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Emerging experience with selected new categories in the ICD-11: complex PTSD, prolonged grief disorder, gaming disorder, and compulsive sexual behaviour disorder

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Among the important changes in the ICD-11 is the addition of 21 new mental disorders. New categories are typically proposed to: a) improve the usefulness of morbidity statistics; b) facilitate recognition of a clinically important but poorly classified mental disorder in order to provide appropriate management; and c) stimulate research into more effective treatments. Given the major implications for the field and for World Health Organization (WHO) member states, it is important to examine the impact of these new categories during the early phase of the ICD-11 implementation. This paper focuses on four disorders: complex post-traumatic stress disorder, prolonged grief disorder, gaming disorder, and compulsive sexual behaviour disorder. These categories were selected because they have been the focus of considerable activity and/or controversy and because their inclusion in the ICD-11 represents a different decision than was made for the DSM-5. The lead authors invited experts on each of these disorders to provide insight into why it was considered important to add it to the ICD-11, implications for care of not having that diagnostic category, important controversies about adding the disorder, and a review of the evidence generated and other developments related to the category since the WHO signaled its intention to include it in the ICD-11. Each of the four diagnostic categories appears to describe a population with clinically important and distinctive features that had previously gone unrecognized as well as specific treatment needs that would otherwise likely go unmet. The introduction of these categories in the ICD-11 has been followed by a substantial expansion of research in each area, which has generally supported their validity and utility, and by a significant increase in the availability of appropriate services.

Key words: International Classification of Diseases, ICD-11, diagnosis, complex post-traumatic stress disorder, prolonged grief disorder, gaming disorder, compulsive sexual behaviour disorder, clinical utility, mental health care

The eleventh revision of the World Health Organization (WHO)'s International Classification of Diseases (ICD-11) was approved by the World Health Assembly, comprising the health ministers of all WHO member states, on May 25, 2019[1]. Reporting of health statistics to the WHO based on the new diagnostic system began on January 1, 2022[2]. WHO member states are now transitioning from the ICD-10 to the ICD-11, a process that will take several years to implement fully around the world. Countries that have not yet implemented the ICD-11 in their health information and reporting systems will use conversion algorithms in order to comply with the WHO reporting requirement in the meantime.

The primary purpose of the ICD classification is to provide a framework for the collection and reporting of information on mortality and morbidity by WHO member states, including disease surveillance and national and global health statistics. The ICD is also used by member states in the organization of clinical services from the institutional to the national level, and as an integral part of the framework for defining their obligations to provide free or subsidized health services to their citizens[3]. For individual users, the ICD organizes and facilitates clinical practice and research.

Over the past decade and within the context of the overall development of the ICD-11, the WHO Department of Mental Health and Substance Use has developed Clinical Descriptions and Diagnostic Requirements for ICD-11 Mental, Behavioural and Neurodevelopmental Disorders (CDDR), which are intended to provide sufficient information for reliable implementation in clinical settings[4]. The Department had previously published Clinical Descriptions and Diagnostic Guidelines (CDDG) for ICD-10 Mental and Behavioural Disorders[5] simultaneously with the publication of the ICD-10. The development of the ICD-11 CDDR, based on the principles of clinical utility and global applicability, has been the most broadly international, multilingual, multidisciplinary and participative revision process ever implemented for a classification of mental disorders[6]. In part, the structure and methodology for developing the ICD-11 CDDR were specifically intended to address some of the shortcomings of the ICD-10 CDDG[4]. The change in title from CDDG to CDDR relates to the development by the WHO over the past decade of a body of policies that define guidelines in a specific way that is not applicable to the CDDR.

Among the important changes introduced in the ICD-11 classification of mental disorders[6] is the addition of 21 new categories, shown in Table 1. Proposals to add new categories are invariably intended to increase the recognition and prominence of a disorder that does not appear as a specific entity in the prior edition of the classification. The most frequent rationales for such additions include the needs to: a) collect morbidity statistics on a new but currently unclassifiable mental disorder that has important public health significance; b) facilitate recognition of a clinically important but poorly classified mental disorder so that appropriate

management can be provided; and c) stimulate research into the development of more effective treatments for that condition.

In principle, there is an ICD category available for every conceivable clinical presentation of a mental disorder, based on the provision of what are called “residual categories”. Residual categories include “other specified” and “unspecified” categories for each disorder grouping (e.g., other specified mood disorder; unspecified neurocognitive disorder). “Other specified” is used when there is no ICD-11 category that corresponds to a particular presentation, and “unspecified” is used when there is insufficient information about a patient’s condition to assign a more specific diagnosis at a particular point in time.

If the clinician determined, for example, that a particular presentation involved clinically significant abnormal eating behaviours not explained by another mental disorder or medical condition or the effects of a substance or medication, the category “Other specified feeding or eating disorders” could be assigned. If the clinician considered the presentation to constitute a mental disorder but it was not clear to which grouping it belonged, the category “Other specified mental, behavioural or neurodevelopmental disorders” or “Mental, behavioural or neurodevelopmental disorders, unspecified” could be used. However, using such residual categories as diagnoses for frequently occurring clinical presentations runs counter to the core purpose of the ICD to record unambiguous health data, because the same diagnostic label could be applied to a wide array of heterogeneous and potentially unrelated presentations. This situation often gives rise to the perceived need to add a new category.

From a classification perspective, new categories can be divided into two types. The first type involves diagnostic entities that represent a novel phenomenon which is qualitatively different from existing entities in ICD and was thus not specifically classifiable. In Table 1, new mental disorder categories in ICD-11 that fit this description are designated as Type 1. For example, the phenomenology of hoarding disorder bears some resemblance to obsessive-compulsive disorder (e.g., the irrational need to save items may resemble an obsession; excessive acquisition of possessions may resemble a compulsion). However, unlike in obsessive-compulsive disorder, in hoarding disorder these behaviours are not undertaken with the goal of neutralizing or reducing concomitant distress and anxiety, and may be associated with pleasure or enjoyment. In addition, important treatments for obsessive-compulsive disorder are not effective for hoarding disorder[7]. Based on its review, the ICD-11 Working Group for this diagnostic area concluded that there was sufficient evidence to regard hoarding disorder as a separate mental disorder that had previously been under-recognized and undertreated[8]. In the ICD-10, presentations of hoarding disorder would most likely have been classified as “other specified neurotic disorder”, which is neither clinically informative nor statistically useful.

The second type of new disorder category emerges from extending, expanding or subdividing the conceptualization of an existing disorder so that it identifies a group of symptomatic presentations that are relatively homogeneous with respect to the underlying pathophysiology, course, prognosis or treatment, and sufficiently distinct so as to justify being considered a new disorder rather than a subtype of the original category. In Table 1, new ICD-11 mental disorder categories that fit this description are designated as Type 2. For example, bulimia nervosa is a well-established disorder defined by recurrent binge eating accompanied by repeated inappropriate compensatory behaviours, such as self-induced vomiting or misuse of laxatives or enemas, to prevent weight gain. It has long been noted clinically and in the literature that there is a group of individuals who recurrently engage in binge eating but not in purging or other compensatory behaviours. The symptoms of these individuals do not meet the diagnostic requirements for bulimia nervosa, but they experience high levels of distress, elevated rates of other mental disorders, and substantial general health risk[9,10]. In the ICD-10, these individuals might be diagnosed with “atypical bulimia nervosa”, “other eating disorder”, or “eating disorder, unspecified”, making unified statistical reporting and tracking of this group of patients difficult. The new ICD-11 condition, binge eating disorder, is much more common than bulimia nervosa[11], and also differs in terms of prognosis and treatment[12], justifying its addition to the ICD-11.

Given the major implications for the field and for WHO member states of adding new mental disorders to the official global classification system, it is important to examine the impact that their introduction has had. Although it has been too short a time since the official approval of the ICD-11 by the World Health Assembly for the effects of these changes to be fully evaluated, a draft version of the ICD-11 was made publicly available in 2012[13], and many papers have appeared in the scientific literature related to proposals for the classification of mental disorders in the ICD-11[6]. Therefore, the WHO’s intention to add the mental disorder categories shown in Table 1 to the ICD-11 has been publicly communicated for nearly a decade, and relevant research and clinical evidence has become available.

In this paper, we focus on the addition of four new categories to the ICD-11 classification of mental disorders: complex post-traumatic stress disorder (PTSD), which represents a modification of the ICD-10 category “enduring personality change after catastrophic experience” as well as an extension of the category of PTSD; two completely novel disorders, prolonged grief disorder and gaming disorder; and one disorder, compulsive sexual behaviour disorder, which replaces a related but poorly defined disorder that had existed in the ICD-10, “excessive sexual drive”. The “essential (required) features” from the CDDR for these four disorders are provided in Tables 2-5.

Essential features in the CDDR represent those symptoms or characteristics that a clinician could reasonably expect to find in all cases of the disorder[4]. In this sense, they

resemble diagnostic criteria in the DSM. However, artificial precision, such as using exact symptom counts and specific duration requirements as diagnostic cutoffs (unless these have been well established with appropriate global evidence), has generally been avoided. This allows for broader exercise of the professional's clinical judgment depending on the characteristics of the patient – including cultural variations in presentation – and local circumstances. It is important to note that the essential features represent only a portion of the material provided for each disorder; the CDDR also include disorder-specific information on additional clinical features, which describe important aspects of the clinical presentation that are not diagnostically determinative, boundary with normality (threshold), course features, developmental presentations, culture-related features, gender-related features, and boundaries with other disorders and conditions (differential diagnosis)[4,14].

The four disorders discussed in this paper are of particular interest because they have been the focus of considerable activity and/or controversy, which is in part related to the fact that their official inclusion in the ICD-11 as diagnostic categories represents a different set of decisions than had been made by the developers of the DSM-5[15]. Categories similar to prolonged grief disorder and gaming disorder were included in the DSM-5 section on "Conditions for Further Study", outside the main classification. A counterpart to compulsive sexual behaviour disorder was proposed and then not included in the DSM-5 at all[16]. Some symptoms similar to those of complex PTSD were added to the DSM-5 criteria for PTSD[17], but complex PTSD was not distinguished as a separate disorder.

In developing this paper, the lead authors (GMR and MBF) invited experts on each of these disorders to address the following questions: a) from a clinical perspective, why was this category considered important enough to be added to the ICD-11 and what was the evidence available at the time?; b) how were individuals with this disorder diagnosed prior to the ICD-11 and what were the implications of the absence of the diagnosis in the ICD for care?; c) what were the controversies (if any) about adding the disorder?; and d) what evidence has been generated and what other developments have occurred in relation to this category (e.g., changes in availability of clinical services) since the WHO signaled its intention to include it in the ICD-11 classification?

COMPLEX POST-TRAUMATIC STRESS DISORDER

The need for a complex PTSD diagnosis

Clinical presentations that extend beyond those described by the ICD-10 diagnosis of PTSD, particularly among individuals who experienced extreme, prolonged or multiple forms of trauma, have been reported by clinicians and researchers over several decades[18,19].

