptoms, with more severe symptoms during depression and improvement during mania or hypomania [197,201]. Patients with OCD and BD show an earlier age of onset of OCD and an episodic course of OCD and are more likely to have more hospitalisations; they more frequently report sexual, religious, aggressive or impulsive obsessions and checking ordering or hoarding compulsions [193,202–205]. Patients with OCD and comorbid BD often have other comorbidities with Axis I disorders including alcohol and substance misuse, anxiety disorders (such Panic Disorder, Agoraphobia, Social Phobia) and Attention Deficit Hyperactivity Disorder (ADHD) [192,203,206, 207]. A study analysing the personality profile of OCD patients with comorbid BD: OCD-BD patients showed higher rates of Cluster A and Cluster B personality disorder, specifically antisocial and narcissistic [206]. The correct identification of BD/OCD comorbidity has relevant implications as far as treatment outcome is concerned: SRIs, which are the first-line treatment for OCD can induce switches, mixed states, or cycle acceleration in BD, especially if administered at high doses and maintained for a long time as usually required in the treatment of obsessions and compulsions. A recent literature review addressed the occurrence of first hypomanic/manic episode in OCD patients treated with antidepressants; switching episodes occurred mostly in the first 12 weeks after antidepressant initiation and were more frequent during SSRI use (mostly fluoxetine) compared to clomipramine [208]. Available data on the treatment of patients with BD and co-occurring OCD and anxiety disorders show more evidence of benefit with using BD treatments primarily (mood stabilizers), thus giving hierarchical priority to BD [209–211].

Careful clinical interview is usually the best way to screen patients with OCD for the co-occurrence (actual or lifetime) of mood disorders. No specific instruments are available for detection of depressive or bipolar disorder in patients with OCD, therefore clinicians could use screening instruments as the Patient-Health Questionnaire-9 (PHQ-9) for depression [212] or the Mood Disorder Questionnaire (MDQ) for bipolar disorder [213]. Both these screening tools are self-administered, relatively no time consuming (the first comprising only 9 questions, the latter comprising 13 questions), widely validated as screening measures in primary care [214,215]. When indicating a possible presence of mood disorders, it is necessary to focus the interview to clinically confirm the diagnosis and the severity.

8.3. Assessment of comorbidities with eating disorders (ED)

Comorbidity between eating disorders (EDs) and Obsessive-Compulsive Disorder (OCD) has been recognised for many years [216,217]; indeed, there are many phenomenological overlap in the symptomatology of the two conditions [218]. Patients with EDs may have obsessions concerning weight and food, but according to DSM-5 criteria a concurrent diagnosis of OCD could be made if there are obsessions and compulsions which are not only related with food, body shape, weight [18]. The relationship between OCD and EDs is confirmed by familiar and neurobiological features [219–221] and by the presence of shared aetiopathological factors like traits linked to perfectionism and impulsivity [222]. In light of all these findings, it is not surprising that some authors recommended the inclusion of EDs into the obsessive-compulsive spectrum [223,224]. High rates of comorbidity between OCD and eating disorders are reported in the literature. According to a recent meta-analysis of the literature made by Mandelli and coll. (2020) [225], based on cross-sectional studies, the lifetime estimates of comorbidity for OCD range from 19% in Anorexia Nervosa (AN) and 14% in Bulimia Nervosa (BN). Current comorbidity estimates were slightly lower: 15.5% in all EDs, 15.5% in AN, and 5% in BN. These estimates are similar to the prevalence rates of EDs observed in OCD populations [225]. The comorbidity between OCD and EDs is more prevalent in women than in men. Moreover, patients with OCD and ED patients have more lifetime suicide attempts and more lifetime prevalence of several other comorbid disorders: major depressive disorder, bipolar disorder, agoraphobia, social phobia, body dysmorphic disorder, pain disorder, and compulsive buying [226].

The Eating Disorder Examination-Questionnaire (EDE-Q) is a widely used tool which is a 28-item self-report measure, helpful in screening and assessing for features of EDs and core ED behaviours during the past 28 days [227].

Table 4
Similarities and differences between BDD and OCD.

Similarities between BDD and OCD	Differences between BDD and OCD
Intrusive unwanted thoughts Thoughts are anxiety –causing Repetitive behaviours in response to thoughts have a compulsive quality e.g. application of make-up, checking particular feature Reassurance-seeking from others and by using behaviours such as checking [230]	Poorer insight than OCD sufferers [230–233] Compulsive behaviour has more emotional regulation function rather than the anxiety reduction role in OCD [234]

8.4. Assessment of comorbidities with Obsessive-Compulsive Related Disorders (OCRD)

The DSM-5 introduced a chapter on OCRD that include Body Dysmorphic Disorder, Hoarding Disorder, Trichotillomania (hair-pulling disorder), Excoriation (skin-picking) Disorder. Although there are important overlaps between OCD and OCRD, there are also key difference in their biology, assessment, and management [228].

