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ABSTRACT: *There has been an increased interest in the last decade about non-substance related addictive disorders. Classification systems started incorporating them, explicitly in their manuals signaling an acceptance brought by the growing scientific evidence (neurobiological, phenomenological, and developmental) of the validity of the diagnoses. In 2013, “gambling disorder” became the first non-substance related diagnostic entity to be included in an international manual, the DSM-5. The World Health Organization followed suit and in June 2019 added both “gambling disorder” and “gaming disorder” in their diagnostic system the ICD-11. These disorders or “behavioral addictions” include impulsive, obsessive & compulsive and addictive behaviors. They deserve more attention from scientist as they share natural history with substance use disorders and affect young people with long-term consequences. We need to view behavioral addiction as extreme ends on the spectrum of behaviors, where the quality and quantity of the behavior have to be assessed thoroughly to ensure we do not mislabel some excessive behaviors as psychiatric disorders. Tools to enable us to are that distinction and interventions to help patients are being developed.*

Gaming Disorder; Gambling Disorder; Kleptomania; Pyromania.

Currently addictions are broadly divided into two main groups, namely, substance-related and non-substance related (American Psychiatric Association, 2013) and the World Health Organization (WHO) (2019) revision (ICD 11), (World Health Organization, 2004) (ICD 10). The DSM-5, released in 2013, includes “gambling disorder” in the Substance -Related and addictive disorders chapter and subsumes “internet gaming disorder” under section 3 of “Emerging Measures and Models”.

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The World Health Organization (WHO) released their ICD-11 (2019) revision (ICD 11), (World Health Organization, 2004) (ICD 10). It includes “Disorders due to substance use or addictive behaviors” and the corresponding two groups of health conditions:

- (i) Disorders due to substance use, and
- (ii) Disorders due to addictive behaviors.

Under rubric (ii) “gaming disorder”. The rationale for including them is due to “the evidence of neurobiological, phenomenological, developmental and outcome similarities between gaming and gambling disorders and substance use disorders”, as stated in the manual. It is worth noting that the ICD11 has gone a step further than DSM-5 by omitting the word internet from the term internet gaming disorder, apparently in response to challenges from many researchers, stating that gaming does not have to be online and the term causes

awareness, prevention, taxonomy, clinical description and o c p c i g o g p p w k v k u k o r q t v c p v v q f k g t g p v k c v g d g v y g g p v j g u g disorders or addictions and the lifestyle choices. We need to remember that addictions cause harm to the individual, their families or society at large and dominate the lives of those c g e v g f e c w u k p i n q u u q h e q p v t q n V j g o c k p f k u v k p e v k q p k u v j c v pleasurable lifestyle choices improve quality of life unlike these disorders.

TIMELINE AND NOMENCLATURE: 1956: V j g L t u v mention of a non-substance entity causing a behavioral addiction is probably that food can be addictive by Randolph. * T c p f q n r j . 3 ; 7 8 + 0 "

1957: I c o d n k p i . c e n q u g u g e q p f . l c i i g f w r c u c p q p / u w d u v c p e g c f f k e v k q p V j g v g t o L t u v c r r g e t g f k p 3 ; 7 9 f w t k p i the Gamblers Anonymous (GA) meetings.

1964: The WHO replaces the diagnosis of addiction with the label “dependence” (seemingly neutral, more appropriate c p f n g u u u v k i o c v k | k p i + 0 * Q o D t k g p . g v c n 0 4 2 2 8 + 0 V j g F U O system continued to use the term dependence through the 3rd (DSM–III) and 4th (DSM- IV) revisions and only replaced dependence with addiction in the 5th revision or DSM-5.

1970s: V j g f k i k v c n c i g d g i k p u = e w t t g p v f k n g o o c u q h technology addiction emerge.

1980: DSM used the criteria for pathological gambling with obvious similarities to substance dependence (tolerance, withdrawals, repeated failures in attempts to quit and k p v g t h g t g p e g y k v j h w p e v k q p k p i + 0 * U r k v | g t . g v c n 0 3 ; : 2 + 0 "

1983: Patrick Carnes publishes his book: Out of the Shadows: Understanding Sexual Addiction. He describes sexual compulsivity and sexual anorexia as “sex in the extremes”. (Carnes, 2001).