The WHO conducted two global surveys as a part of the early development of the ICD-11 classification of mental, behavioural and neurodevelopmental disorders, the first in collaboration with the World Psychiatric Association[20], and the second with the International Union of Psychological Science[21]. Among 3,222 psychiatrists and psychologists from 35 countries who participated in either survey in English or Spanish, complex PTSD was the most frequent diagnosis suggested for inclusion in the ICD-11[22]. Participants indicated that the diagnosis was needed to better account for the distinct characteristics and consequences of complex trauma.

Based on its review of the evidence, the ICD-11 Working Group on Disorders Specifically Associated with Stress recommended inclusion of complex PTSD in the ICD-11[23]. The essential features of this condition as outlined in the CDDR are shown in Table 2.

The diagnosis of complex PTSD requires the presence of all three core symptoms of PTSD (re-experiencing in the present, avoidance, and an ongoing sense of threat). In addition, complex PTSD is characterized by what are referred to as disturbances in self-organization: severe and persistent problems in affect regulation; beliefs about the self as diminished, defeated or worthless; and difficulties in sustaining relationships and in feeling close to others.

The ICD-11 diagnosis of complex PTSD acknowledges the existence of more diverse and pervasive symptoms that may particularly occur in response to certain types of traumas, such as prolonged or repetitive events from which escape is difficult or impossible (e.g., torture, slavery, prolonged domestic violence, repeated childhood sexual or physical abuse). The new category also flags the potential need for greater mental health resources in the form of longer, multi-part or multimodal therapies.

History of the disorder

In 1992, the ICD-10 had introduced a new category called “enduring personality change after catastrophic experience” (EPCACE). The ICD-10 CDDG indicated that the personality change should be enduring and manifest as inflexible and maladaptive features leading to an impairment in interpersonal, social and occupational functioning, It also required the development of features not previously characteristic of the individual, such as a hostile or

mistrustful attitude towards the world, social withdrawal, feelings of emptiness or hopelessness, a chronic feeling of being “on edge", as if constantly threatened, and estrangement. The ICD-10 CDDG also noted that PTSD could precede this type of personality change, which could therefore be seen in some cases as a chronic sequela of PTSD when it occurred in response to certain types of events. Examples of potential causes of EPCACE provided in the ICD-10 CDDG included “concentration camp experiences, torture, disasters, prolonged exposure to life-threatening circumstances (e.g., hostage situations: prolonged captivity with an imminent possibility of being killed)”[5, p.163]. Conceptually, therefore, EPCACE can be seen as a forerunner of ICD-11 complex PTSD.

However, the diagnosis was neither widely taken up by clinicians nor subject to much empirical investigation. Reasons for this include the absence of important symptoms that are part of more recent formulations (e.g., problems with affect regulation, negative views of the self) and what seemed to be a narrow range of application. For example, prolonged and severe intimate partner violence or childhood physical or sexual abuse, which are much more common than the types of experiences described in the CDDG as causes of EPCACE, were not mentioned at all. Moreover, the description of symptoms of EPCACE was very broad and general, which made clinical application and research difficult[24,25].

Concurrent with the development of the ICD-10, the DSM-IV was considering the inclusion of a new diagnosis based on a formulation of complex PTSD developed by Herman[18], which was given the name “disorder of extreme stress not otherwise specified” (DESNOS). The DSM-IV field trial for PTSD[26,27] indicated that individuals who had experienced early and chronic interpersonal trauma reported a greater number and severity of DESNOS symptoms particularly related to emotion regulation difficulties, negative self-concept, and relational disturbances, in comparison to those without such a history. DESNOS did not include any of the symptoms traditionally understood to comprise PTSD, but rather was viewed as a distinct disorder that might complement PTSD. Ultimately, DESNOS was not included in the DSM-IV on the grounds that there was not enough empirical support to warrant the addition of a distinct trauma-induced disorder. The symptoms ended up being included in the “associated features” section of DSM-IV PTSD, which facilitated clinicians’ awareness of their existence as possible post-traumatic stress reactions.

The ICD-11 proposal for complex PTSD[23] was derived from the ICD-10 EPCACE diagnosis, but many aspects of its operationalization were based on the empirical literature that emerged from the DESNOS investigations. First, the ICD-11 CDDR identify a wider variety of types of chronic and sustained trauma exposures as risk factors for the disorder, including childhood abuse and intimate partner violence. Second, while the diagnosis of EPCACE, like other ICD-10 diagnoses reflecting personality changes, was intended to describe difficulties in three domains (i.e., affect, identify and relationships), these were only

broadly described. The selection of specific symptoms and symptom clusters reflecting difficulties in these domains was guided by the DESNOS formulation in the DSM-IV field trials[26] as well as by an expert consensus survey on complex PTSD[19]. These aspects of complex PTSD are formulated in the CDDR as severe and persistent problems with affect regulation, a deep and enduring negative sense of self, and persistent difficulties in sustaining relationships and in feeling close to others. Lastly, while ICD-10 EPCACE had identified the sense of threat as a key symptom, ICD-11 complex PTSD includes all three PTSD core symptoms as part of the profile (i.e., re-experiencing in the present, avoidance, and an ongoing sense of threat). This decision was supported by the observation in the DSM-IV field trial that nearly all individuals whose symptoms met criteria for DESNOS also met criteria for these three symptoms of PTSD[26].

In summary, ICD-11 complex PTSD derived from the general conceptualization of EPCACE, which included both traditional PTSD symptoms as well as an emphasis on disturbances in affect, identity and relationships. In the ICD-10, EPCACE was included in a grouping called “enduring personality changes, not attributable to brain damage” (along with enduring personality change after psychiatric Illness), which was adjacent to the specific personality disorders. In contrast, in the ICD-11, complex PTSD is grouped together with other disorders in which a stressor is required as causal agent.

The presence of re-experiencing, avoidance and threat symptoms in both PTSD and complex PTSD highlights the continuity between the two disorders. However, the greater number and diversity of symptoms in complex PTSD, the greater impairment associated with it, and the relative dominance of the disturbances in self-organization (i.e., affect dysregulation, negative self-concept, and relational difficulties) over the PTSD symptoms indicate the importance of describing complex PTSD as an independent disorder rather than as a subtype of PTSD. The CDDR specify that an individual can be diagnosed with either ICD-11 PTSD or complex PTSD, but not both.

Controversies related to the diagnosis of complex PTSD

A debate about the clinical utility and validity of the diagnosis of complex PTSD has been ongoing since its formulation in the 1990s[28]. Several reasons have been given for rejecting its adoption in official classification systems. These include: a) the lack of a consistent definition of the disorder; b) the lack of standardized and validated measures; c) the argument that it simply represents a severe form of PTSD; and d) difficulty differentiating it from borderline personality disorder[29].

These concerns have been addressed in substantive ways. The introduction of complex PTSD into the WHO’s diagnostic nomenclature has brought with it a clear definition of the

disorder. This established definition has provided the foundations for the development of reliable measures. A self-report measure has now been validated[30], translated into over 25 languages, and made available to the international community (see www.traumameasuresglobal.com). In addition, there has been significant progress in the testing of a clinician interview[31]. The suggestion that complex PTSD is simply a more severe form of PTSD has not been supported but rather countered by over 15 studies indicating that the two diagnostic categories identify distinct trauma populations with qualitatively different patterns of symptom endorsement[32,33].

Lastly, a growing number of studies indicate that, while complex PTSD and borderline personality disorder have some overlapping symptoms, they are more distinct than similar, particularly in regard to key symptoms and treatment implications. In fact, while the affect dysregulation symptoms overlap between the two disorder, recent research shows that other borderline personality disorder symptoms are quite distinct from the disturbances in self-organization occurring in complex PTSD[34]. Specifically, borderline personality disorder is marked by instability in identity, fluctuating and volatile relationships, and the salient presence of self-injurious and suicidal behaviours, while complex PTSD tends to be characterized by a negative but stable identity, a consistent tendency to avoid or break off relationships, and relatively lower levels of impulsivity. There is some indication that differences in identity characteristics may most effectively distinguish the two disorders[35].

Review of the evidence

The validity of the complex PTSD diagnosis has been supported by a number of studies using a variety of methods and statistical approaches.

Initial investigations focused on determining whether trauma-exposed populations are best described under the umbrella of a single diagnosis, as has been done by the DSM-5 (i.e., as a part of PTSD), or if they fall into different groups based on symptom profiles and do so consistently across different settings and cultures.

In an initial validation study[36], latent profile analyses revealed that trauma-exposed individuals fell into two different subgroups, with one displaying a complex PTSD symptom profile and the other a PTSD profile. Moreover, membership in the complex PTSD subgroup was strongly predicted by a history of chronic trauma, while membership in the PTSD subgroup was predicted by exposure to single-incident trauma.

A 2017 review of studies investigating ICD-11 complex PTSD[32] reported an additional nine investigations using latent profile/class analyses, eight of which replicated the finding of distinct complex PTSD and PTSD subgroups. The studies included a variety of samples, such as individuals with histories of childhood sexual abuse, military veterans, war-exposed

civilians, and mixed trauma samples, and represented research from different regions of the world, including the US, the UK, Israel, Uganda and Bosnia, indicating the consistency of PTSD and complex PTSD profiles over many types of trauma populations and regions in the world.

More recent summaries have indicated that, relative to PTSD, complex PTSD is associated with greater comorbidity, greater impairment, and lower quality of life[33]. A prospective study has found that complex PTSD is associated with poorer health and greater cognitive decline over time[37]. A functional magnetic resonance imaging (fMRI) investigation[38] has provided evidence of distinct neural profiles of complex PTSD and PTSD patients during the processing of threatening stimuli, with increased insula and right amygdala activation in complex PTSD, a finding similar to other studies[39,40] and consistent with disturbances in emotion regulation and self-concept as described for that condition in the ICD-11.

Clinicians' capacity to accurately distinguish between the two disorders has also been documented. Using a vignette-based experimental design, an ICD-11 field trial assessed whether clinicians would be able to accurately diagnose ICD-11 complex PTSD as compared to ICD-10 EPCACE, and whether clinicians would successfully distinguish ICD-11 complex PTSD from ICD-11 PTSD, on the basis of the presence or absence of disturbances in self-organization[41]. The accuracy rate for complex PTSD was significantly higher than for EPCACE, indicating the benefits of the conceptual revision and symptom specification in ICD-11. Clinicians were also able to successfully differentiate complex PTSD from PTSD with high accuracy.

The factor structure of the symptoms comprising complex PTSD is also supportive of its construct validity. Several studies have found that each of the six symptom clusters demonstrate good to excellent internal consistency[42]. In addition, the studies have reported that higher-order factors of PTSD and disturbances in self-organization (affect dysregulation, negative self-concept, and relational difficulties) were either the best fit or a very strong fit to the data. This evidence supports the conceptualization of complex PTSD as having two higher-level symptom components (PTSD and disturbances in self-organization). It should be noted that studies with certain populations have not found this higher-level organization[e.g.,43], a finding that is of interest and requires further investigation.

