

## Does ICD-11 improve the epidemiological and nosological purposes of mental, behavioral and developmental disorders?

### *¿Mejora la CIE-11 los propósitos epidemiológicos y nosológicos de los Trastornos mentales, del comportamiento y del desarrollo?*

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Since the first International Classification of Diseases (ICD) in 1893, a series of revised editions have reflected advances in health and medical science. The World Health Organization (WHO) was entrusted with the ICD in 1948, publishing the sixth version, which incorporated morbidity for the first time. WHO nomenclature regulations stipulate that member states should use the most recently revised ICD for mortality and morbidity statistics. It has been 29 years since the ICD-10 was approved by the 43<sup>rd</sup> World Health Assembly and now, after the 72<sup>nd</sup> World Health Assembly, recently held in Geneva (Switzerland) from 20 to 28 May, 2019, member states will begin to report health statistics based on the new system as of January 1, 2022 (World Health Organization, 2019). Subsequently, it is foreseen that, once approved by the Assembly, the WHO's Department of Mental Health and Substance Abuse will publish the Clinical Descriptions and Diagnostic Guidelines (CDDG) for Mental, Behavioural and Neurodevelopmental Disorders in ICD-11. These CDDG are the result of systematic work carried out over the last decade, based on the principles of clinical utility and global applicability, and represent the most comprehensive international, plurilingual, multidisciplinary and participatory review process ever implemented for a classification of mental disorders (Reed et al., 2019). Among the novelties offered by ICD-11 are the inclusion of consistent and systematically detailed information, the adoption of a lifespan focus and a cultural approach to each disorder. A dimensional perspective has been incorporated

into the classification, specifically for personality disorders and primary psychotic disorders, in such a way that they are consistent with current evidence, are more compatible with recovery-based approaches, eliminate artificial comorbidity and capture longitudinal changes more effectively (Reed et al., 2019; Robles Garcia & Ayuso-Mateos, 2019). The studies carried out by the different work groups concluded that these guidelines were perceived as easy to use, accurately corresponding to the patient's disease presentations (i.e., goodness of fit) in a clear and comprehensible manner but with an appropriate level of detail (Ayuso Mateos, 2018). Likewise, it seems that the CDDG are faster to implement than clinicians' usual practice, and provide useful information for distinguishing disorder from normality (Reed, Keeley et al., 2018; Stein & Reed, 2019).

### The foundations of ICD-11

In the fields of both clinical neuroscience and global mental health it has been emphasized that psychiatric diagnosis should not be conceptualized in terms of essentialist categories, that biological mechanisms lead to a spectrum of symptoms, and that health services should respond to the various stages of mental illness by providing tiered levels of attention. Frameworks such as the Research Domain Criteria (RDoC) place specific emphasis on these underlying biological mechanisms and on the spectra of symptoms they feed. In the context of these debates and controversies, the ICD-11 chapter on mental, behavioural and

*Received: April 2019; Accepted: June 2019.*

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neurological development represents an important step forward for the field of global mental health in general, and for services and research in low and mid-level socioeconomic environments, as proposed in the Mental Health Action Plan 2013-2020 (World Health Organization, 2013). This is a consequence of basing the new edition on the key strengths incorporated in DSM-5 and RDoC (Stein & Reed, 2019), that is, emphasis is placed on nosological decision-making supported by evidence and the translational vision of research.

At the same time, the important efforts by ICD-11 to overcome the key limitations of DSM and RDoC should be noted. While DSM products are expensive and generate significant profits for the American Psychiatric Association (APA), CIE products are freely available throughout the world, thereby increasing the likelihood that they will be used in a wide range of settings to improve diagnosis and treatment. Moreover, in contrast to RDoC constructs, which are complex and more suited to academic environments of intensive research, ICD constructs are easy to use and more suitable for adoption by non-specialists in primary care environments around the world (Reed & Ayuso-Mateos, 2011). Finally, ICD-11 has maintained its own unique identity and vision. Critics of psychiatric nosology may argue that the very existence of different approaches to classification implies failures in the field. This criticism fails to understand that psychiatric nosology is not only about identifying essentialist categories but rather that the classification aims to be appropriate for each purpose (Keeley et al., 2018). In highly specialized research environments it is useful to employ a classification system which emphasizes rigorous diagnostic criteria and specific disorder subtypes. However, in a wide range of global environments, a system that provides a more flexible and somewhat less grainy focus is more likely to be perceived as acceptable and feasible, and therefore easier to adopt and more likely to lead to better outcomes for the patient (Medina-Mora et al., 2019; Peterson et al., 2019). In any case, the fundamental emphasis that this classification be of clinical utility in different countries ensures that it is a key tool for mental health at a global level (World Health Organization, 2013; Reed, Keeley et al., 2018; Reed et al., 2018).