8.4.1. Body dysmorphic disorder

Body Dysmorphic Disorder (BDD) is described as an excessive and persistent preoccupation with appearance and specific body parts accompanied by marked distress [18]. OCD and BDD often co-occur, with 12% of patients with OCD having a lifetime comorbid BDD [229]. There are key similarities and differences between OCD and BDD symptoms (Table 4).

To date, there have only been three studies comparing OCD and BDD [230,235,236], showing that comorbid BDD in OCD sufferers increases the severity of symptoms, have a higher incidence of alcohol and substance misuse [236], greater functional impairment, and higher risk of lifetime suicide. There are indications that BDD is related to a higher risk than other Obsessive Compulsive Spectrum Disorders with lifetime suicide attempts of 35.2% [119,237]. Therefore, the suicide risk can be

significantly high when OCD is comorbid with BDD.

It is very important that the presence of BDD is proactively screened for when assessing a patient with OCD. In fact, the comorbidity with BDD could contribute to an increased duration of OCD before the diagnosis. Due to their belief that the problem is physical rather than psychological, most people with BDD will seek out cosmetic surgery rather than psychiatric help [229,230], which can result in the BDD being undetected for a longer period. It has been reported that individuals may have had the problem for an average duration of 10-19 years before diagnosis [238,239]. The NICE guidelines for OCD/BDD (2006) recommend five simple questions to help healthcare professionals assess for BDD [123]: (1) Do you worry a lot about the way you look and wish you could think about it less? (2) What specific concerns do you have about your appearance? (3) On a typical day, how many hours a day is your appearance on your mind? (More than 1 hour a day is considered excessive), (4) What effect does it have on your life? (5) Does it make it hard to do your work or be with friends?

8.4.2. Hoarding

Hoarding has frequently been considered a symptom dimension of OCD, and is listed as one of the diagnostic criteria for Obsessive-Compulsive Personality Disorder [240]; however, it is now recognised as a distinct diagnosis, having been reclassified by the DSM-5 [18]. It has been suggested that 20–40% of patients with OCD have compulsive hoarding as a feature [241,242]. In those individuals, hoarding seem to have unique clinical features such as hoarding of bizarre items and the fear of catastrophic consequences, the need to perform compulsions (mental and checking) before discarding an item [243]. Metanalyses have shown that the presence of hoarding compulsions in OCD is associated with poorer treatment outcomes [244]; moreover, hoarding can be associated to significant risks (fire hazards, falls, self-neglect), and it is therefore important to explore the presence of hoarding when assessing for OCD. Hoarding is normally ego-syntonic, although associated to high levels of shame, and therefore needs to be proactively explored at assessment, bearing in mind that it might only be shared after trust is established. A high score on hoarding items at the OCI [14], or the presence of a hoarding at the YBOCS checklist [22] might lead to exploring hoarding further. The assessor needs to consider that any object may be 'hoarded', including items considered valueless such as household rubbish, urine, faeces or items made in a specific location, or items associated with a particular person or time period in one's life. The Saving Inventory - Revised (SI-R) is the most widely used self-report measure of hoarding symptoms [245], and the 5-item Hoarding Rating Scale-Interview (HRS-I) [246] allows to screen hoarding according to DSM-5 criteria, by assessing several domains, including the level of cluttering, excessive acquisition, difficulties of discarding, associated distress and functional impairment.

8.4.3. Trichotillomania

Trichotillomania is defined in the DSM-5 as characterized by repetitive pulling of one's hair resulting in noticeable hair loss [18]. The prevalence of trichotillomania in OCD ranges from 4.9% to 6.9% [247–249]. Pulling episodes can last from a few minutes to several hours [250] and the patient might experience a rising subjective sense of tension before pulling out the hair and a sense of gratification or relief when pulling out the hair. Clinical assessment will explore the most common sites pulled, to include the scalp, eyebrows, and eyelashes; although, pulling from other areas of the body is common [250]. Trichotillomania might benefit from different treatments, including habit reversal training [251]. It is therefore important to assess for trichotillomania and other body focused repetitive behaviour disorders such as skin picking or compulsive nail biting, in order to provide the most effective treatment. The diagnosis is often straightforward and is made utilising the diagnostic criteria and it is best if followed by examination; it is also important to explore the presence of trichophagia as this might pose a risk of trichobezoars.

