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## Dementia DSM-IV/ICD-10 or neurocognitive disorder DSM-5?

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**ABSTRACT – Background and Objectives:** According to existing data the term dementia was invented in the first century BC. It was introduced in the European literature in the 17th and 18th centuries AC. At the end of the 17th century, the French Encyclopedia points at ethiological implications which would later shape legal concepts. In the 19th century the Centroeuropean research develops specific nosologies until, in the 20th century, senile dementia is gradually discredited.

**Methods:** Slightly over ten years ago, the Mild Cognitive Disorder (MCD) conceptualization was introduced as an early stage of Alzheimer’s disease (AD), but the lack of coherence in relation to lesions sparked a still ongoing controversy, as the author of the MCD concept belongs to the Writing Board of DSM 5.

**Results:** The DSM IV focuses on a categorical approach in spite of the difficulty in differentiating “normal” from “pathological” impairment at certain ages. On the other hand, the DSM 5 adopts the Dimensional System with a Mild or Severe Neurocognitive Disorder definition, which is necessarily arbitrary and imposes a statistical criterion. The widespread use of this classification would imply diagnosing a large proportion of the population with huge social and medical implications. This triggered a variety of reactions, such as the APA note which claims that DSM 5 and CIE-10 “virtually contain the same codes”. However a WHO study revealed that 70% of surveyed psychiatrists used CIE 10 criteria.

**Conclusions:** The DSM 5 gives weight to cognitive aspects using as a severity criterion the number of standard deviations in relation to psychometric normality. It might be misleading if applied to some forms of dementia, for instance frontal dementias. The CIE-10 and DSM IV criteria are more operational.

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## Introduction

According to historians and linguists, the term ‘dementia’ appeared in the first century BC. It was used by Lucretius in *De rerum natura* to mean madness or delirium<sup>1</sup> and by Cicero in *De Senectute* to refer to madness and the loss of faculties in elderly dementia<sup>2</sup>, which was probably the first reference to include senility as a decisive factor. In later European terminology, it features in the Oxford English Dictionary (1644)<sup>3</sup>, The Physical Dictionary by Blancard (1726) and the Diccionario Español de Sobrino (1791)<sup>4</sup>. On these publications, the term is described as an expression of madness or loss of reason.

It is widely known that the conceptual content of terms is reviewed from one era to the next. It is interesting therefore to note that this term and its concept were sustained from the first century BC until the end of the 18th century, when it was defined by Diderot and d’Alambert as “a disease consisting of a paralysis of the spirit characterized by abolition of the reasoning faculty [...]”. They highlight that it differs from delirium and mania and is caused by the inability of brain fibres to react to stimuli<sup>5</sup>. Shortly afterwards, in his *Nosographie Méthodique* (1771), Boissier de Sauvages refers to the feeble-mindedness of the elderly, the *imbécilitéé du veillard*, which he puts down to “a stiffening of the nerve fibres making the elderly less responsive to external stimuli”. It also includes an assessment of the legal capacity and responsibility of patients. Pierre Pinel takes this idea one step further in his *Nosographie* of 1798, where he recognizes amentia and morosis as cognitive disorders. More specifically, these disorders include a failure to link ideas, an extravagant behavioural comportment, superficial emotions, memory loss, difficulty in perceiving objects, a lack of judgement, carrying out activities without a purpose and forgetting

words or gestures to express ideas. All of the above summarise the concept of senility when referring to the elderly<sup>7</sup>.

Four decades later, E. Esquirol and Calmeil in *Des maladies mentales* (1835) defined the concept of dementia as a mental illness characterised by the impairment of reason and comprehension, impulsive behaviour accompanied by decreased memory performance, a reduced attention span and of the ability to make judgements. They also made a comparison for differences with mental retardation between the impoverished rich (dementia) with the poor (mental retardation)<sup>8,9</sup>.

From this point forward, numerous writers went on to develop the concept in a variety of ways. Guislain highlighted the difference between youths and the elderly. Cullen coined the term ‘senile dementia’, whilst Bayle demonstrated the cerebral cause through chronic arachnoiditis of the general paresis<sup>10</sup>. From then on, schools in Central Europe took up the reins, tackling the subject from different angles. Griesinger, Alzheimer, Perusini<sup>11</sup> and Pick<sup>12</sup> used clinical judgment and followed an anatomopathological approach. Cajal focused on the anatomy of the central nervous system, whilst Kraepelin was known for his ingenious rhetorical approach.

