



APSI New Buzz

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Theme: Gaming Disorders- When the Game Ceases to be a 'Game'

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★ **Diagnostic Debate**

★ **Taming the Game**

★ **Indian Gaming Scene**

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Editorial

The Gaming Dilemma: Navigating the Path from Play to Problem

Preethy Kathiresan, Ravindra Rao



Game has been defined in Oxford dictionary as an activity that one does to have fun or enjoyment, often has rules, and a person can win or lose in the same. It can vary from simple games like skipping to complex games involving teams like Cricket. Games have been part of human culture since time immemorial and is still ubiquitous in our life.

‘Gamification’ is still a method being used to improve learning outcomes by using the unique characteristics of games in making learning fun (2). If games can enhance the learning of a relatively boring or mundane subject, or can enhance the life skills of a person, why has this now come under the radar of psychiatrist or mental health professional? Gambling often involves betting of money for winning or losing in a ‘game’; excessive indulgence in the same is recognised as a mental illness since a long time, leading to inclusion of pathological gambling in DSM-III in 1980. While the inclusion of gambling disorder in diagnostic criteria was met with little opposition, why should be there hue and cry to include gaming disorder as mental illness in our standard nosological system? Is it the case that we are medicalising a normal phenomenon (3)? Most psychiatric disorders lie in a spectrum from normalcy to disorder. Is gaming disorder a severe end of the spectrum? Are the criteria to diagnose this severe end of the spectrum well-established? The first thematic article by Dr. Aniruddha Basu and Dr Rashmi Chakraborty on “Game or Disorder? Unraveling the Diagnostic Debate” has delved into these important aspects - how and when the disorder came to be recognised in the scientific literature, when do we call a person to have a gaming disorder, why is it being recognised as a behavioural “*addiction*” and what are the lacunae that still needs to be filled.

Games have traditionally been used among children to inculcate various life skills like team work, team co-ordination, leadership skills, patience (when they have to wait for turns), etc. (1).

It is quite interesting to note that with the advent of internet and with the promise

of easy availability, accessibility and affordability (The Three A's), there has been a significant increase in the use of online games (4). Also, the mortality due to gaming disorder have predominantly been due to physical complications caused by prolonged sitting (5). Even though there are few studies describing offline gaming disorder also, most of the literature on gaming disorder have described online games only. In short,

There is always a debate as to whether gaming disorder is just one of the many manifestations of internet addiction or is it that gaming disorder would have occurred in that individual even if internet was not available?

is it the internet to be blamed or is it the basic vulnerability of the individual that needs to be blamed for the disorder (6)? There is no direct answer to this question as of now and we can safely assume that both have role to play, unless proven otherwise. This aspect is important for us to understand, mainly from the management perspective. If internet is the main culprit, will restriction of internet at policy

level (akin to supply reduction in substance use disorder) be good enough to reduce the prevalence of online gaming disorder or do we need to have demand reduction approach (increasing public awareness and providing treatment for gaming disorder) ? The second theme article by Dr. Manoj Kumar Sharma and Ms Hridhya MS on "Taming the Game: Effective Strategies for Managing Problematic Gaming" have delved into the intricacies of management of gaming disorder, highlighting the various challenges that are faced by health professionals while managing patients with gaming disorder as well as giving an overview of the various strategies that have been found to be effective in treating the same.

There have been lot of changes in the way games are being played by the youth since the 1980s to now. While kids from 1990s may remember the 'Mario' games being played on the TV, the current generation kids are being exposed to 'Massive Multiplayer Online Role Playing Games', where the kids can create their own avatars and enter a virtual world which they may perceive to be more attractive than the harsh reality of the real world (4). It is necessary for us to understand the various environmental and social factors currently prevalent in India, that can influence the gaming behaviour of the youth. While there are well-defined laws to regulate gambling in our country, there is often a overlap between gaming and gambling. As mentioned previously, gambling often involves wagering money secondary to the outcome of a Gambling laws in India exclude 'Games of Skill' from its purview, and prohibits only 'Games of Chance'. Many online games nowadays require the individual to pay money to advance faster in a game or to get an in-game advantage over the other players.

Also, some online gaming apps solicit users with claims that they can win lots of money by playing the same. However, we often see a lot of youth continuing to play despite losing a large amount of money playing these games. With the line between gaming and gambling blurring in many places, do we actually have an adequate legal framework or policy to regulate gaming in our country (7)? Since there is a significant influence of the peers and the prevailing sociocultural norms on the gaming behaviour, it is also necessary for us to know the current cultural norms with respect to gaming in India, especially among the youth. The third theme article on “The Indian Gaming Scene: Unpacking the Link to Gaming Disorder” by Dr. Rachna Bhargava and Dr. Manmeet Kaur have delved into this very aspect and given us an understanding of the current gaming environment in our country.