### **Substance use disorders as a public health problem**

The approach proposed by ICD-11 for the classification of substance use disorders is based on an approximation to the concept of public health as a frame of reference. A public health perspective seeks to prevent diseases, prolong life and promote health through organized efforts and informed decisions of society, organizations, public and private communities and individuals. This is reflected in international drug policies which adopt the welfare of

people and communities rather than drug seizures as the main indicators of success within the European Action Plan to Combat Drugs 2017-2020 (Council of Europe, 2017). This new perspective clashes not only with that of a few decades ago, when addictions were conceived of as a social problem or a character flaw, but also with the fact that even today, drug use is still punishable by imprisonment in some countries, and centres of mandatory drug detention continue to be important providers of non-voluntary "treatment" in many parts of the world, despite evidence of their ineffectiveness (Wegman et al., 2017). At the same time, the diversification of psychoactive substances and changes in their administration routes and the contexts in which they are used present new challenges for governments and health systems (Dolengevich-Segal, Rodriguez Salgado, Gomez-Arnau Ramirez & Sanchez-Mateos, 2015; Dolengevich-Segal, Rodriguez Salgado, Ballesteros-López & Molina-Prado, 2017). The public health approach recognizes substance use and substance use disorders as a spectrum of health behaviours and conditions which require different approaches, services and resources to achieve public health objectives. It is essential that the classification of substance use disorders cover different phases and patterns of use through a set of diagnostic categories organized on a continuum which reflects the stages and severity of the disorder. The classification of substance use disorders in ICD-11 is therefore intended for use by a wide range of health professionals to cover the entire spectrum of related problems in order to achieve an impact on the health of the population at large (Poznyak, Reed & Medina-Mora, 2018).

### **Innovations regarding the nosology of addiction.**

The structure and definitions proposed for the ICD-11 diagnostic categories are available on the WHO website (World Health Organization, 2019). Substance use and addictive behaviour disorders constitute a grouping of disorders which develop as a result of the use of psychoactive substances, including medications, and addictive behaviour disorders which develop as a result of specific repeated reward and reinforcement behaviours (Heinz, Daedelow, Wackerhagen & Di Chiara, 2019). As with ICD-10, the substance must first be identified before the appropriate clinical syndrome is determined. The mutually exclusive primary diagnoses are:

- Single episode of harmful substance use
- Harmful pattern of substance use
- Substance dependence

In addition, the following diagnoses can be grounds for providing health services:

- Substance intoxication
- Substance withdrawal

The main changes proposed are outlined in Table 1 and include: (1) an updated and expanded range of types of psychoactive substances; (2) greater specification of the different harmful patterns of substance use, which may be continuous or episodic and recurrent; (3) a new category denoting single episodes of harmful use; (4) a category describing harmful substance use which, although not considered a disorder, has been included in the ICD-11 chapter on “Factors influencing health status and encounters with health services”; and (5) simplification of diagnostic guidelines for substance dependence. In addition, both intoxication and substance withdrawal can be diagnosed together with the primary clinical syndromes, or independently as a reason for health service provision when the pattern of use is unknown or if there is substance dependence. Substance-induced amnesic disorder and primary dementia induced by substances in the chapter on neurocognitive disorders are also included under substance use disorders. Harmful use is included under the heading “Problems associated with health behaviours” in the chapter on “Factors influencing health status and encounters with health services”. A further novelty to highlight is that it is possible to code “single episode of harmful substance use” or “harmful pattern of use” when the damage results from the consumption of non-psychoactive substances such as, for example, the abuse of steroids (Gonzalez-Marti, Fernandez-Bustos, Contreras Jordan & Sokolova, 2018).