The situation remained stable until the 1950s, when the contributions of Roth, and Slater<sup>13,14</sup> demonstrated the correspondence of damage between so-called senile dementia and Alzheimer’s disease. This allowed the concept of senile dementia to be removed as a disease in its own right, laying the conceptual foundations of ICD-10 and DSM-IV for dementia.

More than 2000 years have gone by since the first century BC.

The objective reality or the real object (in this case dementia patients) lacks meaning

until this reality has been captured and characterised by a specific doctrine or as part of theoretical thinking, acquiring meaning when the real object becomes formal<sup>15</sup>, dementia into Alzheimer's disease using DSM-IV or into Neurocognitive Disorder using DSM-5.

An entity can be characterised using one of three approaches:

- The categorical approach, based on the presence or absence of symptoms that satisfy certain criteria or not. This allows the diagnostic distinction present or absent.
- The dimensional approach that also takes into account the degree in which symptoms are present or absent.
- A combination of the categorical and dimensional approach. This allows diagnostic models that use both representations in dimensions and categories, having a greater predictive validity than either approach alone.

There is an unquestionable consensus that future classification approaches should adopt and incorporate significant and continuous dimensions that can be conceptualised as diagnostic specifiers in terms of genetic factors, neural substrates, biomarkers, background, personality traits, cognitive and affective deficits, the development of the disorder and the response to therapy, to name the most significant.

As we have already seen, throughout history there have been many different approaches, but certain approaches were embraced more readily and were more sociologically acceptable than others in each era. An approach becomes the dominant one depending on its sociological acceptance or through the marketing used. This is important, as groups that advocate for a particular approach improve its chances of gaining importance, social recognition, the hiring of personnel, the acquisition of resources, scholarships etc<sup>16</sup>.

The objective measurement of intelligence requires obtaining standards that take into account a loss over time. Physiological Impairment was defined by Weschler<sup>17</sup> using the classic formula: Tests maintained – tests not maintained, divided by those maintained x 100, giving a percentage that represents a specific regression. In Weschler's stratification, a percentage decline of over 20% after age correction is a clear indicator of a pathological condition (Weschler).

Until 18 May 2013, both ICD-10<sup>18</sup> and DSM-IV<sup>19</sup> classified dementia with a causal categorical approach and according to the cause or disease that led to its appearance. DSM-5 replaces the "Delirium, Dementia, Amnesic and other cognitive disorders" section with Mild Neurocognitive Disorder or Severe Neurocognitive Disorder<sup>20</sup>, namely a dimensional approach which also specifies the cause. (Dementia with Lewy bodies etc.).

Given the universal acceptance of the term and concept of dementia and its age and evolution over the course of more than two thousand years, we wonder if its elimination was justified. We merely value the progressive expansion of professionals involved in various interests and in numerous, non-medical fields such as copyright of instruments, therapies without over the counter, social politics, etc. A possible narcissistic gratification would not be impossible.

Perhaps the most radical novelty following the disappearance of the term 'dementia' is the appearance of the term Mild Neurocognitive Disorder as a separate entity, seeing Neurocognitive Disorder as equivalent to the modern concept of dementia. It is essentially the same idea, with slight variations. Petersen's introduction of Mild Cognitive Impairment (MCI)<sup>21</sup> sparked considerable controversy that is still to be resolved. MCI can be considered a preliminary stage of AD, yet

post-mortem studies show normal subjects tested for amyloid deposits have identical results to those affected by MCI, making the value of these amyloid deposits a questionable robust marker<sup>22</sup>. It is important to remember that in 2006 Petersen himself (member of the DSM-5 Cognitive Disorders Committee) wrote an article entitled, ‘Mild cognitive impairment should be considered for DSM-5’<sup>21</sup>. By creating the type Mild Neurocognitive Disorder, MCI became official.