As can be seen from the thematic articles, Gaming Disorder is not just a passing concern; it is a growing public health issue that demands attention. While gaming in moderation can offer benefits, the dangers of overindulgence in the same cannot be ignored. As we navigate this digital era, it is important for all of us to create an environment that fosters healthy gaming habits and provides support for those who may be struggling.

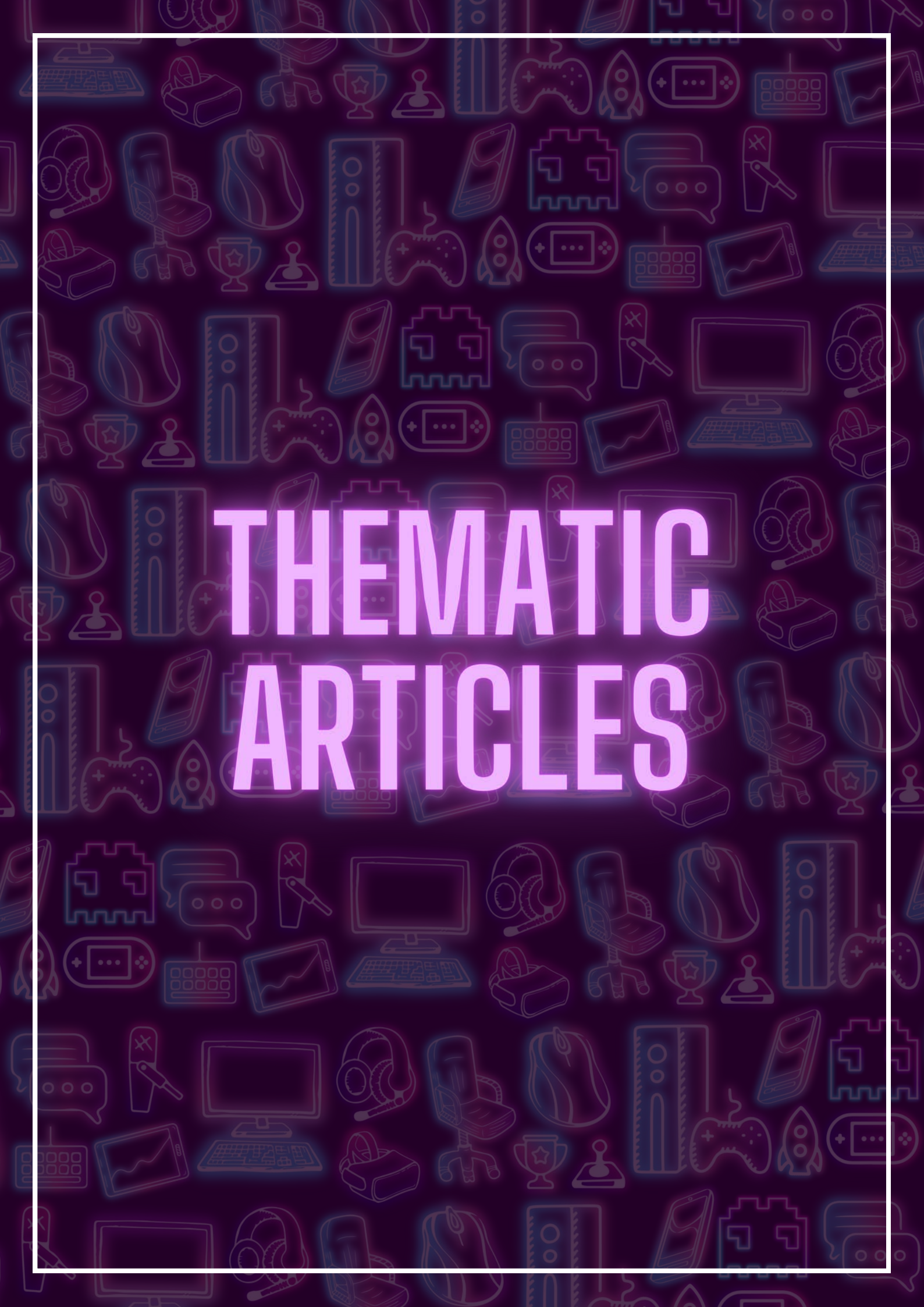
There is one more important invited article that has been written by Dr. Udit Panda and Dr Akshay Garg in this newsletter which is a commentary on the recently released world drug report, in which the authors have provided highlights of the report. We look forward to receiving your feedback on this issue and suggestions for future topics. You can write to us at apsinewsbuzz@gmail.com

Happy reading!