## Updated and extended classification of substance classes

Just as DSM-5 (American Psychiatric Association, 2014) did previously, this chapter presents the mental and behavioural disorders which develop either as a result of predominantly psychoactive substance use, including medications, or of specific behaviours of repeated reward and reinforcement. In this regard, it is worth noting that the development of tolerance and withdrawal symptoms is of lesser importance since these can occur with any pharmacologically active agent, and their presence is not a sufficient criterion for the clinical diagnosis of an addictive disorder. Conversely, key criteria are craving for substances or to perform a behaviour (gaming or video gaming), and the seeking out and use of substances despite their harmful consequences (Heinz et al., 2019). Although these symptoms have been associated with the release of dopamine in the ventral striatum, this release alone is not a sufficient criterion for the addictive property of a drug. For example, while common reinforcers such as food and sex may increase the transmission of dopamine in the nucleus accumbens, their effects, unlike those of addictive substances, are regulated by the predictability of reward and habituation. The updated and expanded range of 14 substance classes reflects changes in substances which are increasingly associated with public health consequences in different parts of the world (see Table 2).

Table 1. Fundamental differences between ICD-10 and ICD-11 regarding substance dependence

Substance use disorder (ICD-11)	Mental and behavioural disorders due to psychoactive drug use (ICD-10)	Notes
Substance intoxication	F1x.0 Acute intoxication (x refers to the substance or substance type)	Qualifiers omitted in ICD-11 Delirium induced by substances can be coded with acute intoxication
Single episode of harmful substance use	F1x.1 Harmful use	Qualifiers for pattern include episodic and continuous
Substance dependence	F1x.2 Dependence syndrome	Simplified qualifiers
Substance withdrawal	F1x.3 State of withdrawal F1x.4 State of withdrawal with delirium	Substance-induced delirium can be coded with substance withdrawal
Substance-induced psychotic disorder	F1x.5 Psychotic disorder	
Substance-induced amnesic disorder	F1x.6 Amnesic syndrome	*Primarily incorporated into ICD-11 neurocognitive disorders
Substance-induced dementia*, Persistent hallucinogen-induced perception disorder	F1x.7 Residual and late-onset psychotic disorder	* Primarily incorporated into ICD-11 neurocognitive disorders
Disorders due to use of non-psychoactive substances	F55.x Abuse of non-psychoactive substances	

Table 2. Comparison of psychoactive substances in ICD-10 and ICD-11

ICD-10	ICD-11
Alcohol	Alcohol
Cannabinoids	Cannabis Synthetic cannabinoids
Opioids	Opioids
Sedatives or hypnotics	Sedatives or hypnotics or anxiolytics
Cocaine	Cocaine
Other stimulants, including caffeine	Stimulants Synthetic cathinones Caffeine
Hallucinogens	Hallucinogens
Tobacco	Nicotine
Volatile solvents	Volatile solvents MDMA or related drugs Dissociative drugs

This will allow a more precise tracking of health care systems and, therefore, aggregated health data on which to base the formulation of appropriate responses at clinical, public health and social policy levels, both nationally and globally. In particular, anxiolytic substances are explicitly mentioned as forming part of the class of sedative and hypnotic substances. Caffeine is separated from other stimulants due to the increasing importance to public health of certain forms of its use such as in unregulated energy drinks or mixtures of methamphetamine with caffeine. Tobacco in ICD-10 is replaced by nicotine in ICD-11, reflecting the increasing use of alternative forms of nicotine, for example through vaporizers. Furthermore, MDMA or ‘ecstasy’ and dissociative drugs such as ketamine and phencyclidine (PCP) are listed as separate classes of psychoactive substances. In view of the increasing importance regarding public health of the so-called new psychoactive substances (Mounteney et al., 2016), synthetic cannabinoids and synthetic cathinones have been put forward as new classes of psychoactive substances (Rhumorbarbe et al., 2019). In this way, the use of synthetic cannabinoids can be analyzed separately from cannabis and cannabis resin (Mensen et al., 2019).

### **Harmful use pattern.**

While ICD-10 used the term “harmful use”, in ICD-11 this has been replaced by “harmful pattern of use”, which can be specified as either continuous or episodic. It is important to note that harming the health of others has been included in the definition of harmful use. This reflects the growing role of this type of harm in shaping policy and program responses, which is particularly important in relation to tobacco use. Harm to the health of others can be intentional, as in the case of homicides or interpersonal

violence during intoxication from alcohol or drugs, or as a result of the substance user’s difficulties in performing social, professional or family functions, for example in the case of negligence towards children. Harm to the health of others is also being studied with regard to potential application in improving assessment of disease burden caused by the use of substances and the overall costs of substance use incurred by societies. As proposed for ICD-11, a harmful use pattern is defined as one which has caused clinically significant harm to a person’s physical or mental health, or in which substance-induced behaviour has caused clinically significant damage to the health of other individuals. Again, the damage can be caused by the toxic effects of a substance, the direct or secondary toxic effects on body organs and systems, or a dangerous route of administration.