A series of network analyses assessing the symptoms of complex PTSD across four nationally representative samples (Germany, Israel, the UK, and the US) found that – despite differences in traumatic experiences, symptom severity and symptom profiles – the networks (e.g., clustering of symptoms) were very similar across the four countries, providing evidence of the stability and relative invariance of the symptom clusters[44]. In addition, the analyses indicated that negative self-concept was the most central aspect of the complex PTSD formulation, followed by affect dysregulation, while the PTSD symptoms were less central to

the disorder and significantly influenced by the disturbances in self-organization. This finding supports the ICD-11 decision to identify complex PTSD as a separate disorder rather than as a subtype of PTSD, because the most dominant and influential symptoms are those unique to the new diagnostic category. This finding also has implications for assessment and treatment planning.

Implications of the complex PTSD diagnosis

One important implication of the diagnosis of complex PTSD is its potential impact on treatment. Although no systematic data have been published, clinical reports indicate that, prior to the availability of the new diagnostic category, individuals with complex PTSD were likely to be diagnosed with PTSD along with one or more co-occurring disorders, in an attempt to account for the full range of presenting symptoms[45]. Additional diagnoses might include recurrent depressive disorder, generalized anxiety disorder, panic disorder, social anxiety disorder, and personality disorder, most commonly borderline type, but also schizoid or avoidant.

The implications for care under this scenario are significant. First, multiple diagnoses confer a risk that the patient will "fall through the cracks" or have an overly long and disorganized treatment program. Second, patients might view themselves as very sick or feel stigmatized, including by health professionals, due to being diagnosed with numerous mental disorders. Third, diagnosing complex PTSD as PTSD can lead to treatment needs being underestimated. There is evidence that standard PTSD treatments primarily designed for single traumatic events may provide inferior outcomes for complex PTSD patients. A recent meta-analysis indicated that patients with childhood trauma, a group of people more likely to have a complex PTSD diagnosis, received less benefit from standard PTSD treatment than those without childhood trauma with respect to numerous symptom outcomes, including PTSD symptoms, emotion regulation difficulties, negative self-concept, and interpersonal problems[46,47].

While much remains to be determined, particularly about treatment implications, the announcement of the intention to include complex PTSD in the ICD-11 prompted considerable research interest. A PubMed search (search terms: CPTSD or "complex PTSD" or "complex posttraumatic stress disorder" or "complex post traumatic stress disorder") identified 16 publications in 2014, the year after the first formal report[23]. In the following years, the number of publications steadily increased each year, such that by 2020 a total of 322 studies had been published on this condition. This is more than double the number of publications in the 21 previous years (1992-2013) during which the term complex PTSD had existed[18].

Papers have included psychometric studies of the validity of the diagnosis, development of standardized measures, epidemiological surveys, risk factor and treatment research, and comparisons with PTSD in the DSM-5. Importantly, and consistent with the mission of the WHO, the validity of complex PTSD has been supported in studies on four continents and in a wide range of cultures. Also of interest are studies supporting the validity of the diagnosis in samples of children and adolescents[48], and its particular relevance to occupational groups such as police officers exposed to chronic and repeated stressors[49].

Research funding specific to complex PTSD has emerged, which will contribute to the progress of knowledge about how best to treat the disorder. The existence of the complex PTSD diagnosis should help draw attention to the importance of chronic trauma-related symptoms as a prominent aspect of mental health. It is hoped that the designation of complex PTSD as distinct from PTSD will have a public health benefit derived from the development of population-tailored interventions, leading to greater efficiency in the deployment of global health resources as well as better outcomes for people with these disorders.

PROLONGED GRIEF DISORDER

In the ICD-11, prolonged grief disorder is described as persistent longing or yearning for the deceased and associated intense emotional pain, difficulty accepting the death, feeling to have lost a part of oneself, an inability to experience positive mood, emotional numbing, and difficulty in engaging with social or other activities[14] (see Table 3). The severe grief response needs to persist beyond 6 months after bereavement, or for a time that clearly exceeds the norms of the person's culture. It is expected the symptoms to be associated with impaired personal, social or occupational functioning.

The need for a prolonged grief disorder diagnosis

There has been accumulating evidence over many years validating prolonged grief disorder as a specific and identifiable condition that can severely impact a minority of bereaved people. There are many factor-analytic studies indicating that the construct of persistent yearning and emotional pain, together with its associated symptoms, is a well-defined syndrome, and that this syndrome is distinct from other related disorders such as depression and PTSD[50-52]. Furthermore, studies using network-analytic approaches to model the centrality of prolonged grief disorder symptoms have converged on the conclusion that yearning for the deceased and associated emotional pain have a cascading effect on other symptoms[53,54].

It is important to note that studies of the nature of prolonged grief disorder symptoms indicate that these symptoms are not different from those typically reported in normal grief reactions[55]. The defining feature of prolonged grief disorder is that these reactions do not abate over time and continue to cause severe distress and impairment.

One of the major rationales for recognizing prolonged grief disorder as a distinct syndrome is that persistent grief can cause many physical and psychological symptoms as well as problems with functioning. Persistent grief reactions have been associated with marked occupational and social impairment[56], impaired sleep[57], increased rates of cancer and cardiovascular problems[58] and other medical conditions[59], and poor health behaviours, such as increased alcohol and tobacco use[60,61]. There is also overwhelming evidence that persistent grief reactions are associated with elevated rates of other mental disorders and symptoms, including depression[62,63], PTSD[52], suicidality[64,65], and panic[66]. Importantly, it has been shown that the symptoms of prolonged grief disorder contribute to impaired functioning beyond the effects of co-occurring depression and PTSD[67]. Taken together, these findings indicate that there is a public health need for recognition of this new diagnostic category in order to identify and successfully treat a disorder that contributes to considerable impairment amongst people who suffer from it.

Traditional conceptualizations of grief

Although having a diagnostic category for problematic and persistent grief is new, the study of grief has a long tradition in psychiatry. The importance of bereavement and loss in mental health has been extensively theorized about for many years by Freud, Lindemann, Parkes and Bowlby[68].

In his seminal text *Mourning and Melancholia*[69], Freud distinguished between normal and pathological grief by postulating that melancholia (which had some similarities to current descriptions of prolonged grief disorder) was a maladaptive form of mourning in which the object loss was so severe that affected individuals could not transfer their attachments to new relationships.

A consistent theme across earlier theorists was the role of fragmented attachments. This was articulated most clearly by Bowlby in his work on how fragile attachment tendencies acquired early in life can predispose people to pathological grief reactions in the wake of bereavement later in life[70]. Comparable to current conceptualizations of prolonged grief disorder, Bowlby recognized that yearning for the bereaved was central to the condition, as the person strives to re-connect with the lost attachment figure. The emphasis placed on the role of fragmented attachments has been supported by many studies showing that anxious attachment tendencies are associated with prolonged grief disorder[71,72].

Although these earlier theorists paved the way for the current conceptualization of prolonged grief disorder, there has been a long-standing reluctance to introduce a diagnosis of pathological grief. In the DSM-III and DSM-IV, problematic but normal grief reactions were included in the chapter "Other conditions that may be a focus of clinical attention", which included phenomena that are not mental disorders but might bring a person into contact with a mental health professional, such as parent-child relational problems. Psychiatric presentations occurring in the wake of bereavement that were sufficiently severe or impairing to be considered a mental disorder would be diagnosed based on the pattern of symptoms; for example, a major depressive episode triggered by bereavement would be diagnosed in the same way as if it had been triggered by the termination of a romantic relationship.

This DSM conceptualization of mood disturbance following bereavement was qualitatively distinct from current conceptualizations of prolonged grief disorder because, rather than placing yearning for the deceased at the core of the condition, bereavement issues were considered through the lens of depression. Moreover, because of the prevalence of depressed mood amongst the bereaved, editions of the DSM prior to the DSM-5 advised against diagnosing major depressive disorder after bereavement if such episodes were better understood to be manifestations of normal bereavement[e.g.,73].

Controversies related to the diagnosis of prolonged grief disorder

For many years, controversy has surrounded the optimal way to categorize the psychological distress that can persist after bereavement. Despite strong proposals being put forward to introduce a problematic grief diagnosis, these were rejected in earlier iterations of the DSM[74,75]. This hesitancy has been based, in part, on a view that psychiatry should not be medicalizing a nearly universal experience. That is, most people will experience grief following bereavement, and it was argued that introducing a grief diagnosis would pathologize normal grief reactions and potentially lead to over-prescription of psychotropic medication for the bereaved[76]. Moreover, the experience of grief is often culturally bound and linked to distinct religious mourning rituals, and so there have been concerns that any attempt to categorize persistent grief as a disorder may ignore this variability. To consider the merits and potential limitations of a prolonged grief disorder diagnosis, it is worth considering the evidence pertaining to the common concerns held by commentators.

The concern that a diagnostic category of prolonged grief disorder may over-medicalize the common grief response that most people experience after bereavement is countered by the evidence that only a small proportion of bereaved people actually have symptoms that meet the requirements for that diagnosis. Studies estimate that only 7-10% of bereaved people may suffer from this condition[77,78]. Prevalence is low even in groups characterized by

exposure to the traumatic deaths of close family members. For example, in a study of refugees fleeing a war zone, only 16% of bereaved people developed symptoms meeting diagnostic requirements for prolonged grief disorder[79]. At the level of the general population, estimates indicate that only 2-3% of people may experience prolonged grief disorder, in contrast with the nearly universal experience of bereavement[62,77]. These findings suggest that prolonged grief disorder does not over-pathologize problematic grief reactions, because only a small minority of bereaved people would qualify for the diagnosis.

The concern that the prolonged grief disorder diagnosis may be problematic because of cultural differences in how people mourn and express grief can be considered in two ways. First, the diagnosis requires that the persistent grief reaction needs to be outside the realm of what is normative in the person's cultural context, especially in terms of duration. Second, the diagnostic features of prolonged grief disorder have been observed in Western and non-Western countries that comprise many different cultures and religions[80-82].

There have also been concerns regarding the amount of time that needs to elapse before the grief response is considered prolonged. This issue is particularly important, because the symptoms of prolonged grief disorder are not qualitatively different from the manifestations of normative acute grief. The duration requirement, therefore, functions to achieve a balance between capturing a pathological grief reaction and not misdiagnosing normative grief. Empirical studies that have considered this question have concluded that people with severe grief symptoms persisting beyond 6 months typically have ongoing difficulties in functioning at later assessment[83,84].