Table 5
Differences between compulsions and Tics.

	Tics	Compulsions
Spontaneous occurrence	+	-
Goal directed nature	-	++
Ritualisation of action	+/-	++
Voluntary initiation	-	++
Short	++	+
Prolonged	+/-	++
Occurrence during sleep	+	-
Suppressible	+	+/-
Premonitory sensations	+/-	-
Waxing/Waning	++	+/-
Clustering	++	+/-
Anxiety	+/-	+++
Stress as a moderator of severity	++	++

8.4.4. Tics/Tourette Syndrome (TS)

OCD and Tics conditions often occur in comorbidity. Studies in individuals with OCD described high point-time prevalence of motor tics in more than 50% and TS in 15% of patients [252,253]. Conversely, it has been reported that the lifetime prevalence of OCD in patients with TS is estimated as 20-60% and that when comorbid with OCD, TS has a severer presentation [253–256].

DSM-5 contains specifiers to delineate the presence of tics in OCD [18], and it has been shown that Tic-related OCD might have distinct features, such as a higher comorbidity rate with ADHD and ASD [257] as well as an earlier onset [258], which is in turn is associated to a higher degree of OCD severity. It is therefore crucial to screen, assess and diagnose for the presence of Tics/Tourette in OCD. Moreover, comorbidity with Tics has shown to predict good response to haloperidol augmentation to fluvoxamine refractory patients [259]. Distinguishing Tics from OCD and obsessive-compulsive behaviours can be challenging because some phenomena lay on the frontier between tics and compulsions/obsessions [260]. The most common OCD symptom in Tourette seem to be the "just right" phenomena, which can be confounded with tics, as patients may perform tics until this feeling is achieved [260]. Table 5 summarises the main differences between compulsions and tics. Whilst the diagnosis of Tourette should be made according to DSM-5 criteria [18,261], it is recognised that the assessment of Tics might be more difficult, owing to their waxing and waning nature as well as their suppressibility. The Yale Global Tic Severity Scale (YGTSS) (an instrument which provides an evaluation of the number, frequency, intensity, complexity, and interference of motor and phonic symptoms) [262] and the Tourette Syndrome Clinical Global Impression (TS-CGI) [263] are both recommended [260].

8.5. Assessment of comorbidity with substance misuse

It is very important to explore comorbidity with substance misuse as this can affect the treatment plan. The Epidemiological Catchment Area (ECA) reported that 24% of individuals with OCD have a lifetime comorbid alcohol use disorder, and 18% a drug use disorder [264]. Conversely, OCD prevalence rates among individuals in treatment for a substance use disorder range from 6% to 12% [265]. Mancebo et al. [266] more recently reported that 27% of patients with OCD have also a substance use disorder. Careful exploration of the number of weekly units of alcohol and direct questioning about any other substance is therefore important.

8.6. Assessment of comorbidity with autistic spectrum disorders

OCD and Autistic Spectrum Disorder (ASD) are frequently comorbid; it is estimated that prevalence rates of OCD are 4.9–37.2% in children and adolescents with ASD [267–269] and 7–24% in adults with ASD [268]. The prevalence of ASD in those with OCD is less clear and is thought to be under-recognised [270], although a 2020 study on young

people in South London found that 25% of those with OCD had a concurrent ASD diagnosis [271]. A large Danish population study found that individuals with OCD had an almost 4-fold increased risk of being diagnosed with autism spectrum disorder later in life [272]. While some argue that OCD and ASD are on a spectrum [273], others agree that they are distinct entities [274], although they do share some similar psychopathological elements as well as genetic, aetiological, and phenotypic characteristics. The precision of prevalence estimates for individuals with ASD who also have OCD is thought to be reduced because of symptoms similarities between the disorders; differentiating restricted repetitive interests and behaviours in ASD and obsessions and compulsions in OCD respectively can be challenging [275] as restrictive and repetitive behaviours in ASD can present as similar to compulsions when they are more complex [276]. However, differentiation is important to enable effective diagnosis and treatment opportunities. Key features distinguishing repetitive behaviours solely linked ASD from compulsions characteristic of OCD can be identified. For example, in ASD the repetitive behaviours are calming, sensory seeking, usually a source of pleasure or interest, and ego-syntonic, whereas compulsions in OCD, cause distress, are driven by anxiety, and are ego-dystonic [277].