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THEMATIC ARTICLES

Game or Disorder? Unravelling the Diagnostic Debate

Aniruddha Basu, Rashmi Chakraborty



The current era has witnessed an unprecedented explosion of digital technology and gaming sparking an ongoing debate among healthcare professionals, researchers and the gaming community.

It was as early as the 1980s that case reports and case series on ‘computer catatonia’ started appearing in the scientific literature, and in 1990s, the criteria for internet addiction came up in a satirical manner. However, when the first death due to gaming addiction was reported in 2004, this phenomenon gained more importance (1). By 2022, deaths were reported in nearly 24 gamers and the most common causes of these deaths were thromboembolism, cerebral haemorrhage, fatal arrhythmias and other medical problems (2). This may be just a tip of the iceberg, given the constant increase in the gaming prevalence. Problematic internet use has grown exponentially in the last two decades to become a public health problem (3). In the Indian context, there is no national level survey on the prevalence of gaming disorder in the country. However, several small cross-sectional studies have estimated the prevalence of gaming disorders to range from 1.2% to 17.5% in different settings (4).

Numerous epidemiological studies have found a highly variable prevalence of problematic gaming ranging from 0.7% to 27.5% across different settings and different countries. However, one consistent finding across most studies is the fact that gaming disorder prevalence is higher amongst males and younger generation.

India stands second in the gaming market with approximately 442 million gamers (5). Consequently, gaming and preoccupation with digital media are common reasons of treatment seeking. Subsequently dedicated clinics have been established for the purpose in tertiary level institutes. A cross-sectional review of health records of such a behavioural addiction clinic at AIIMS Kalyani in Eastern India revealed that 74 cases of problematic internet use sought treatment in the past six months; 35 cases out of these fulfilled the diagnostic criteria of gaming disorder and internet gaming disorder as per ICD-11 and DSM-5 respectively. Among those with gaming disorder

(n=35), 90% were males and 95.2% were below 20 years of age. The mean hours of gaming per day was 6.5 hrs. Psychiatric comorbidities were present in 84% of cases – ADHD (18%), depression (16%), anxiety spectrum disorder (16%), and epilepsy (12%). As can be seen from this data, among patients with gaming disorder, comorbidity is the rule rather than exception. There was significant clinical improvement in duration of gaming (less than three hrs per day) with psychosocial interventions in 34% cases, with better results in those without any comorbidity.

The explosion of cases in the last two decades has led to an increase in the interest of researchers in this relatively less

An empirical overview of the research progress in the last two decades has brought forth substantial evidence that gaming disorder follows a continuum similar to other addictive disorders. Similar to substance use disorders, multiple risk factors have been found to be associated with gaming disorders.

explored area. The biological factors include genetic vulnerabilities (polymorphism of D2 dopamine receptor genes, serotonin transporter gene (5HTTLPR), Val-158Met in COMT genes, nicotinic acetylcholine receptor gene (CHR-NA4)), as well as neurobiological correlates and other biological risk

factors. The psychosocial factors include, for example, male gender, early age of onset, dysfunctional cognitions, high impulsivity and sensation-seeking personality traits while the social factors include problem with peers, dysfunctional family environment, quality of parent-child relationship etc. Many of these factors are also implicated in substance use disorder. Clinically, progression from gaming to an addictive pattern of engagement in gaming activities, clinically significant dysfunction in various social, academic, occupational, and psychological domains, as well as response to treatment – all have significant similarity with that of substance use disorder (6,7).