Review of the evidence

The introduction of the diagnostic category of prolonged grief disorder has been supported by emerging evidence regarding both the construct validity of this category and its differentiation from other disorders. There is increasing evidence that prolonged grief disorder is a distinct syndrome that revolves around longing or yearning for the bereaved. Many factor-analytic studies have highlighted that this disorder is distinct from depression and PTSD[50-52], and is responsible for marked functional impairment beyond the effects of co-occurring depression, anxiety and PTSD[56,85]. Evidence is also emerging that prolonged grief disorder worsens the severity of co-occurring conditions after bereavement, including PTSD[86] and depression[87].

In recent years, longitudinal findings have also emerged regarding the course of prolonged grief disorder. This is critical, because the lack of evidence regarding the normative time course of grief was one of the major obstacles to the introduction of that diagnostic category in the DSM-5. Longitudinal studies assessing bereaved people at multiple time

points, and using latent growth mixture modelling to map the different trajectories of grief symptoms over time, have noted the presence of a group with high grief symptoms that do not improve over time[88-90]. However, these studies are limited by small sample sizes, relatively short follow-up assessments, or other methodological issues. Further studies, particularly those with larger sample sizes or longer-term time frames, have observed distinct trajectories in which most people are resilient to the effects of bereavement, a smaller but significant proportion have grief symptoms improving over time, others have moderate and persistent symptoms, and a smaller group exhibits high levels of grief symptoms that do not improve over time (i.e., prolonged grief)[91,92]. It appears that, whereas prolonged grief disorder and depression follow some of the same trajectories after bereavement, there are also trajectories unique to each[93]. Another study found that the ICD-11 prolonged grief disorder construct is more consistent with the observed patterns than "persistent complex bereavement disorder" as described in the DSM-5 research appendix[94]. Longitudinal studies also indicate that people with prolonged grief disorder experience deterioration in functioning, and this can persist for at least 3 years post-bereavement[90].

Research has started to shed light on the neural underpinnings of prolonged grief disorder, and this work has indicated links between characteristic symptoms of the disorder – in particular, profound yearning – and a differential pattern of activation of the neural reward system compared to normative grief[95]. Affected areas include the amygdala, the orbitofrontal cortex, the subgenual anterior cingulate cortex, the nucleus accumbens and the insula[96-101]. Notably, neural responses of people with prolonged grief disorder are distinct from those of individuals with PTSD or depression[96].

The notion that prolonged grief disorder may be associated with disturbed reward processes has also been supported by other experimental paradigms. One experiment showed that bereaved individuals with prolonged grief symptoms had a greater tendency to discount the value of future rewards (operationalized as a delayed financial incentive) as compared to bereaved persons without those symptoms[102].

On behavioral tasks, people with prolonged grief disorder are drawn to stimuli reminiscent of the deceased[103,104]. This has led to theories emphasizing the role of conditioned responses associated with a range of environmental stimuli that elicit craving for the deceased and extinguish very slowly[105]. Other studies suggest these individuals avoid reminders of the deceased[106,107]. It seems that prolonged grief disorder involves both approach tendencies towards reminders of the deceased and avoidance of these reminders as a strategy to minimize the associated emotional distress[108,109].

Numerous studies have highlighted the role of cognitive processes in prolonged grief disorder[110,111]. This includes studies that have pointed to the importance of rumination, in which people tend to repetitively think about the causes and consequences of the death, which

then contributes to worse emotional states[112,113]. Relatedly, engaging in counter-factual thinking, in which a person imagines that if he/she had behaved differently the situation would have turned out better, is associated with more severe prolonged grief symptoms[114]. The role of cognitions is underscored by evidence that more adaptive appraisals during the course of therapy mediate better outcomes for people with the disorder[115]. Further, longitudinal studies indicate that maladaptive cognitive appraisals, including rumination, mediate longer-term prolonged grief symptomatology[88,116].

There have also been advances in how we understand emotion regulatory mechanisms associated with prolonged grief disorder. The disorder tends to be associated with avoidance of emotions and thoughts associated with the deceased[117,118], suppression of unwanted emotions or thoughts[117,119], avoidance of external reminders that trigger negative emotions[120], and impaired emotional flexibility[121]. There is also evidence that people with prolonged grief disorder show a distinctive disconnection between the experience and the expression of emotion; specifically, whereas they report strong affective experiences, they nonetheless are less facially expressive than bereaved controls[122].

Implications of the prolonged grief disorder diagnosis

The introduction of the prolonged grief disorder diagnosis in the ICD-11 has contributed to a surge of interest in problematic grief reactions, resulting in greater understanding of these conditions. Importantly, it has clearly influenced the recent decision by the American Psychiatric Association to promote the research category “persistent complex bereavement disorder” from its status as a condition for further study to being a full-fledged disorder in the DSM-5 Text Revision (DSM-5-TR)[123]. The new DSM-5-TR category has adopted the ICD-11 name and has been placed in the chapter on Trauma and Stress-Related Disorders. Prolonged grief disorder in the DSM-5-TR is defined very similarly as in the ICD-11, with the exception that it requires 12 months to have elapsed since the loss as compared to 6 months in the ICD-11[124]. It is a huge advance for the global study of prolonged grief disorder that the two major classification systems of mental disorders used around the world are converging on the definition of this syndrome. This will promote much greater standardization in diagnosis, lead to better estimation of global prevalence rates, and facilitate better dissemination and implementation of evidence-based treatments.

One of the major aims of introducing the prolonged grief disorder diagnosis was to identify individuals who could benefit from available evidence-based treatments. There is now convergent evidence from multiple controlled trials that grief-focused psychotherapy is the treatment of choice, with most patients responding positively to this intervention[125-128]. There is also evidence that this treatment is more effective than other often-used psychotherapeutic

interventions[125] as well as selective serotonin reuptake inhibitors (SSRIs)[129]. This conclusion is supported by recent meta-analysis of published prolonged grief disorder treatment studies[130]. This accumulating evidence highlights that a more standardized approach to diagnosing prolonged grief disorder can be helpful in directing persons with this condition to the best available care.

GAMING DISORDER

Video-gaming has become one of the most popular and accessible leisure activities worldwide, based on which a global multi-billion-dollar industry has been built. In recent years, the gaming landscape has evolved significantly, with the rise of e-sports (multiplayer video games played competitively for spectators) and streaming platforms fuelled by constant advancements in Internet-enabled portable and dedicated home gaming hardware.

For the vast majority of consumers of gaming products and services, recreational gaming can confer personal and social benefits[131,132], even with relatively high levels of engagement (e.g., daily use for several hours or longer). Research has shown that gaming is an activity that can fulfil basic psychological needs such as relatedness, autonomy and competence[133], especially for players able to successfully integrate their gaming activities with other important life domains[134-136].

In the context of the COVID-19 pandemic, some preliminary data suggest that involvement in gaming activities may have mental health and social compensatory benefits for those experiencing reduced face-to-face social contact due to social distancing or lockdown conditions[137,138].

The need for a gaming disorder diagnosis

Excessive video-gaming, characterized by loss of control over gaming behaviour, can lead to functional impairment and have negative consequences on physical health, social, educational and occupational domains[139-143]. Longitudinal studies have indicated that sustained problematic gaming behaviours are associated with psychopathological symptoms over time (e.g., anxiety and depressive symptoms) and predict decrements in functional outcomes (e.g., school performance)[144-146].

Problem gaming was recognized as a potential mental disorder by the American Psychiatric Association with its inclusion of “Internet gaming disorder” in the DSM-5 in its appendix of “Conditions for Further Study”. With the approval of the ICD-11 in 2019, gaming disorder has been officially recognized as a mental disorder[14], included in the new grouping

of disorders due to addictive behaviours, which also includes gambling disorder. The essential features of gaming disorder according to the ICD-11 CDDR are presented in Table 4.

There is mounting evidence of a relatively high prevalence of problem gaming in the general population. A recent meta-analysis based on 53 studies estimated that the worldwide prevalence of problematic gaming was approximately 1-2%[147]. The clinical research base was initially drawn predominantly from studies conducted in East Asian countries (specifically, South Korea, Japan and China) that were at the forefront of recognizing and responding to the phenomenon, but problem gaming has steadily become an internationally recognized public health issue. For example, specialized treatment services for the disorder have been developed in most American, European and Asian countries, suggesting that the condition is not primarily driven by specific cultural (e.g., collectivist as compared to individualist) or other region-specific factors.

Clinical studies describing treatment-seeking cases[148-152], including studies of large samples of patients (N>200)[148,150], have highlighted increasing referrals and associated service demands related to problem gaming. Studies examining problem gaming and co-occurring diagnoses have noted that the former can be a primary diagnosis[148,153,154], but in other cases may be a secondary clinical issue, for example, arising as a maladaptive coping strategy or compensatory mechanism[155]. Health care and counselling facilities worldwide have encountered growing demands for services related to problem gaming since the mid-2000s[156].

Prior diagnostic practice and implications for care

Prior to WHO's publication of diagnostic requirements for gaming disorder as part of the ICD-11 CDDR, individuals seeking treatment for problematic gaming behaviours were often diagnosed with alternative conditions (e.g., in the ICD-10, pathological gambling, another habit or impulse disorder, a mood disorder, an anxiety disorder). This heterogeneity in the assigned diagnosis affected the type of treatment provided and hindered the collection of reliable data regarding individuals seeking treatment. The treatment offered to such individuals varied widely, depending on locally available mental health facilities, which often lacked relevant clinical expertise.

Outside the East Asian context, almost no national health care responses or other organized health service programs had developed in response to this need[139,156,157], even in pioneering countries that had highlighted gaming disorder in their national health or addiction strategic plans more than a decade ago[158,159]. Lack of recognition of gaming disorder as a diagnostic category in the ICD appeared to be a major obstacle to provision of specialized care for patients and their families[139,156,160].

Overall, including gaming disorder in the ICD-11 has been an important step towards providing more effective, safe and person-centered care in a timely, integrated and efficient way[161]. However, there remains some uncertainty among health professionals regarding how to respond to problem gaming. Although some programs have been developed based on evidence-based treatments known to be effective for other mental health and addictive disorders, there remains a need for more methodologically robust treatment studies (e.g., large-scale randomized controlled trials with longer-term follow-up) focusing specifically on gaming disorder[162].

Furthermore, to inform the development of more effective and comprehensive policies, there is a need for improvements in systems for monitoring problem gaming and gaming disorder in the population (e.g., relevant information on prevalence; clinical profiles of individuals presenting with problem gaming; associated morbidity and mortality) as well as indicators of resource allocation, treatment coverage, treatment effectiveness, and health care quality[139,163].

Controversies related to including gaming disorder in the ICD-11

Debates and controversies related to the recognition of gaming disorder as a mental disorder have existed for decades, echoing similar debates in the field of gambling studies[164].

Criticisms of gaming disorder intensified following its inclusion in the public draft version of the ICD-11[165-167] and when the ICD-11 was officially adopted by the World Health Assembly. Critics have tended to put forward the following arguments: a) supporting evidence has mainly been the product of “confirmatory approaches”; b) recognition of the disorder might result in pathologizing non-problematic gaming; and c) the notion of problematic gaming has been driven by “moral panic” rather than by scientific evidence.