DSM 5 adopts the dimensional approach to create a super category –Cognitive Disorder– as a continuum which, once established, is arbitrarily divided into Mild Neurocognitive Disorder and Severe Neurocognitive Disorder according to psychometric set scores, separated into one, two or more D.S.<sup>20</sup>. This implies the need for scales with age-corrected scores. But the distinction between mild/severe is arbitrary in the forming of a continuum, as it is difficult to establish thresholds (DSM-5 p.208). The differential diagnosis of Neurocognitive Disorder with Normal Cognition “poses a challenge because the boundaries between them are unavoidably arbitrary” (DSM-5 paragraph 4 Normal Cognition). The same text recommends the use of specialised instruments that are capable of quantitatively assessing all abilities. However, it fails to mention that overall short tests (widely used with an optimistic approach) are insensitive to slight changes and to premorbid subjects with a high educational level and, conversely, overly sensitive to subjects of a low educational level.

DSM-5 itself<sup>20</sup> considers that Severe Neurocognitive Disorder (dementia) may affect between 1-2% of individuals aged 65-year or more and 30% of individuals aged 85-years or more, and the prevalence of MCI may be 2-10% in individuals aged 65-year or more and 5-25% in individuals aged 85-years or more. If we make a simple calculation, we

can see that it could affect 55% of the planet’s total population. The population would suffer social and medical consequences, affecting social security and private insurance professionals, disabilities, wills, etc, in case they are diagnosed in these categories<sup>22</sup>.

This fact is reflected in a US Social Security Adm. document<sup>23</sup> that considers:

1. That basal rates of mental disorders that include subjects with a mild impairment will increase after receiving formal diagnosis.
2. That the meaning and perception of “functioning” are changed to link it to the diagnosis.
3. That the inclusion of a dimensional severity rate adds information and may improve the identification of disability.

The controversy sparked on 18 May 2013 with the publication of DSM-5, that reached government agencies and even the specialist and daily press<sup>24</sup>. It is interesting to analyse the following chronological development. On April 2nd, 2013, President Obama announced the investment of \$100 million in 2013 for the BRAIN Initiative Program<sup>25</sup>, an initiative that prioritises areas such as genetics and neuroimaging. On 29 April, NIH Director Thomas Insel announced the disengagement of the agency from “research projects that are solely based on DSM-5 approaches”<sup>26</sup> in favour of the DRC developed by the Institute itself. On 13 May 2013, the APA and NIH issued a joint press release stating that “the diagnostic categories of DSM-5/DSM-IV and ICD-10 contain virtually the same codes and continue to be the contemporary standard consensus by which mental disorders are diagnosed and treated”<sup>27</sup>. In a public presentation on 18 May, David Kupfer, Chair of the DSM-5 Task Force, stated that the \$25 million cost justifies the \$198 sale price for the DSM 5 book, required for the APA to recover the investment.

The WHO conducted a study/survey<sup>28</sup> (C. Reed *et al* W. Psych) of 5,000 psychiatrists from 44 countries that revealed that 70% of participants used ICD-10 criteria, whilst only 23% used DSM-IV. Separating European psychiatrists from the rest of the group, they found that out of the 2,700 participants, 80% used ICD-10 and 13% used DSM-IV. We do not expect that European professionals would use a commercial product issued by one particular professional association in America.

This situation raises the issue of trying to achieve excellence in diagnosis for our patients, implying the need to consider multiple aspects: background, a psychopathological examination carried out by trained professionals, genetics, neuroimaging, laboratory, development, therapeutic effect etc. without the fear of rethinking diagnosis if needed, prioritising knowledge over faith when it comes to classification. In the long run, the options available are not the best or the strongest but rather those that have proved to be most resilient. In the words of Catalan poet M. Martí Pol<sup>29</sup>, from his wheelchair: “Tot està per fer i tot és possible”; everything is still to be done and everything is possible.

In conclusion the approach in DSM 5 that proposes both Mild and Major Cognitive Disorder is based on psychometric criteria that do not assess relevant psychopathological aspects in dementia symptomatology. Experienced clinicians can hardly accept attributing *de facto* the same value for all standardized scales. The negative social impact does not seem enough of a reason for eliminating the term “dementia”. The legal, social and medical consequences may be extremely negative. For that reason, CIE-10 and DSM-IV criteria are likely to prevail.

## Conflict interests

None.

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