1995: F t 0 K x c p M 0 I q n f d g t i y c p v g f v q f g o q p u v t c v g v j g complexity and rigidity of DSM handbook. He conjured up what he called “Internet addiction disorder” (I.A.D.). He r q u v g f k v c u c r c t q f { q h v j g e n c u u k L e c v k q p u { u v g o 0 " J g v q q m pathological gambling, as diagnosed by the (DSM-IV), as j k u o q f g n h q t v j g f g u e t k r v k q p q h K 0 C 0 F * I q n f d g t i . 3 ; ; 8 + 0 "

1995: M k o d g t n { [q w p i h q w p f g f v j g E g p v g t h q t k p v g t p g v Addiction Recovery and published a book about internet c f f k e v k q p 0 * D t c p f . g v c n 0 4 2 3 ; + 0 "

2001: Q p g q h v j g L t u v c t v k e n g u c f f t g u u k p i v j g k u u w g q h behavioral addictions was by Holden.

He asked in an article “if they existed”. (Holden,2001).

2004: U j c g t g v c n f g x g n r c u { p f t q o g o q f g n q h c f f k e v k q p u that joined SUDs and behavioral addiction. They argued that addictions share neurobiological, and psychosocial precursors that increase the vulnerability for pathogenesis. Only if the precursors are combined with exposure to and interaction with addictive behavior will the person develop c f f k e v k q p 0 * U j c g t . g v c n 0 4 0 0 4 .

2008: C p g f k v q t k c n k p v j g C o g t k e c p L q w t p c n q h R u { e j k e v t { suggests that internet addiction be included in the Diagnostic c p f U v c v k u v k e c n O c p w c n * F U O / 7 + 0 * D n q e m . 4 2 2 : + 0 "

2012: A study of almost twelve thousand adolescents in eleven European countries, found a 4.4 per cent prevalence of what the authors termed “pathological Internet use. (Durkee, et al. 2012).

2013: DSM includes gambling disorder under substance related and addictive disorders.

2019: The WHO includes gambling disorder and gaming disorder under disorders due to addictive behaviors in ICD 11.

THE SYNDROMES: Non-substance related or “Behavioral addictions or disorders,” are also known as “process

The neurobiological similarities between gambling and Substance use disorders include: the neurotransmitters kpxqnxgf*F4lF5"tgegrvqtu+. "Rctmkpuqp"fkugcug"ogfkecvkqpu" g gevu." hOTK" tguwvu" ujqykpi" kpxqnxgogpv" qh" XoRHE" (ventromedial prefrontal cortex) & risk reward decision, decreased activation in cocaine related videotapes and gambling related IGT (IOWA Gambling Task). (Potenza, 2013).

Genetic studies of the Vietnam era twin registry showed the co-occurrence of both genetic and environmental factors in pathological gambling. The Australian twin registry also showed the strong genetic link with two thirds of association in alcohol and pathological gambling in males.

Vq"fkci pqug"vjg"fkquftfgt"vjg"FUO/7"fgLpgu"kv"cu"örgtukwgpv" and maladaptive gambling behavior as indicated by a okpkowo"qh"6"qw"qh";" tgswwtfg" etkvgtkc"kp"vjg"rcuv"34" months". Many assessment tools are available to help clinicians diagnose and manage the disorder and a most experts recommend the Gambling Timeline Followback (Weinstock, et al. 2004). This tool provides a baseline record of the patient's gambling behavior in the previous 30 days. It is then repeated during follow up to provide patients with important feedback, psychoeducation and for monitoring progress.

Clinically, patients are typically trapped in a vicious circle of "chasing losses" (trying to win back lost sums of money "bailouts" (hope for rescue from others around them), they also and respond to negative emotions by gambling more, gpfkpi"wr"kp"ugtkqwu"fk ewwvkgu"c gevkpi"cn"curgevu"qh"vjgkt" nkxgnkjqqf" *ngicn." Lpcpekc." tgnvcvkpujkr" gve000+0" Vjg" twngu" of chance dictate that any gambler will experience a win, large or small, and this have been likened to the "high of addiction".

It is puzzling why people continue to gamble despite the odds of winning being so low. Cognitive distortions (bias and irrational thoughts) have been suggested. A good summary of the literature on these distortions can be found in an excellent paper by Labrador, et al. 2020.

The delay in seeking help for their addiction is a consequence of many factors such as their ambivalence (not dissimilar to substance related disorders), lack of insight and the cognitive distortions described above.

Petry also described the cognitive distortions experienced by gamblers as: gamblers fallacy (the belief that a string of losses must predict an imminent win, availability heuristic (selective recall of wins over losses), failure to recognize net losses that include some small wins, that his need to win will c gev"qwveqog."dgnkghu"cdqvw"nwem0"*Rgvt{."4227+0

The delay in seeking help for their addiction is a consequence of many factors such as their ambivalence (not dissimilar to substance related disorders), lack of insight and the cognitive distortions described above.