For those with comorbid OCD and ASD there is an increased psychosocial functional impairment compared to those with either OCD or ASD alone [271]. Additionally, those individuals have been found to require services and treatment for longer, are more likely to be prescribed medication and, although improvements in functioning are still seen with treatment, gains have generally been smaller than for those with OCD alone [271]. Having ASD traits or having a diagnosis of ASD has also been associated with reduced insight into OCD symptoms [270,278]. It is therefore important to be aware of concurrent ASD and consider screening for this during the assessment of OCD as there are clear implications for treatment (for example adaptation of CBT for OCD) [275,279].

There are several screening tools available for ASD, however research into the reliability and validity of these in adults is sparse compared to in children and adolescent populations. Screening tools that might be considered include the AQ (Autistic Quotient) (a self-administered scale for measuring the degree to which an adult has traits associated with the autistic spectrum) [280], and The Autism Diagnostic Interview-Revised (ADI-R) [281] (a semi structured, clinician-administered interview children and adults with suspected ASD). A full diagnosis involves a comprehensive assessment by trained professionals.

8.7. Assessment of comorbidity with ADHD

ADHD is a neurodevelopmental condition characterised by persistent patterns of inattention and/or hyperactivity/impulsivity [18]. ADHD is more common than OCD, with worldwide prevalence of ADHD in children and adolescents estimated at 5.2% based on DSM-5 criteria [282]. ADHD symptoms can persist into adulthood in 60-70% of cases [283,284] and prevalence in adults in USA, Europe and the Middle East has been estimated to range between 1.3-7.3% [285,286]. In relation to OCD, ADHD is a frequent comorbidity, although prevalence rates among adults have considerable variation between studies [287] ADHD and OCD have been found to share some predisposing genetic features [288–292] and may affect similar neurotransmitter pathways, such as prefrontal cortical glutamate activity [293]. In terms of clinical impact of comorbid ADHD and OCD, studies have found an association with earlier age of obsessive-compulsive symptoms [294–296] and higher symptom severity and persistence in children and adolescence [296]. Further guidance on specific interventions and adaptations for those with OCD and ADHD is currently lacking. The Adult ADHD Self-Report Scale Symptom Checklist [297] can be a useful adjunct in the assessment, however diagnosis should not be solely based on these and should be made by an appropriately trained professional, undertaking a comprehensive psychosocial and clinical assessment, including developmental history and often information from observation or an informant [298].

8.8. Comorbidities with behavioural addictions and problematic usage of internet

Problematic Usage of Internet (PUI) is an umbrella term used to identify an excessive and poorly controlled use of the Internet resulting in distress or impairment. It encompasses Internet Gaming Disorder (now part of DSM-5) [18] and Internet Gambling Disorder, Cyberchondria, Cyber-Pornography Addiction, shopping, video streaming or social media use [299]. Associations between PUI and OCD have been found, with OCD being associated with high PUI scores in participants aged 55 or more [300,301]. It is therefore important to screen for the presence of PUI during the assessment of OCD. There are specific questionnaires to rate the severity of each type of addiction, for example the Internet Gaming Disorder Scale- Short Form (IGDS9-SF) [302] for internet Gaming Disorder (a tool comprising of 9 items reflecting all 9 criteria of DSM-5[21] for Gaming Disorder) and the Problem Gambling Severity Index (PGSI) [303] for gambling (a self- assessment survey comprising of 9 questions and designed to determine “at risk behaviours” with regards to gambling). However, in a routine assessment for OCD, exploring the problem within the clinical interview will suffice.

8.9. Assessment of comorbidity with personality disorders

OCD has high comorbidity rates (25%) with Personality Disorders (PD) [304] and it is therefore important to consider and assess for the presence of these disorders as they might impact on the OCD presentation, severity and outcomes [305]. With a rate of 25%, Obsessive Compulsive Personality Disorder (OCPD) is the most common PD associated with OCD [306,307]. One study reported that individuals with OCD+OCPD have lower ratings of global functioning [307], higher rates of severity and poorer insight [308], higher frequency of hoarding and ordering symptoms [307,309] and poorer treatment outcomes [310] however the latter finding has not been replicated in a further study [311]. In light of the above, it is important to screen and assess for OCPD. The Frost Multidimensional Perfectionism Scale [312] can be used to screen for perfectionism; however, a diagnosis can be made with the aid of the Structured Clinical Interview for personality disorders (SCID-5-PD) [313]. Comorbidity with Emotionally Unstable Personality Disorders (EUPD) has been reported as 5% [314]. There is very little literature investigating the relationship between OCD and EUPD. One study reported that when comorbid with EUPD the prominent features of OCD were pervasiveness, poor insight, and OCD thoughts related to relationships [315]. Screening and assessing for EUPD is vital as the increase in anxiety associated to CBT with exposure and response prevention might increase the severity of the emotional dysregulation in EUPD, with a consequent increase in risk of self-harm and/or suicide. A helpful screening tool is the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD) [316], a self-reported measure. Upon a positive screening, further assessment tools could be used, such as the Zanarini rating scale for Borderline Personality Disorder (ZAN-BPD) [317], a clinician-administered scale for the assessment of change in severity of borderline psychopathology in the prior 2 weeks, or a Structured Clinical Interview for personality disorders (SCID-5-PD)) [313], which can diagnose all Axis2 disorder. However, the latter would be impractical to be administered routinely as is extremely time-consuming. In a study comparing OCD to patients with anxiety disorders, a higher prevalence of Cluster C PD has been found in patients with OCD)[318]; specifically, in an adult population of patients with OCD, Dependent PD had a prevalence of 4.3% and Anxious-Avoidant Personality Disorders has a prevalence of 9.2% [106]. It is important to assess for the presence of these 2 disorders owing to their potential impact on treatment (reassurance seeking in the former and avoidance of treatment in the latter).

