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The DSM-V and its «spectrums»

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The first general meaning of the term «spectrum» in Spanish is: «phantom, chimeric vision, terrifying, such as that occurring in dreams or in the images of the imagination». However, in the psychiatric terminology of recent years, the use of this word has become frequent to designate a combination of different, but related, nosological entities that have some common traits, that overlap or are grouped over a certain sequence. An idea is obtained of the success of the term and its circulation from the fact that there are already more than 100 psychiatry books whose title includes the word spectrum and it is even found in a scientific journal of impact *(CNS Spectrums)* that was created in 1996. Thus, this is an Anglicism. Although the concept of spectrum is from physics, that refers to the distribution of the intensity of a radiation based on a characteristic magnitude, such as wave length, energy, frequency or mass, we intuitively use the sense it has in English as «a condition or value that is not limited to a group of values, but that may infinitely vary over a *continuum*» or «a wide range of ideas or objects, that are varied but interconnected and similar, whose individual characteristics tend to overlap to form a sequence or continuous series». In any event, it was already used in Medicine to designate the amplitude range of the series of microbial species on which a drug is therapeutically active.

The concept arose in the 1980's after the introduction and rapid expansion of the classifications based on descriptive psychopathology (DSM-III and IV; ICD-10) that use operational criteria to define diagnostic categories. The contribution that these instruments has meant for the development of psychiatry, facilitating a common language that could be of generalized use in research becomes clear with the data of a recent study[1]. However, there are many criticisms and lack of satisfaction about the diagnoses in use. This has led to an intense and extensive debate on the development of their future versions. The hope that the scientific and technological advances (molecular genetics, neuroimaging, etc.) will make a new classification based on pathophysiology and biological markers can no longer be supported and the fragility of the current nosological constructs puts their validity into doubt. Thus, many are requesting substantial changes[2-4].

The enormous initiative that is attempting to respond to this task has been promoted by the Institutions that support the DSM-V (American Psychiatric Association) and ICD-11 (World Health Organization) and has received financial support from the United States Government, through the National Institutes of Health. A series of twelve lectures has been organized under the title of «The future of Psychiatric Diagnosis. Refining the Research Agenda». Two of them are dedicated to methodological questions and the remaining ten are on monographic considerations on clinical fields in discussion or with new proposals. It is aimed to obtain a wide consensus and the best possible multinational participation. Thus, half of the meetings are being held outside of the United States and half of the participants of all of them are from countries other than the United States. Interaction with any interested party is also encouraged through the project «DSM-V Prelude» and extensive information is provided on the internet page (http://www.dsm5.org). The preparation of this new edition began in 1999 and it should be finished in 2012 for the DSM-V and in 2015 for the ICD-11[5].

An idea of the validity of the spectrum concept in this context can be obtained because two of the conferences held (Obsessive-Compulsive Disorder and Autism) have incorporated the term «spectrum» into their title and six more (Personality, Addiction, Stress-induced and fear circuitry disorders; Psychosis; infant-child externalizing disorders and Anxiety-depression) have ubiquitously used the concept. In fact, in a documented and extensive article in 2002, Maser and Paterson had already proposed[6] «spectrum» as a model so that the nosology of DSM-V would consider the dimensionality and pay attention to minor symptoms (sub-thresholds) or symptoms not included in the criteria, reducing the problems caused by the «non-specified» diagnoses and excessive comorbidity with better adaption to the needs of clinicians and investigators.

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However, its conceptualization is far from being uniform, since it applies to many different diseases and disorders with varied meanings and does not have a solid definition. For example, it postulates that the variable expressivity of the genotypes for psychiatric disorders may produce a spectrum of different clinical phenomena. Thus, the disorders that form part of a common spectrum may share part of the genes that confer risk for the disease or modify its manifestations. Other times, it is thought that the spectrum disorders would be manifestations or phases of the same underlying condition of the disease. Thus, they may share some clinical characteristics, but differ in severity, or may be an earlier stage or less evolved form. A different point of view is that which maintains that the different disorders would be distributed in a continuous range that begins with normality, continues with the prodromes, minor symptoms, etc. until the manifest disease. There are also models that place the entities in an antithetic continuum, on orthogonal dimensions, with extreme opposite poles. In general, the psychiatric spectrums should be characterized by familial background with shared heritability, similar clinical manifestations (symptoms, course), comorbid appearance, common neurobiological markers and response to the same treatment.

Some of the most frequently proposed spectrums are:

- The obsessive-compulsive «spectrum».
- The bipolar «spectrum».
- The affective «spectrum».
- The autistic «spectrum».
- The schizophrenic «spectrum» (psychotic).
- The externalizing «spectrum».
- Others (anxious-depressive; addictive, antisocial; etc.).

A brief comment on the most relevant is provided in the following.

The obsessive-compulsive spectrum has been defined by Hollander[7] and the characteristics that would define the group, on an antithetic dimension obsession (hypercontrol) - impulse (control deficit) - would be to share the unavoidable desire to perform a certain behavior, a growing subjective and objective malaise that is relieved when performing the behavior and the repeated appearance of these phenomena. There would be some clinical characteristics in favor of the relationship between these disorders[8] such as the fact that impulsivity and compulsivity have in common the lack of capacity to inhibit or delay repetitive behaviors, that some obsessive patients may manifest impulsive-aggressive symptoms and that the Freudian interpretation of the obsessive neurosis through the increase of aggressive impulse (latent) that causes compensatory behaviors is known. In some impulsive disorders, there may also be obsessive symptoms and the response to serotonergic drugs, although doubtful, has also been hypothesized. However, neither the phenomenology nor the data from the familial and neurobiological studies support this grouping. Thus, impulse and compulsion are different phenomena. The compulsive acts (mental or motor) are secondary to thought pathology, are based on pathological doubt, have an absurd character and are egodystonic. On the contrary, impulses are automatic, uncontrollable and short circuiting acts that do not emerge from an essential doubt. Equally, the findings from the research (genetic, familial studies, neuroimaging, neurochemical, psychoneuroendocrinology, etc.) do not favor the existence of the spectrum. The disorders that are shared by the spectrum would be, in a more restrictive view: Obsessive-Compulsive Disorder (OCD), Gilles de la Tourette Syndrome, Body Dysmorphic Disorder and Hypochrondria. Another candidate to be integrated would be Trichotillomania, and in a wider approach, there are multiple impulsive disorders, eating behavior disorders, cluster B personality disorders, still unknown entities (such as internet or sex addiction), autism, or neurological disorders such as Huntingon disease. In previous publications[9,10] we stated that the phenomenological and neurobiological differences, in neuroimaging and genetics, suggest that the OCD and impulse control disorders are independent nosological entities.