The criticism of the validity of gaming disorder due to the use of confirmatory approaches[165,167] contends that high rates of gaming were conceptualized *a priori* as an addictive disorder and this conceptualization was then confirmed when excessive gaming was observed, without considering alternative explanations[168,169]. A study employing a confirmatory approach would adapt existing addiction-based screening tools and substitute the term “gaming” for substance use, rather than developing new tools that may better reflect harmful or pathological gaming engagement[170]. The evidence base may be further compromised by lack of rigorous psychometric validation of scales and reliance on non-clinical convenience samples[171].

Another argument in opposition to gaming disorder has been the view that its diagnostic formulation, particularly the DSM-5 diagnostic criteria set intended for further study, may be poor at discriminating between normal (non-problematic) and harmful or pathological gaming

behaviours[132,172,173]. The concepts of tolerance, preoccupation and withdrawal have attracted scrutiny for their imprecise operationalization when applied to gaming and other addictive behaviours. For example, the DSM-5 criteria for Internet gaming disorder operationalize tolerance as "the need to spend increasing amounts of time engaged in Internet games"; preoccupation as "the individual thinks about previous gaming activity or anticipates playing the next game; Internet gaming becomes the dominant activity in daily life"; and withdrawal as "symptoms such as irritability, anxiety, or sadness when Internet gaming is taken away"[15, p.795]. Some authors have reported that gamers who do not exhibit evidence of other psychopathology or functional impairment may endorse such items intended to parallel substance addiction[174-176], thus challenging their diagnostic utility[172].

In an attempt to address these issues, a recent international Delphi study[177] investigated the clinical validity, utility and prognostic value of the DSM-5 research criteria for Internet gaming disorder, as well as the proposed ICD-11 diagnostic requirements. The study found that experts agreed that criteria such as tolerance, deception and mood regulation were less capable of distinguishing between problematic and non-problematic gaming and should not be used to diagnose gaming disorder. Furthermore, no consensus emerged among experts regarding the validity and clinical utility of the withdrawal or preoccupation criteria, suggesting that more research was needed before accepting them as diagnostic features of gaming disorder. On the other hand, this Delphi study supported the pivotal role of the core ICD-11 diagnostic requirements: loss of control (over gaming), persistence despite negative consequences, and functional impairment as a result of gaming. Participating experts agreed that the ICD-11 CDDR were likely to identify the condition adequately, and more likely to avoid pathologizing intensive but healthy gaming behaviours.

Some authors have further argued that support for the concept of gaming disorder may be based on "moral panic" rather than scientific evidence[165,178]. Moral panic refers to fear or anxiety that the well-being of a community or society is threatened by a particular group or by social or technological changes. These authors argue that fears related to Internet gaming are not dissimilar to past concerns about technological developments like radio and television[179].

The moral panic argument tends to advance the notion that a gaming disorder diagnosis will lead to undue concerns about the risks of gaming and will stigmatize individuals who play games, further perpetuating negative views toward gaming that predate the scientfic literature and the WHO's recognition of gaming disorder. However, the ICD-11 CDDR are clear in specifying a high threshold for classifying gaming disorder (including significant distress or functional impairment), and do not state that gaming has inherent risks or harms.

Review of the evidence

Research evidence has accumulated since WHO's proposal to include gaming disorder in the ICD-11 was made public (approximately in 2012). Epidemiological research on gaming disorder was already increasing, but has accelerated even more in recent years. This increase has been especially marked in Europe[180,182] and Asia[183,184]. The evidence base includes general population health surveys, large surveys of adolescents in schools, and targeted non-representative online surveys of adult gamers.

Systematic reviews of large-scale studies[185-188] have reported prevalence rates from 1 to 3%, with slightly higher prevalence rates of 4 to 5% for adolescents. Males are 2 to 4 times more likely to report problem gaming than females[188], and Asian countries have reported higher prevalence rates than Western countries.

Stevens et al's meta-analytic review[188] reported that the main variable affecting prevalence rates was the choice of the measurement tool for assessing problem gaming symptoms. The field has employed more than 30 different screening tools across more than 300 studies[171]. Screening approaches based on the DSM-5 research criteria for Internet gaming disorder may misclassify some highly engaged gamers as disordered[189], in line with experts' observations that some DSM-5 symptoms lack diagnostic utility[178]. Higher-quality studies (e.g., stringent sampling, cross-validation with quality of life and impairment measures) tend to report much lower prevalence rates[173], typically below 1%.

Longitudinal studies on the stability of gaming disorder are limited and have reported inconsistent data[187], including findings that less than 1%[190] or up to 26%[191] of adolescents with gaming disorder have symptoms that continue to meet diagnostic requirements at 2-year follow-up. There is a need for more robust epidemiological studies, including studies of the course of the disorder in higher-risk groups and clinical samples across different global regions. Rigorous studies are needed to examine whether it is possible to predict which adolescent problem gamers are likely to experience problems into adulthood and features associated with persistence (e.g., multiple types of gaming behaviours, substance use), as has been explored for adolescent gambling[192].

Studies utilizing representative samples (e.g., recreational gamers, problematic gamers, treatment-seeking gamers) and/or strong research designs (experimental or longitudinal) have yielded important evidence regarding neurobiological and psychological factors involved in gaming disorder. At the neurobiological level, Yao et al[193] provided a systematic review and meta-analysis of case-control studies reporting functional and structural neural alterations in fronto-striatal and fronto-cingulate cerebral regions in problem gamers. A more recent longitudinal study of a large sample of problematic and non-problematic gamers found that problem gaming was characterized by greater dorsal striatal connectivity with the middle frontal gyrus, suggesting a ventral-to-dorsal striatal shift that aligns with other research on substance use and addictive disorders[194]. Other neurobiological similarities with addictive

disorders include a stronger response to gaming on fMRI than to food (a primary reward) in problematic gamers but not in recreational gamers[195].

Numerous studies have investigated the cognitive correlates of problematic gaming (e.g., executive control, attentional bias, decision-making abilities)[196], typically involving neuropsychological testing in laboratory settings. There is robust neuropsychological evidence derived from multiple studies that problematic gaming patterns are associated with inhibitory control impairment[197], supporting the notion that loss of control over gaming is a key feature of gaming disorder. Finally, a number of studies conducted on treatment-seeking cases showed that gaming disorder is frequently associated with heightened impulsivity, affective instability, and dysfunctional personality traits as assessed using psychometric questionnaires[148,198,199].

Research on clinical interventions for gaming disorder has also accelerated during this period, particularly in countries that have developed specialized outpatient services for problem gaming[159,200]. East Asian countries – including South Korea, Japan and China – have been more proactive in developing wide-ranging public health interventions and treatment programs for gaming problems[148,201,202]. The clinical literature includes data on the experiences of hundreds of gaming disorder patients, including self-referred adult patients and families seeking help for an adolescent who may or may not be willing to attend treatment[159,162]. Moreover, some patient intake data from specialized mental health services are available, which highlight the public demand for these services.

The Kurihama Medical and Addiction Centre in Japan reported treating more than 200 patients with gaming disorder in 2019, which for many adolescent patients involved working with parents and other family members[157]. In the UK, the National Health Service (NHS)-funded specialist service for gaming disorder, positioned within the National Centre for Behavioural Addictions, received more than 50 patients between January and May in 2021[204]. Other studies have shown that individuals with gaming-related problems may also seek assistance from gambling treatment services[199], units that specialize in the treatment of behavioural addictions[151,154], broader treatment providers dealing with addictive disorders in general[204], or non-specialized services[200].

Studies that include the administration of diagnostic interview schedules to identify co-occurring conditions have reported that individuals diagnosed with gaming disorder experienced negative consequences in multiple life areas[199,205-210]. Many adolescent gaming disorder patients reported problems including reversal of day-night sleep-wake patterns, skipping meals due to gaming, physical violence toward others and hitting or breaking things when asked to stop or reduce gaming, poor school grades or work performance, and absence from school or work[201].

Ko et al[207] compared individuals formally diagnosed with gaming disorder with non-problem gamers. They found that those with gaming disorder reported significant functional impairment across multiple domains, including academic and work performance, social functioning, and physical health (including problems related to sleep, pain, body weight, vision, and physical exercise). Psychological interventions designed to reduce gaming time and gaming disorder symptoms have demonstrated significant improvements in global measures of functional impairment[154,204].

At the same time, it must be acknowledged that, in the context of the dramatic increase in scientific publications on problem gaming, many low-quality studies have also been published. Weaker studies have relied extensively on self-selected samples that do not necessarily include regular and/or problematic gamers, have used unvalidated or psychometrically poor self-report assessment instruments, or have made causal inferences based on insufficient evidence[167,169,170]. This has fuelled criticisms about the robustness of the supporting evidence. Opponents of the disorder have selectively cited low-quality studies to advance their arguments that the totality of evidence in favour of gaming disorder is insufficient or invalid, usually via news media and social media.

Additional research is important to understand more completely the nature of gaming disorder, its pathological mechanisms, its commonalities with gambling disorder and disorders due to substance use, its long-term course and comorbidities, and its treatment. Nonetheless, there is clearly more than enough evidence to conclude that: a) individuals with gaming disorder are a legitimate clinical population for whom health services can be appropriately provided; b) it is clearly of sufficient clinical and public health interest to WHO member states to justify the collection and reporting of health information focused on gaming disorder; and c) on this basis, the inclusion of this diagnostic category in the ICD-11 is justified. If necessary, the CDDR for gaming disorder can be modified in future updates of the ICD-11 in response to emerging evidence, but such evidence would be much less likely to become available if the category were not included in the ICD-11.

Implications of the gaming disorder diagnosis

The recognition of gaming disorder in the ICD-11, as well as its inclusion in the DSM-5 research appendix, has accelerated basic and applied research endeavours[211,212]. Research into problem gaming has advanced particularly in the areas of epidemiology, neurobiology and interventions, and has also stimulated scientific interest in problematic engagement in other online activities (e.g., social networking sites, Internet pornography use, and e-commerce)[213,214]. An advantage of the more streamlined ICD-11 conceptualization of gaming disorder as compared to DSM-5's has been its clarity regarding the scope and clinical

description of the condition, eschewing some traditional addiction concepts that have been criticized or have received mixed support as applied to problem gaming[140,141,172]. The WHO has also supported several initiatives related to problem gaming, including the development of new screening and diagnostic tools, promotion of standardized decision-making tools, and support for health systems internationally[215].

Research on psychological interventions for gaming disorder is an area that has grown in conjunction with the recognition of the disorder[159,162]. These interventions, particularly cognitive-behavioural therapy (CBT), have been examined in more rigorous studies and thus far demonstrated strong short-term efficacy[147]. Recently, a randomized controlled trial evaluating the efficacy of a manualized CBT program for gaming disorder found that most patients (69%) who received the intervention showed remission compared with less than one-fourth (24%) of those in a waitlist control group[154]. Other approaches that have been tested in clinical trials include motivational interviewing and counseling, family therapy, and psychosocial rehabilitation[204,216].