Table 6
Assessment tips and tools overview.

Diagnostic step	Tips/tools
Screening	Zohar-Fineberg, OCI-R
Diagnosis	Structured clinical assessment, SCID5, MINI
Severity	Y-BOCS
List of OC symptoms	Y-BOCS symptoms checklist
Insight	Y-BOCS (item 11); BABS
Family	Evaluate family accommodation Gather family history
Functional Assessment	SDS; WSAS
Risk Assessment	Evaluate risk to self, to others, to physical health, of self neglect, risk of accidental harm.
Neurocognitive assessment	CAIOC-13
Immunological assessment	Consider inflammatory and immune process involved in OCD
Psychiatric comorbidities	Beck's Anxiety Inventory; Impact of events scale-revised; MDQ; PHQ-9;SI-R; HRS-I; YGTSS; ASQ; SCID-5-PD.

9. Summary and conclusions

OCD is a complex disorder that needs a comprehensive assessment; this is essential for the diagnosis and management of OCD. Different areas should be assessed in order to offer effective treatment. This paper presents several factors to be considered in a global assessment of OCD in adults (Table 6).

Crucial steps in a global assessment are an accurate diagnostic formulation (including evaluation of comorbidities), the details and severity of the obsessive compulsive symptoms, a comprehensive psychiatric and treatment history. Exploring age of onset, family history and involvement, functional assessment, risk assessment as well as considering neurocognitive and immunological factors is also good clinical practice. The cognitive behavioural assessment describes how to formulate and gain a deeper psychological understanding of the patient's intrusions, their meaning and the factors maintaining the problem. In addition to taking a detailed clinical history, a number of evidence-based assessment measures are available and can be helpful in assisting with the diagnosis, evaluating severity and detecting comorbidities.

This process will help clinicians to create a good therapeutic alliance with OCD sufferers, who are often scared or ashamed by the peculiar nature of their symptoms.

The assessment is best carried out within a multidisciplinary team where possible, so that different perspectives and skills can be used to gather the information required. It is important to consider the patient's cultural background when conducting the assessment.

This can be a potentially long process; however, investing time in a comprehensive assessment can help in identifying potential barriers to improvement early on and support the development of a comprehensive treatment plan.

Future research is needed to identify new clinical predictors, questionnaires and bio-markers (to include blood tests as well as imaging studies) to aid the diagnostic process, categorize different forms of OCD, identify predictor for treatment resistance.

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Update

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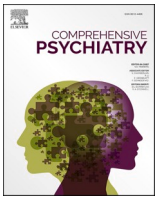

Corrigendum to "The global assessment of OCD" [comprehensive psychiatry, volume 118, October 2022, 152,342 1–17]

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The authors regret

1. Please revise the sentence "Obsessive Compulsive Disorder (OCD) is the 4th most common mental disorder [1]" to "Obsessive Compulsive Disorder has been cited as the 4th most common mental health disorder in various recent studies."
2. Update the corresponding citation from: [1] R.C. Kessler, P. Berglund, O. Demler, R. Jin, K.R. Merikangas, E.E. Walters, "Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication," Arch Gen Psychiatry, 62 (2005), pp. 593–602, https://doi.org/10.1001/ARCHPSYC.62.6.593 To: [1] Brem, S., Grünblatt, E., Drechsler, R., et al., "The neurobiological link between OCD and ADHD," ADHD Attention Deficit Hyperactivity Disorders 6, 175–202 (2014).
3. Correct the spelling of the author's name from Claire Fisher to Claire Fischer

The authors would like to apologise for any inconvenience caused.

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