TABLE 1: The Continuum of Gaming Disorder

ETIOLOGY	PATHOPHYSIOLOGY	PATHOLOGY	RAMIFICATIONS
Genetic predispositions [Polymorphisms of the dopaminergic system- Taq1A1 allele of D2 receptor and Val158Met in COMT genes, nicotinic acetylcholine receptor gene (ChrNA4)]	Neurobiological changes Neuroimaging and electrophysiological findings suggest a deficit in reward circuits, impaired prefrontal cortex functioning, reduction in gray matter volume and white matter density	<ul style="list-style-type: none"> • Phenomenology • Assessment • Diagnosis (DSM-5/ICD-11) • Epidemiology 	Distress and functional impairment (Aggressive/oppositional behaviour and hostility, scholastic decline, school refusal, stress, sleep deprivation, inattention, increase thoughts of suicide, victims of cyberbullying, family conflicts, vocational problems)

<p>Personality Traits [narcissistic traits, sensation seeking, introversion, neuroticism, and impulsivity]</p> <p>Individual Vulnerabilities [maladaptive coping from negative emotions, stress, fear, and escape tendencies]</p> <p>Motivations for Playing [Virtual friendships/relationships, immersion, rewards, socialisation, and personal satisfaction]</p> <p>Structural Game Characteristics [positive reinforcement resulting in game persistence]</p> <p>Environmental Factors [family factors and early life experiences, peer and school related factors, cultural factors]</p>	<p>Cognitive factors</p> <ul style="list-style-type: none"> • Dysfunctional beliefs about game reward value and tangibility. • Maladaptive and inflexible rules about gaming behaviour. • Over-reliance on gaming to meet self esteem needs. • Gaming as a method of gaining social acceptance. 		<p>Comorbid Physical and Mental Disorders</p> <ul style="list-style-type: none"> • Physical disorder [musculoskeletal aches and pains, tendonitis, palmer ulceration, headache, dizziness, dry eyes, malnutrition, dehydration, pressure sores, obesity, seizures, etc.] • Mental disorder [generalised anxiety disorder, panic disorder, social phobia, school phobia, ADHD, mood disorders, auditory hallucinations (Nintendo hallucinations)] <p>Public Health Concern</p> <p>Necessity for therapeutic intervention</p>
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Adapted from - Kuss & Griffiths (2012). Internet gaming addiction: A systematic review of empirical research. International Journal of Mental Health and Addiction, 10(2), 278-296.

Even though pathological gaming has been recognised in the literature since 1980s, this problem came to be recognised as a clinical entity for the first time in 2013 based on the accumulated scientific evidence. In 2013, the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-5) introduced Internet Gaming Disorder (IGD) under Section III as "A Clinical Condition Warranting Further Research". DSM-5 defines Internet Gaming disorder as "a pattern of persistent and recurrent engagement in internet gaming activities associated with significant functional impairment and distress for 12 months" with the criteria given in table 2 (Any 5 of the following 9 criteria needs to be fulfilled).

This was the first endeavour to recognize pathological internet gaming as a mental health disorder officially. However, doubts were raised about the validity of the construct and operationalization of the diagnostic criteria, as it laid heavily on and overlapped with substance use disorder and gambling disorder criteria. Other observations pointed out in literature include the flaws and lack of consensus on a

well-delineated, comprehensive definition of what problem gaming constitutes across various studies. Also, there have been a wide paucity of homogenous, validated tools for assessment, quantification of functional impairment, as well as methodological deficits in analytical studies that tried to assess the outcome of various interventions for gaming disorder (8).

TABLE 2: DSM-5 Criteria for Internet Gaming Disorder

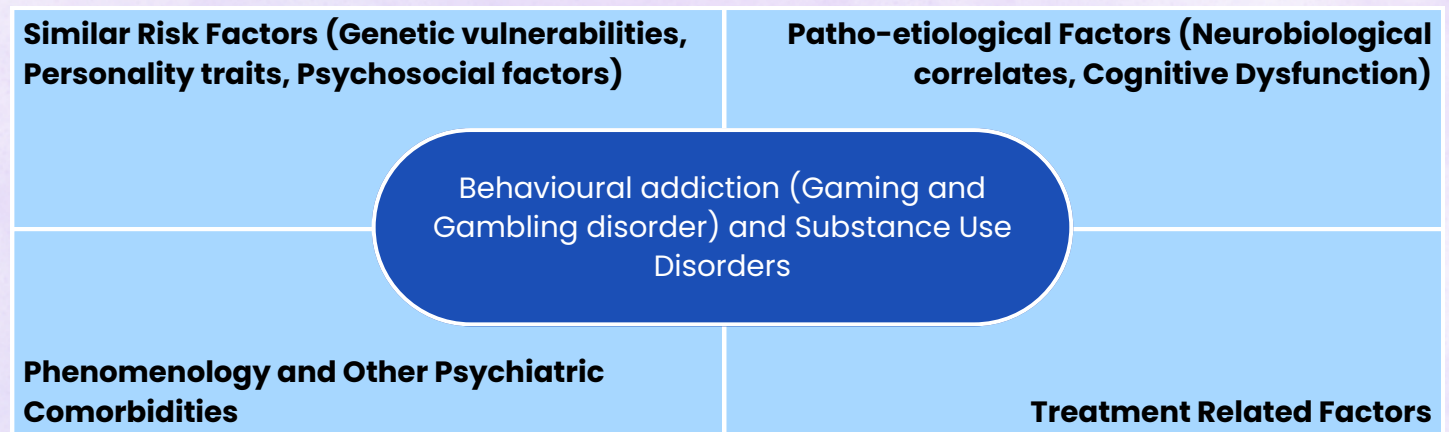
Preoccupation	Withdrawal symptoms	Tolerance
Unsuccessful attempts to control gaming	Loss of interest in previous hobbies and entertainment	Use it to escape or relieve a negative mood
Deception of family members, therapists, or others regarding the amount of Internet gaming	Continued excessive use of internet games despite knowledge of psychosocial problems	Loss of significant psychosocial commitments