Government support for research programs and public health responses to gaming disorder have varied greatly by region[217]. In East Asian countries, there have been long-standing coordinated governmental efforts to support research and public health initiatives[149,157]. In comparison, there has been more limited funding for research and fewer public resources for treatment across Western countries[218]. Examples of concrete developments following the release of the ICD-11 include the opening in the United Arab Emirates of the first outpatient clinic for the treatment of gaming disorder, and the establishment by the NHS in the UK of the National Centre for Behavioural Addictions, which provides treatment for gambling and gaming disorders. Across many countries worldwide, there remains a need for training programs for health care professionals on identifying and managing gaming disorder.

The global gaming industry has adopted a public stance in opposition to the inclusion of gaming disorder in the ICD-11[218,219]. The industry has also used its public platform and reach to endorse scholars who challenge the disorder and to direct public attention to research highlighting the benefits of gaming. To date, there has been very limited collaboration between the industry and public health stakeholders in relation to problem gaming, despite some calls from researchers for the industry to leverage its capabilities to assist in identifying and assisting vulnerable gamers. There have also been some proposals for the industry to consider more ethical game design standards and business practices[141], particularly in relation to games marketed to children[220] and monetized games (e.g., prohibiting “loot boxes” that enable in-game purchases of advantageous game features using virtual currencies or real-world money)[221].

COMPULSIVE SEXUAL BEHAVIOUR DISORDER

The need for a compulsive sexual behaviour disorder diagnosis

Compulsive sexual behaviour disorder is a new diagnostic category in the ICD-11, included in the grouping of impulse control disorders. The essential features of this condition in the CDDR are presented in Table 5. The diagnostic category is intended to identify a clinical population of people who experience being unable to control their sexual impulses and for whom health services might reasonably be provided. The inclusion of the category in the classification is responsive to the needs of WHO member states to identify this population and to develop relevant clinical services and policies, including subsidized treatment provided by governments or via other insurance mechanisms.

Compulsive sexual behaviour disorder replaces the ICD-10 category of "excessive sexual drive", but is defined and operationalized quite differently. The ICD-10 CDDG for "excessive sexual drive" contain no specific diagnostic requirements and instead simply state that "both men and women may occasionally complain of excessive sexual drive as a problem is its own right, usually during late teenage or early adulthood"[5, p.152]. However, complaints of excessive desire alone do not identify a clinically relevant problem with public health significance[222]. The challenge in defining compulsive sexual behaviour disorder in the ICD-11 was to balance its ability to identify people in need of treatment against the risk of pathologizing variants of sexual desire and behaviour that are not inherently harmful or pathological[223,224].

Clearly, the ICD-10 description of "excessive sexual drive" would encompass a range of individuals whose sexual interests, desires and impulses are not pathological but who may experience them as excessive because they are unwanted or "morally incongruent"[225] (e.g., a woman who believes that she should not have sexual impulses at all; a religious young man who believes that he should never masturbate; persons who are distressed about their homosexual attraction or behaviour). The ICD-11 makes clear that distress related to the individual's (or others') moral judgements and disapproval related to sexual impulses, urges or behaviours that would otherwise not be considered indicative of psychopathology is not an appropriate basis for diagnosing compulsive sexual behaviour disorder. The "additional clinical features" section of the CDDR for the disorder also indicates that particular attention must be paid to the evaluation of individuals who self-identify as having the disorder (e.g., calling themselves "sex addicts" or "porn addicts") in terms of whether they actually exhibit the clinical characteristics of the disorder[14].

History of the disorder

The existence of a clinical population of individuals who feel unable to control their sexual impulses and as a result engage in repetitive and problematic sexual behaviour, sometimes with very serious consequences, has long been recognized. Prior to the proposal to introduce compulsive sexual behaviour disorder in the ICD-11[223,226], there has been more than a quarter century of active research[227,228] on the symptomatology, comorbidities, etiology, linkages to clinical outcomes (such as risk for sexually transmitted infections[229]) of a condition defined in relation to repetitive sexual behaviour, as well as related risks in the forensic context (especially for sexual reoffending[230]).

It is therefore not the case, as some have claimed, that this diagnostic category is simply a fashionable new label that has emerged in relation to the increased use of digital media for sexual purposes (e.g., use of Internet as a source of pornographic material or a means of finding casual or anonymous sex)[231]. However, there is no question that greatly increased opportunities to engage in sexual behaviour via the Internet without even having to leave one's home has changed the nature of these behaviours and greatly facilitated their frequent repetition[232], therefore possibly contributing to an increase in the prevalence of compulsive sexual behaviour disorder.

ICD-11 Working Groups agreed on the relevance of the clinical phenomenon, but it was less clear where to place the disorder within the classification, how to operationalize it, and how to name it[226]. The term "sexual addiction" in the US came mainly from the self-help group movement[233]. The term "sexual compulsivity" emerged in the field of human immunodeficiency virus (HIV) research, primarily from studies with samples of men who had sex with men[234-236]. "Sexual impulsivity" was described as a symptom of borderline personality disorder[237], and "hypersexuality" had been used to describe a symptom associated with various other disorders, for example dementia[238] or Parkinson's disease[239].

A category called hypersexual disorder had been proposed for inclusion in the DSM-5[228]. This was conceptualized as being "characterized by an increased frequency and intensity of fantasies, urges, and enacted behaviors associated with an impulsivity component"[228, p.385]. The disorder was proposed for inclusion in the DSM-5 chapter on sexual dysfunctions because increased or disinhibited expressions of sexual arousal were considered to be its primary component, although some of its criteria had been modeled after those of substance dependence. There was substantial criticism of the proposal. The main arguments against it were that it represented a pathologization of normal variation (i.e., high sex drive), that there was insufficient evidence of its validity as a distinct clinical syndrome, and fears that the diagnosis could be misused in forensic settings by individuals seeking to evade responsibility

for sexual misbehaviour[16,240]. In the end, hypersexual disorder was not included even in the DSM-5 section on "Conditions for Further Study", despite relatively successful application in a field trial[241].

Although there is clearly similarity between ICD-11 compulsive sexual behaviour disorder and hypersexual disorder as proposed for DSM-5, the ICD-11 entity is not conceptualized as a sexual desire disorder, and its diagnostic requirements do not focus on determining whether sexual interests and behaviour are excessive in their intensity, frequency, or time spent on them. Rather, the central feature of the ICD-11 diagnostic category is the persistent pattern of failure to control intense, repetitive sexual impulses or urges, resulting in repetitive sexual behaviour with a variety of negative consequences for the individual, including marked distress or significant functional impairment.

This conceptualization clearly aligns compulsive sexual behaviour disorder with impulse control disorders, although aspects of its description are similar to those of ICD-11 disorders due to addictive behaviours. The ICD-11 CDDR explicitly state that a diagnosis of compulsive sexual behaviour disorder should not be assigned to individuals with high levels of sexual interest and behaviour (e.g., due to a high sex drive) who do not exhibit impaired control over their sexual behaviour. The WHO explicitly decided not to classify the new diagnostic category in the grouping of disorders due to addictive behaviours (i.e., with gambling disorder and gaming disorder) because the evidence was not considered to be strong enough to support this model[223,226]. The WHO specifically declines to use the term "sex addiction".

Controversies related to the diagnosis of compulsive sexual behaviour disorder

Controversies about the nature of this phenomenon and its classification have existed since the 1990s, particularly in relation to the term "sex addiction" and the condition's etiology[227]. More than 20 years ago, Gold and Heffner[242] reviewed the available literature – comparing the competing conceptualizations as an addictive, obsessive-compulsive, or impulse control disorder – and subtitled the resulting article *Many Conceptions, Minimal Data*. These controversies were never definitively resolved, which contributed to a diversification of research in different areas independently of one another, with the result that studies based on different paradigms were often not directly comparable.

These controversies were also reflected in adversarial and sometimes *ad hominem* comments made on the ICD-11 platform about the inclusion of compulsive sexual behaviour disorder in response to the public draft version of the classification[13]. One focus of controversy revolved around whether certain patterns of sexual behaviour can reasonably be considered to represent an addiction[243,244]. A more extreme perspective reflected in some comments on the ICD-11 platform was that sex addiction is a false construct that has been promoted by

profiteering providers of unvalidated services and is fundamentally based on sex-negative moral or religious judgments. The disagreement about the diagnostic construct and the lack of uniform diagnostic guidelines has fuelled discussions in the media and questions among the public regarding its legitimacy as a disorder[245] and has also hindered the development of evidence-based therapeutic approaches[227].

Nonetheless, a large number of people describe themselves as having difficulty controlling their sexual behaviour, even though it is not always clear what they mean. In a US nationally representative sample of adult Internet users, 1% of men and 3% of women reported some agreement with the statement "I am addicted to pornography"[246]. In another nationally representative US study, 10.3% of men and 7.0% of women endorsed clinically relevant levels of distress and/or impairment associated with difficulty controlling sexual feelings, urges and behaviours[247].

The WHO has attempted to sidestep many of the controversies in the area while acknowledging the existence of a clinical population of individuals who feel unable to control their own sexual behaviour and as a result experience substantial distress and sometimes quite severely negative functional outcomes. These presentations were considered to meet the basic definition of a mental disorder[223,226] and to be associated with substantial suffering for which health services might reasonably be provided. The CDDR point out that the relevant behaviours do not represent true compulsions (as defined in obsessive-compulsive disorder), but this term was used to describe the behaviour pattern because of the prevalence of its use in the scientific literature.

Review of the evidence

Prevalence data using the ICD-11 diagnostic requirements are not yet available at the general population level. Castro-Calvo et al[248] studied compulsive sexual behaviour disorder in two independent convenience samples in Spain, one comprising university students and the other community members who had volunteered to participate in a study about their sexual behaviour. The estimated prevalence of the disorder was 10.1% in the student sample and 7.8% in the community sample. Participants reporting symptoms meeting the requirements for the disorder were mostly heterosexual males, younger than the other respondents, and with higher levels of sexual sensation seeking and interest in sex, increased offline and especially online sexual activity, more depressive and anxious symptoms, and poorer self-esteem.

Another study of US university students found that same-sex attraction was significantly correlated with compulsive sexual behaviour[249]. However, Gleason et al[250] found that the

prevalence of clinically significant compulsive sexual behaviour among gay men in the US (7.9%) was not higher than in the general population[247].

Across studies, endorsement of items related to compulsive sexual behaviour seems to be associated with male gender[247,248], younger age[246,250], religiousness[246,250], and moral incongruence (i.e., the experience of engaging in activities that violate one's moral values)[225]. In the absence of the other essential features, such subjective reports would not be sufficient for a diagnosis of compulsive sexual behaviour disorder in the ICD-11. In studies of men who have sex with men, self-reported compulsive sexual behaviour has been found to be correlated with depression[251], anxiety[252], and minority stress (i.e., the stress associated with stigma-related social disadvantage that compounds general life stress)[253], as well as to be associated with higher rates of sexual risk-taking behaviours[254,255].