### **Single episode of harmful use.**

A new category of diagnosis, ‘single episode of harmful use’, has been proposed for ICD-11, with the aim of facilitating the recognition of episodes of substance use causing harm to health when no diagnostic characteristics of substance dependence or harmful patterns of use are present. This category is specifically designed for use in the context of a wide range of health services, especially in primary care and emergency centres, rather than in specialized treatment centres for mental disorders or substance use. The proposed definition is the same as the harmful pattern of use definition, except that the damage is caused by a single episode of use. The inclusion and expansion of the concept of harmful use as proposed in ICD-11 is extremely important because it provides opportunities for prevention, as well as early recognition of relevant behaviours related to substance use. These types of problems can be of a preclinical nature, in comparison with how substance use disorders present themselves in specialized settings. Identifying harmful use, either as a pattern or as a single episode, will also help to identify those people who can respond to short psychological interventions performed by non-specialist health care providers. Through aggregated data from health encounters, these categories can also support better monitoring of the impact of substance use on the health of the population at large.

## **Disorders by addictive behaviours**

Reasons for linking disorders attributable to addictive behaviours with substance use disorders:

- Frequent co-occurrence with substance use disorders rather than impulse control disorders.
- Similar developmental patterns and backgrounds
- Shared neurobiological bases and cognitive impairment
- Hyposensitive dopaminergic reward circuits are involved in both

- Similar response to behavioural and pharmacological treatments (e.g., opioid antagonists)
- Genetic similarities

The addictive behaviours subsection includes two diagnostic categories: pathological gambling and video gaming disorder. As in DSM-5, pathological gambling is included in this chapter, and the F63 habit and impulse disorders are omitted, while video gaming disorder, which shares similarities with pathological gambling and substance use disorders, is added. The inclusion of video gaming disorder is attributable in part to the recognition of the increasing prevalence of problematic video gaming as a public health issue, especially in countries such as China and Japan. Particularly in Spain, the gambling craze is a phenomenon with great economic and social impact and with regulatory needs and specific preventive policies (Choliz & Saiz-Ruiz, 2016). In its 2017 report, the Directorate General for the Regulation of Gambling (DGOJ) indicates that slot machines, lotteries and Internet gambling (sports betting and poker) and video games (both offline and online) are preferred by the youngest participants (18-35 years), while the problematic games identified more frequently among older groups are slot machines, lotteries and football pools (Dirección General de Ordenación del Juego, 2017). Both pathological gambling and video gaming disorder are qualified as predominantly online or offline.

## Conclusions

The proposed classification of substance use disorders and addictive behaviours in ICD-11 includes a range of diagnostic categories covering a broad spectrum of health conditions. These reflect different levels and patterns of substance use which range from single harmful use to consolidated addictive behaviours. Substantial changes have been made based on systematic studies and field work to enhance scientific validity grounded in current evidence and to improve clinical utility and global applicability.

One of the main aims of this classification system is to facilitate the early recognition of the negative health impact of substance use and the provision of prevention and treatment interventions for the different respective care services. Another purpose of the eleventh revision is to strengthen the capacity of WHO member states to monitor the health consequences of substance use at population level with a view to applying global strategies and far-reaching policies and to support the effective planning and development of treatment systems. The concepts and definitions of the problems related to substance use shaped by a public health approach and with the participation of a broad spectrum of health professionals will be more valid and will have a great impact at different levels of the health care system both in terms of identification and management. We also consider that the ICD-11 will be a useful tool

for reducing the treatment gap between those who can benefit from prevention and treatment interventions and those who actually receive them and, over time, for improving the coverage of the different interventions in the field of addictions, including those aimed at new psychoactive substances and recently incorporated behaviours, such as pathological gambling and video gaming disorder.

## Conflict of interests

The authors declare that there is no conflict of interest with the therapeutic proposals mentioned in this editorial.

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