Despite the limitations mentioned in the literature above, there have been a lot of studies, as well as clinical experience, which points to the overlap between substance use disorder and gaming addiction. At the same time, there are also some unique characteristics distinctly related to excessive gaming. For example, increasing need to engage in more challenging levels or games than the previous one or playing for longer duration or “immersion into the virtual world of the game” such as “massively multiplayer online role-playing games” (MMORPGs) to get pleasure is a unique phenomenon related to gaming. However, this phenomenon is also akin to developing tolerance in substance use disorder. Similarly, even though characteristic feature in gaming disorder such as the rebound phenomenon, wherein an individual develops irritable/anxious/dysphoric mood or abusive/aggressive behaviour on cessation or reduction in gaming (often imposed by others) is unique, it can be considered as akin to a withdrawal state in substance use disorder (3).

In parallel with phenomenology, gaming disorder can also be understood through the lens of Research Domain Criteria (RDoC), which implicates specific neural circuits and neurotransmitter systems for dysfunctional cognition, emotion, and behaviour. Systematic literature review of neuroimaging (fMRI, rsfMRI, VBM, PET and EEG) in pathological gamers reveal poor response-inhibition, poor emotional regulation, impaired prefrontal cortex (PFC) functioning and poor cognitive control. Among the neuropsychological and neurophysiological deficits, studies have found a decreased sensitivity to loss in games, increased reactivity to gaming/gambling cues, poorer working memory, poorer decision-making capabilities, increased impulsivity,

decreased visual and auditory functioning, deficit in the dopamine reward system, and decreased P300 amplitudes and an increased P300 latency (which indicates impaired attention allocation capacity). Many of these changes in the neurobiology have also been found in persons with substance use disorder and there is a significant overlap between the two disorders (9).

FIG. 1: Similarities in Construct and Criteria of Substance Use Disorder and Behavioral Addiction