A Swedish study reported a high need for health care specific to experiencing compulsive sexual behaviour[256]. During the first 7 years of its operation, 1,573 participants contacted a Swedish helpline specifically set up to provide counseling and treatment for high-risk sexual behaviours to men and women with self-identified out-of-control sexual behaviour and unwanted paraphilic arousal patterns. Compulsive sexual behaviour was reported by 69% of helpline users.

Clinical studies often investigate comorbidities between compulsive sexual behaviour disorder and other disorders. In one such study of a convenience sample of Spanish college students[257], more than 91.2% of participants with that ICD-11 diagnosis also had symptoms that met the diagnostic requirements for at least one other Axis I mental disorder during their lifetime, as assessed by the Structured Clinical Interview for DSM-IV-TR, compared to 66% of those without the diagnosis. Participants with compulsive sexual behaviour disorder were more likely to report disorders due to alcohol and other substances (mainly cannabis and cocaine), major depression, bulimia nervosa, and adjustment disorder.

In another study, 6.5% of treatment-seeking individuals with gambling disorder reported experiencing compulsive sexual behaviour[258]. The lifetime prevalence of ICD-11 compulsive sexual behaviour disorder was found to be 5.6% in patients with current obsessive-compulsive disorder[259]. Elevated rates of compulsive sexual behaviour have also been found among individuals with attention-deficit/hyperactivity disorder (ADHD)[260], bipolar disorder[261], borderline personality disorder[257,262], PTSD[263], paraphilias[264], and erectile dysfunction[264,265]. Many individuals with compulsive sexual behaviour also report a history of sexual abuse as a child[266], and the relationship between child sexual abuse and the behaviour appears to be stronger in men[267].

Neurobiological and neuropsychological evidence about compulsive sexual behaviour and compulsive sexual behaviour disorder has also been accumulating. Individuals who report compulsive sexual behaviour, as compared to individuals who do not, exhibit increased blood

flow in the reward system of the brain in response to erotic cues[268-270], greater responsivity and attention to erotic cues[271-273], increased gray matter volume in the left amygdala[274], and decreased right caudate nucleus volume[275]. Men with compulsive sexual behaviour disorder, relative to controls without the disorder, also show increased anticipatory response to cues predictive of erotic rewards in the ventral striatum and anterior orbitofrontal cortex[276]. Current findings suggest that compulsive sexual behaviour disorder shares similar brain region abnormalities with both obsessive-compulsive disorder and substance addiction, although further work is needed to elucidate the underlying brain mechanisms[277].

One group of researchers has studied the pathophysiological mechanisms in men who report problems with compulsive sexual behaviour. They found that MIR4456 (an mRNA gene) had lower expression in males reporting vs. those not reporting the behaviour, and posited that MIR4456 may play an important role in the oxytocin signaling pathway related to the expression of the behaviour[278]. They also found subtle deregulation of the hypothalamus-pituitary-gonadal axis, with increased luteinizing hormone plasma levels, but not differences in testosterone levels, between men reporting vs. those not reporting issues with compulsive sexual behaviour[279].

In terms of treatment of the disorder, there have been several relevant advances since earlier reviews on the topic[280,281]. Randomized controlled trials have been conducted using a 7-week CBT group intervention[282] as well as Internet-administered CBT[283], both of which showed significant reductions in symptoms as compared to waitlist control groups. Individuals treated with acceptance and commitment therapy reduced their Internet pornography use as compared to a waitlist control[284], as did participants in a CBT-based self-help intervention[285]. Other studies have shown beneficial effects on compulsive sexual behaviour of a 12-step self-help group[286], a mindfulness-based intervention[287], an intervention to reduce sexual risk behaviour in HIV-positive men[288], and an intervention designed to reduce minority stress[253].

With regard to pharmacological treatment, a small study with no control group found a reduction in compulsive sexual behaviour in response to 25-50 mg of naltrexone for four weeks[289]. No clear longer-term beneficial effects were seen in response to the SSRI paroxetine in a case series[290], consistent with the results of an earlier study[291]. Single case studies have been published on successful use of transcranial magnetic stimulation[292,293].

In spite of uncertainties about compulsive sexual behaviour disorder, its course, and its relationship to other disorders, there is ample evidence of the existence of a clinical population of individuals who experience themselves as unable to control their repetitive sexual behaviour, in whom the behaviour pattern is manifest over an extended period of time and is associated with significant functional impairment or marked distress that is not solely related to moral judgments and disapproval.

Compulsive sexual behaviour disorder is associated with significant suffering and may have a substantial negative impact on the health and lives of the individuals it affects. It is therefore a legitimate focus of health services and is of interest to WHO member states in their efforts to provide or facilitate subsidized health services to their populations and for the collection and reporting of health information. It is expected that the expansion of research on the disorder will continue given its status as a WHO official diagnostic entity, with its own set of diagnostic requirements for use in identifying clinical and research populations. Researchers who had previously been connected to the DSM-5 proposal for hypersexual disorder have acknowledged that the inclusion of compulsive sexual behaviour disorder in the ICD-11 will have a significant impact on clinical research and practice and have suggested possible refinements to the ICD-11 CDDR that can be tested in future research[294].

Implications of the compulsive sexual behaviour disorder diagnosis

Since the inclusion of compulsive sexual behaviour disorder in the ICD-11 was proposed, there has been a major expansion of research in this area[227]. A good deal of the early research was based on a conceptualization of "sex addiction"[242], that later began to shift to a discussion of compulsive sexual behaviour, that does not entirely map to ICD-11 compulsive sexual behaviour disorder[291,258-297], or simply "problematic sexual behaviours"[298] or "problematic pornography use"[299]. A good deal of the research in the past several years has focused on "hypersexuality"[e.g.,301,302], although this has only occasionally been operationalized as hypersexual disorder as it had been proposed for DSM-5. So, there continue to be issues with comparability across studies.

The lack of theoretical integration in the literature has also produced discrepancies in the measurement of compulsive sexual behaviour disorder[227]. The most commonly used measures include the Sexual Compulsivity Scale[234], the Sexual Addiction Screening Test-Revised[303], the Hypersexual Behavior Inventory[304], and the Compulsive Sexual Behavior Inventory[235]. Despite their popularity, there has been little methodologically rigorous research to confirm the validity and reliability of these measures in clinical populations[305].

Based on the draft ICD-11 diagnostic requirements for compulsive sexual behaviour disorder, an international group of researchers developed the Compulsive Sexual Behavior Disorder-19 (CSBD-19) scale to assess the extent of repetitive sexual urges, thoughts and behaviours and their consequences during the previous six months[306]. The scale yielded a five-factor structure (i.e., control, salience, relapse, dissatisfaction, and general and domain-specific negative consequences), and its psychometric properties were robust across the three countries involved in the initial study (Germany, Hungary and the US). In 2021, an expanded consortium of researchers launched the International Sex Survey, a large-scale

multi-language study involving over 40 countries. Upon its completion, the project will make the CSBD-19 publicly available in over 30 languages for research and clinical practice[307].

Resources to equip clinicians to assess and treat ICD-11 compulsive sexual behaviour disorder have also begun to appear[231,245]. An expert group is being formed by the International Society for Sexual Medicine to launch position papers and develop guidelines on this topic. It is noteworthy that the American Psychiatric Association was the first to publish a clinical and treatment-oriented book on compulsive sexual behaviour disorder[308], despite its own decisions regarding hypersexuality in the DSM-5.

In summary, the decision by the WHO to include compulsive sexual behaviour disorder in the ICD-11 has broken the stasis due to questions about how to best conceptualize the condition. The ICD-11 CDDR very carefully address concerns about false positives and the stigmatization of non-pathological sexual behaviour. The inclusion of the disorder in the ICD-11 has facilitated the provision of appropriate services and the development and testing of empirically-supported treatments. Our understanding of the etiology, diagnostic classification, assessment, and treatment of the disorder will continue to evolve as we gain new insights from future research efforts. We anticipate that remaining controversies will be resolved over the next few years as scholarship on the disorder and related clinical experience continues to grow exponentially.

DISCUSSION

The rationale for the inclusion of each of the four disorders discussed in this paper illustrates the principles for adding new disorders in the ICD-11 that we described in the introduction: a) to collect morbidity statistics by WHO member states on health conditions with public health significance; b) to facilitate identification of clinically important but poorly classified mental disorders so that appropriate management can be provided; and c) to stimulate research into effective treatments for the condition. The ICD-11 now provides a consistent rubric and definitions for tracking and reporting of these conditions at the health system, national and global level. Having specific diagnostic requirements rather than using vague “other specified” or “unspecified” residual categories to capture the relevant phenomena obviously facilitates the identification of these conditions. Introducing these disorders into the ICD-11 appears to have been followed by a significant increase in the availability of appropriate services for each condition and an uptick in research to evaluate available interventions.

The research literature on these disorders has expanded substantially since it was publicly announced that the WHO was planning to add them to the ICD-11. A significant

increase of interest in these categories was already underway, but their inclusion in the ICD-11 has facilitated additional research by providing investigators with standardized definitions and diagnostic requirements, which can be used as a basis for developing appropriate measures, as well as providing a much more compelling case for research funding from member state governments and other funding agencies.

As highlighted earlier in this paper, the decisions made by the WHO to add these categories are different from those made by the American Psychiatric Association for the DSM-5. In the case of complex PTSD, the DSM-5 Workgroup decided to broaden the PTSD criteria to include elements of DESNOS, the earlier version of complex PTSD that had been tested for DSM-IV, rather than adding a new diagnostic category. This has had the effect of substantially expanding the complexity of the PTSD diagnosis in the DSM-5[309]. A variety of studies in different populations have since demonstrated the validity of the ICD-11 approach[31,32]. Nonetheless, as the ICD-11 is adopted in clinical systems, it will be important to examine whether the DSM-5 PTSD and the ICD-11 PTSD plus complex PTSD identify different groups and whether the implementation of the ICD-11 leads to difficulties for some individuals in accessing services. This is a concern that some have expressed[310], although available data suggest that the DSM-5 criteria identify fewer cases than either the ICD-11 or the DSM-IV[311].

In contrast to the situation with complex PTSD, versions of prolonged grief disorder and gaming disorder had been included in the DSM-5 research appendix under slightly different names. Placement in this appendix suggests that there was substantial interest in the categories as candidate entries in the DSM-5, but also an overall conclusion that there was not yet sufficient evidence of their validity and distinctiveness to include them in the main classification. In the past, several DSM research categories have eventually been moved to the main classification, but this does not occur invariably. The ICD has no equivalent to a research appendix; a category is either included or not. In a few cases the entity in question may be added as an index term for an “other specified” residual category rather than as a separate diagnostic entity, but there is no provision for including research definitions that can be tested. At the same time, the WHO has to consider the needs of the member states that form its governance. For national governments, the regular occurrence of a condition in clinical systems that appears to demand some specific treatment response is a valid reason for its inclusion in the classification.