In regards to the Bipolar Spectrum, its proposal is justified due to the importance of early diagnosis and treatment, the scarce detection in early childhood and adolescence, arbitrary limits in the diagnostic threshold (temporal criterion in hypomania, etc.) the frequent diagnostic errors (omitting mixed or hypomania states; overdiagnosing unipolar depression, etc.), the harmful effects of a treatment based on an erroneous diagnosis (antidepressants in bipolars), the frequent and important comorbidity, presence of impulsivity as a common factor (more controversial) and high prevalence of the bipolar «spectrum» (with extended limits that multiply its prevalence by ten). Bipolar type I and II, cyclothymia, affective instability (hyperthymia) in response to antidepressants, mixed states, depressions with early onset age, familial background of bipolar disorder, melancholies, etc, and from other more controversial proposals, impulsive disorders (addictions, behavior disorder, intermittent explosive disorders, antisocial disorders and personality borderline disorder, etc.) social phobia and Panic disorder[11], although there are different positions and a live debate on the limits[12-14] would be included in this group.

There are also authors[15] who advocate the existence of an affective spectrum around the response to antidepressive treatments, a combination of inheritable genetic variations, expression through different manifestations of the family trees and the concurrence of several disorders of the spectrum in the affected subjects. The initial proposal gathered Major Depression, Panic Disorder, Obsessive-Compulsive Disorder, Bulimia Nervosa, Attention Deficit Hyperactivity Disorder, Spastic colon, Migraine and narcolepsia. Later on[16], Dysthymia, Fibromyalgia, Post-traumatic Stress Disorder, Social Phobia, Generalized Anxiety Disorder and premenstrual dysphoria were added. Another tendency is

that of considering Generalized Anxiety Disorder, Major depression, Dysthymia and Panic Disorder within the same spectrum. In any event, deception with the current classification of the affective disorders is clear[17].

The autistic spectrum[18] includes Autism, Generalized development disorder (unspecified) and Asperger' syndromes. There are development incapacities caused by an abnormality in the brain. The subjects tend to have social and communication problems, they are prone to certain repetitive behaviors and do not want to make changes in their daily activities, they learn, pay attention and react to different sensations in a rare way, these begin in childhood and last over the entire lifetime. It is a heterogeneous group regarding clinical presentation and prognosis where medical comorbidity (epilepsy, sleep disorders, food intolerance, gastrointestinal dysfunction, immune deregulation) and psychiatric comorbidity (mood disorders, aggressivity, self-disruptive behavior, obsessive symptoms, regression in psychomotor development, etc.) are frequent. It is probably the spectrum having the least controversy and that has been better accepted.

On its part, the psychotic spectrum is characterized by the presence of aberrant cognitive perceptions and is preceded by the classical concept of «schizotaxia» and «single psychosis». It is based on the fact that much data (not all) are shared by Schizophrenia and Bipolar Disorder. It includes Schizo-affective Psychosis, Paranoia, Schizotypia, and more doubtfully Borderline Personality Disorder and even OCD. It stresses minor symptoms, of low grade, sub-threshold; temperamental characteristics, subsyndromic manifestations. [19] In other conceptions, it would be a continuous axis of symptoms going from normality to the disease, passing through the prodromes, facilitated by a «fundamental disorder common to all the psychoses»[20].

The existence of an externalizing spectrum has also acquired good acceptance[21]. It would include Behavioral, Antisocial personality, impulsivity and temperamental aggressivity and substance dependence and abuse disorders. All of these would be within the dimensional and psychometric model that opposes this externalizing factor of psychopathology, and another internalizing one that would include Anxiety, Depression, somatic complaints and relationship problems. The application of this model to research seems to offer promising results[22,23].

As we see, a series of proposals that are quite varied and have different success and reach are found. All share their opinion on dimensionality and attempt to approach the nosology with more flexible limits that would better adapt to the clinical reality and facilitate the progress of the research. The DSM/ICD diagnoses are based on the polythetic classifications that use algorithms, with symptoms that should be «essential» and «discriminative». The problem is found in the fact that, unfortunately, the essential items do not differentiate the disorder and the discriminative ones are not essential. On the other hand, there is great heterogeneity in the diagnostic groups. As an example, up to ninety different patterns of grouping of symptoms combining five of the nine possible criteria for Personality Borderline Disorder have been found. The fact is that the «disorders» are fragile constructs, with little consistence, with apparent validity, but whose real validity have not been substantiated by pathophysiology. This limits us to operating on the symptoms and, at most, on the group of associated symptoms that co-vary over time. The theoretic model of the spectrum shows the insufficient basis of the descriptive psychiatric nosology and contributes to increase the ambiguity and lack of definition of the «disorders». Thus, these must be integrated into more rigorous and compared proposals that increase the consistence of the new systematic classifications.

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