The list of comorbid disorders summarized in a critical review by Crockford, et al. in 2011 include the following: oqqf"cpf"cpzkgv{"fkuqftfgtu"*59'+"rgtuqpcnk{"fkuqftfgtu"*6:"' "coppivtgcvo gpv"uggmgtu+. "uwduvcpetgncvfg"fkquftfgtu"*7907" ' ""cnuq"uvcvfg"cu"9"hnf"i tgcvtg"kp"icodngtu"vjcp"pqp/ icodngtu+ yjkg"dkrqct"."cwgpvkqp"fgLekv" ("qduguukxg" eqorwnukxg"fkquftfgtu"ygtg">32'+"0Vjgtg"ku" c"tcpig"qh" biopsychosocial and spiritual interventions available to treat gambling disorder. These include: motivational interviewing, cognitive and cognitive behavioral treatments and self-help groups the Gamblers Anonymous or GA, which is based on the 12-step approach borrowed from the Alcoholic Anonymous. There are no currently approved medications for treating the disorder but clinicians often prescribe the hqnnqykpi"vctigvkpi"urgekLe"u{orvqo"enwuvgtu"nkmg"cpzkgv{"

behavior may be continuous or episodic and recurrent. The gaming behavior and other features are normally evident over a period of at least 12 months in order for a diagnosis to be assigned, although the required duration may be shortened if all diagnostic requirements are met and symptoms are severe. (ICD 11).

The prevalence rates of ICD 11 gaming disorder (and DSM-5 internet gaming disorder) in many studies ranged from 3.04% to 7.1% for gaming disorder and 0.7% to 4.23% for internet gaming disorder.

A distinction needs to be made between someone who may use games excessively but non-problematically and someone who uses games excessively and problematically. The former is characterized by excessive gaming without significant negative consequences, while the latter is characterized by excessive gaming that leads to significant negative consequences in social, occupational, or educational functioning.

- É" Characterized by repetitive and excessive sexual behavior (quantitative & qualitative)
- É" Generally, outside the context of sustained intimate relationships
- É" Urges to perform such sexual behavior akin to drug craving found in chemical addictions,
- É" Continuation of the behavior despite obvious potential of harm in many domains

Failure to stop despihg"tgrgcvgf"g qtu0"*Cue jgt."gv"cn0"4237+0"
 The dopaminergic reward circuitry is once again involved, as it is in other chemical and behavioral addictions. The neurobiological substrates involve two brain areas namely the Ventral tegmental area in the midbrain and the nucleus accumbens in the striatal system. Both chemical and behavioral addictions dysregulate the system.

Treatment involves multiple modalities but none has proven to be superior. Individual psychotherapy (cognitive behavioral or psychodynamic), motivational enhancement, group therapy and self-help groups have all been studied. There are no FDA approved medications for the disorder but SSRIs and antiandrogenic medicines have been tried

FOOD ADDICTION (FA): The existence of food addiction

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Floderus, B., & Wasserman, D. (2012). Prevalence of pathological internet use among adolescents in Europe: demographic and social factors. *Addiction, 107(12)*, 2210-2222.

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S. W. (2010). Nalmefene in the treatment of pathological gambling: multicentre, double-blind, placebo-controlled study. *Br J Psychiatry, 197(4)*, 330-331.

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ic o dnkpi" ugxgtkv{" cpf" eqipkvkxg" kptgzdknkvt{" kp" rcvjqqiqecn"
gambling: a pilot study. *Psychopharmacology, 212(4)*, 825/8340

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the stereotype: The case of online gaming. *Cyberpsychol Dg jcx.*" 8*3+." :3/;30"

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overview of Internet gaming disorder and its treatment. *Aust Clin Psychol, 2(1)*." 4232:0

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International Universities Press, Inc.

Holden, C. (2001). 'Behavioral' addictions: do they exist?. *Science, 294(5544)*, ; :2/; :40

Mkpi." F0" N0." (" Fgnhcddtq." R0" J0" *4235+0" Xkfgq/ ic okpi" fkuqtfgt"
and the DSM-5: Some further thoughts. *Aust Nz J Psychiat, 47(9)*," :97/:980

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sexual behavior can be made using ICD-10 and DSM-5 despite rejection of this diagnosis by the American Psychiatric Association. 111, 2110–2111.

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confusion in DSM-5 diagnosis of Internet Gaming Disorder: Kuuwgu." eqpegtpu." cpf" tgeqo o gpfcvkqpu" hqt" enctkv {" kp" vjg" Lgnf0"
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