The description of “persistent complex bereavement disorder” in the DSM-5 research appendix in part represented an attempt to reconcile two somewhat divergent models in the field[312]. Based on additional work conducted during the intervening period, the entity has been included in the main classification for the DSM-5-TR, the ICD-11 name has been adopted, and the criteria have been altered to be more similar to the ICD-11 CDDR[124]. Internet gaming

disorder as described in the DSM-5 research appendix attempts to model more closely diagnostic criteria for substance use disorders, whereas the essential features of ICD-11 gaming disorder are more streamlined and more strongly emphasize loss of control over gaming behaviour. Still, they are both clearly attempting to describe the same group of people. The complete absence of hypersexual disorder in DSM-5 (as opposed to its being placed in the research appendix or listed as an example of a sexual disorder not otherwise specified, as it was in prior editions of the DSM) was ostensibly based on concerns that there was insufficient evidence that this disorder represented a distinct clinical syndrome and that it could be misused in forensic settings, although Workgroup members opined that these concerns had been addressed[240]. The ICD-11 Working Groups attempted to avoid some of the pitfalls encountered by the proposal for hypersexual disorder, notably by describing it as a disorder of impulse control that is expressed in sexual behaviour rather than as a sexual disorder. The evidence being generated will be helpful to decisions about these categories in a future edition of the DSM.

Looking at the other entries in Table 1, eleven of the 21 disorders listed were either already in the DSM-IV or were also added to the DSM-5. These changes in the ICD-11, therefore, had the effect of enhancing compatibility between the two classifications. The ICD-11 has included a few additional syndromes caused by substances or medications or by diseases classified elsewhere that are not found in the DSM-5[17]. This leaves only three discrepant new ICD-11 categories other than those reviewed in this paper. Olfactory reference syndrome is mentioned in the DSM-5 as an example of other specified obsessive-compulsive and related disorders. Body integrity dysphoria (an intense and persistent desire to become physically disabled in a significant way, e.g., major limb amputee, paraplegic, blind) is a very rare though quite distinctive and serious condition for which a large body of evidence with specific methodologies may never be generated if that is a requirement for its inclusion in the DSM. Partial dissociative identity disorder is very similar to what is described in the DSM-5 as "chronic and recurrent syndromes of mixed dissociative symptoms", included as example of other specified dissociative disorders. These categories seem unlikely to generate the same level of interest and controversy as those reviewed in this paper.

CONCLUSIONS

The four disorders introduced in the ICD-11 that are discussed in this paper – complex PTSD, prolonged grief disorder, gaming disorder, and compulsive sexual behaviour disorder – describe populations with clinically important and distinctive features that have previously gone unrecognized in the ICD classification of mental disorders. These populations also have

specific treatment needs that would otherwise be likely to go unmet if these disorders did not have a place in the classification. Overall, the impact of adding these disorders appears to have been positive in terms of health information and reporting, identifying patients in need of service, and the development and testing of interventions. Clearly, there are remaining research needs and specific targeted studies should be undertaken related to each of the four disorders, as reviewed in this paper. However, the WHO's decision to include these categories appears to balance effectively the status of the available evidence with the information needs of WHO member states and the needs of individuals with these conditions to receive appropriate care.

We do not see evidence so far of the hypothesized harms of adding these conditions to the diagnostic system (e.g., harmful stigmatization of non-pathological gaming or sexual behaviour). However, it is possible that some drawbacks may become more apparent over time as the ICD-11 is implemented around the world. Regular updates are planned for the ICD-11 (every 2 years), and it is anticipated that a greater number of changes will be made early on based on the experience of actually using the classification. This will provide an important mechanism for making refinements or clarifications to these categories, should they appear to be necessary.

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Table 1 New disorders introduced in the ICD-11 classification of mental, behavioural and neurodevelopmental disorders

Type 1 additions (novel disorders previously not specifically classifiable)

Body dysmorphic disorder
Olfactory reference disorder
Hoarding disorder
Excoriation disorder
Prolonged grief disorder
Rumination-regurgitation disorder
Body integrity dysphoria
Gaming disorder
Compulsive sexual behaviour disorder
Intermittent explosive disorder

Type 2 additions (novel categories emerging from extension, expansion or subtyping of ICD-10 disorders)

Partial dissociative identity disorder
Binge eating disorder
Avoidant-restrictive food intake disorder
Complex post-traumatic stress disorder (PTSD)
Factitious disorder imposed on another
Substance-induced anxiety disorder
Substance-induced obsessive-compulsive or related disorder
Substance-induced impulse control disorder
Secondary neurodevelopmental syndrome
Secondary obsessive-compulsive or related syndrome
Secondary impulse control syndrome

Table 2 Essential (required) features for complex post-traumatic stress disorder in the ICD-11 Clinical Descriptions and Diagnostic Requirements (CDDR)

- Exposure to an event or series of events of an extremely threatening or horrific nature, most commonly prolonged or repetitive events from which escape is difficult or impossible. Such events include, but are not limited to, torture, concentration camps, slavery, genocide campaigns and other forms of organized violence, prolonged domestic violence, and repeated childhood sexual or physical abuse.
- Following the traumatic event, the development of all three core elements of Post-Traumatic Stress Disorder, lasting for at least several weeks:
    - Re-experiencing the traumatic event after the traumatic event has occurred, in which the event(s) is not just remembered but is experienced as occurring again in the here and now. This typically occurs in the form of vivid intrusive memories or images; flashbacks, which can vary from mild (there is a transient sense of the event occurring again in the present) to severe (there is a complete loss of awareness of present surroundings), or repetitive dreams or nightmares that are thematically related to the traumatic event(s). Re-experiencing is typically accompanied by strong or overwhelming emotions, such as fear or horror, and strong physical sensations. Re-experiencing in the present can also involve feelings of being overwhelmed or immersed in the same intense emotions that were experienced during the traumatic event, without a prominent cognitive aspect, and may occur in response to reminders of the event. Reflecting on or ruminating about the event(s) and remembering the feelings that one experienced at that time are not sufficient to meet the re-experiencing requirement.
    - Deliberate avoidance of reminders likely to produce re-experiencing of the traumatic event(s). This may take the form either of active internal avoidance of thoughts and memories related to the event(s), or external avoidance of people, conversations, activities, or situations reminiscent of the event(s). In extreme cases the person may change their environment (e.g., move house or change jobs) to avoid reminders.
    - Persistent perceptions of heightened current threat, for example as indicated by hypervigilance or an enhanced startle reaction to stimuli such as unexpected noises. Hypervigilant persons constantly guard themselves against danger and feel themselves or others close to them to be under immediate threat either in specific situations or more generally. They may adopt new behaviours designed to ensure safety (not sitting with ones' back to the door, repeated checking in vehicles' rear-view mirror). In Complex Post-Traumatic Stress Disorder, unlike in Post-Traumatic Stress Disorder, the startle reaction may in some cases be diminished rather than enhanced.
- Severe and pervasive problems in affect regulation. Examples include heightened emotional reactivity to minor stressors, violent outbursts, reckless or self-destructive behaviour, dissociative symptoms when under stress, and emotional numbing, particularly the inability to experience pleasure or positive emotions.
- Persistent beliefs about oneself as diminished, defeated or worthless, accompanied by deep and pervasive feelings of shame, guilt or failure related to the stressor. For example, the individual may feel guilty about not having escaped from or succumbing to the adverse circumstance, or not having been able to prevent the suffering of others.
- Persistent difficulties in sustaining relationships and in feeling close to others. The person may consistently avoid, deride or have little interest in relationships and social engagement more generally. Alternatively, there may be occasional intense relationships, but the person has difficulty sustaining them.
- The disturbance results in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. If functioning is maintained, it is only through significant additional effort.

Table 3 Essential (required) features for prolonged grief disorder in the ICD-11 Clinical Descriptions and Diagnostic Requirements (CDDR)

- History of bereavement following the death of a partner, parent, child, or other person close to the bereaved.
- A persistent and pervasive grief response characterized by longing for the deceased or persistent preoccupation with the deceased accompanied by intense emotional pain. This may be manifested by experiences such as sadness, guilt, anger, denial, blame, difficulty accepting the death, feeling one has lost a part of one's self, an inability to experience positive mood, emotional numbness, and difficulty in engaging with social or other activities.
- The pervasive grief response has persisted for an atypically long period of time following the loss, markedly exceeding expected social, cultural or religious norms for the individual's culture and context. Grief responses lasting for less than 6 months, and for longer periods in some cultural contexts, should not be regarded as meeting this requirement.
- The disturbance results in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. If functioning is maintained, it is only through significant additional effort.

Table 4 Essential (required) features for gaming disorder in the ICD-11 Clinical Descriptions and Diagnostic Requirements (CDDR)

- A persistent pattern of gaming behaviour ('digital gaming' or 'video-gaming'), which may be predominantly online (i.e., over the internet or similar electronic networks) or offline, manifested by all of the following:
    - Impaired control over gaming behaviour (e.g., onset, frequency, intensity, duration, termination, context);
    - Increasing priority given to gaming behaviour to the extent that gaming takes precedence over other life interests and daily activities; and
    - Continuation or escalation of gaming behaviour despite negative consequences (e.g., family conflict due to gaming behaviour, poor scholastic performance, negative impact on health).
- The pattern of gaming behaviour may be continuous or episodic and recurrent but is manifested over an extended period of time (e.g., 12 months).
- The gaming behaviour is not better accounted for by another mental disorder (e.g., Manic Episode) and is not due to the effects of a substance or medication.
- The pattern of gaming behaviour results in significant distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning.

Table 5 Essential (required) features for compulsive sexual behaviour disorder in the ICD-11 Clinical Descriptions and Diagnostic Requirements (CDDR)

- A persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behaviour, manifested in one or more of the following:
    - Engaging in repetitive sexual behaviour has become a central focus of the individual's life to the point of neglecting health and personal care or other interests, activities and responsibilities.
    - The individual has made numerous unsuccessful efforts to control or significantly reduce repetitive sexual behaviour.
    - The individual continues to engage in repetitive sexual behaviour despite adverse consequences (e.g., marital conflict due to sexual behaviour, financial or legal consequences, negative impact on health).
    - The person continues to engage in repetitive sexual behaviour even when the individual derives little or no satisfaction from it.
- The pattern of failure to control intense, repetitive sexual impulses or urges and resulting repetitive sexual behaviour is manifested over an extended period of time (e.g., 6 months or more).
- The pattern of failure to control intense, repetitive sexual impulses or urges and resulting repetitive sexual behaviour is not better accounted for by another mental disorder (e.g., Manic Episode) or other medical condition and is not due to the effects of a substance or medication.
- The pattern of repetitive sexual behaviour results in marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning. Distress that is entirely related to moral judgments and disapproval about sexual impulses, urges, or behaviours is not sufficient to meet this requirement.