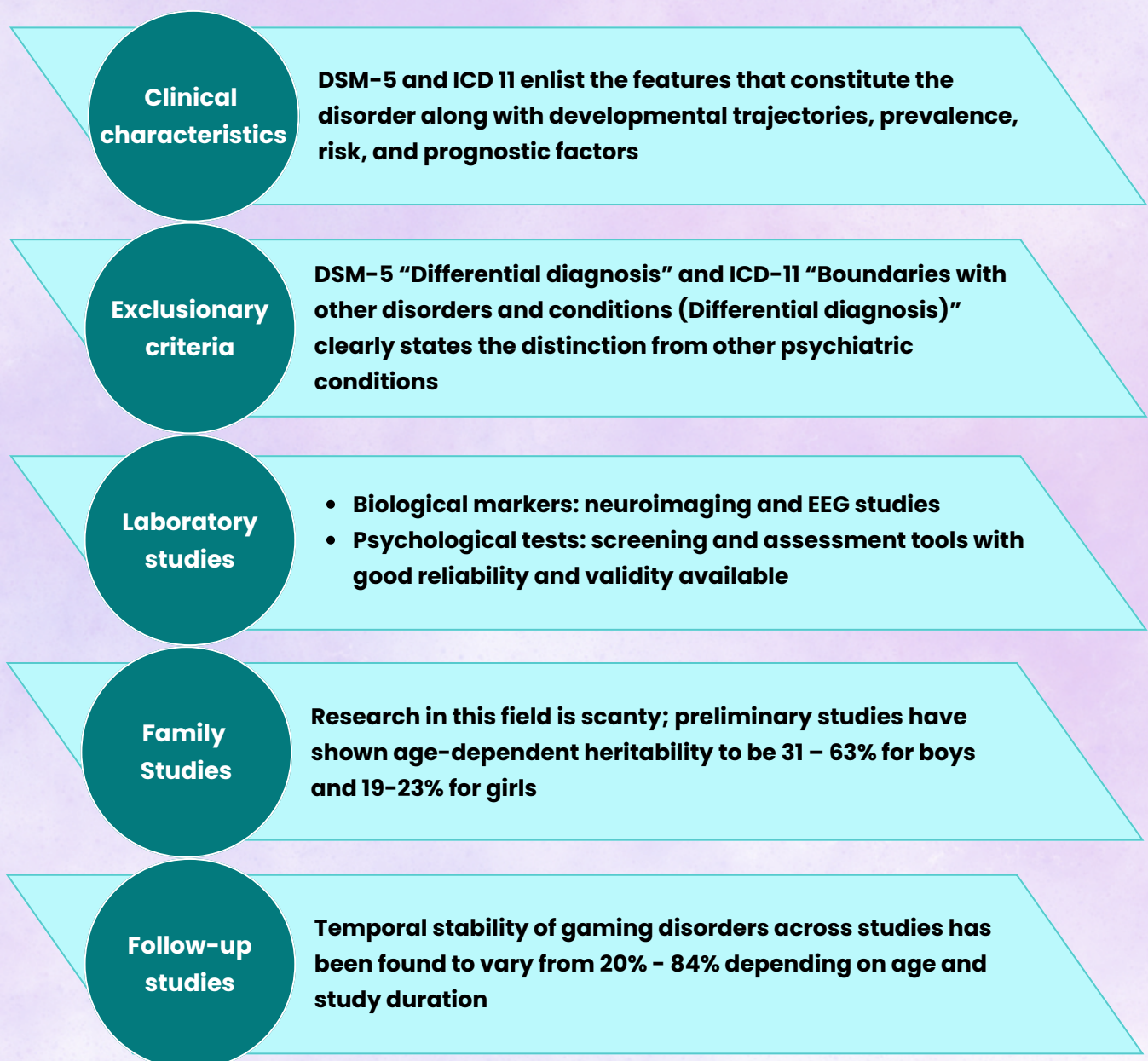


Considering all the above characteristics of gaming disorder, the WHO experts working committee proposed its inclusion as an independent disorder in ICD-11 beta draft. The WHO, in the 11th revision of the International Classification of Diseases (ICD-11), defined Gaming Disorder as a “pattern of gaming behaviour (“digital-gaming” or “video-gaming”) characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences”. This behaviour pattern must persist normally for 12 months and cause significant functional impairment in important aspects of one's life (personal, family, social, educational, occupational, etc). This definition was a crucial step to clarify and define the diagnostic domains of gaming disorder, plan assessment, and develop evidence-based scientific therapeutic measures and preventive strategies. This decision was not without controversy, with critics contending that the quality of research was below par, the diagnostic domains derived from substance use disorders may over-pathologize normal/nonproblematic thoughts, feelings and behaviours of people who regularly play video games. They also contend that inclusion of gaming disorder with specific criteria in ICD11 would block further research into the exploration of ‘normal’ versus ‘pathological’ gaming. Critics also opined that inclusion of gaming disorder as a mental health disorder can lead to a socially misconstrued moral panic about the harms of even normal gaming, which may further lead to premature and false positive diagnoses and stigmatize a ubiquitous leisure activity (3,8).

Robin and Guze's validation approach to establishing a psychiatric diagnosis has remained a gold standard over the years. Applying the five parameters (clinical description, exclusion of other disorders, laboratory study, family study, and follow-up study) of their validation to gaming disorder to test its diagnostic validity shows that there is a need for continued research particularly in laboratory studies, long-term follow-up, and family studies (10).

As we continue to debate whether preoccupation with the digital devices is a phenomenon or an epiphenomenon, there is a need to further understand the etiology, development, phenomenology, and course of the disorder in depth. Also it is imperative in view of its public health burden that frontline health workers harbour skills to engage those at risk at the community level into the therapeutic alliance as early intervention and appropriate treatment can improve the outcomes in gaming disorder.

FIG. 2: Gaming Disorder- From the perspective of Robin and Guze Diagnostic Validity Criteria



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Taming the Game: Effective Strategies for Managing Problematic Gaming

Manoj Kumar Sharma, Hridhya MS



Gaming has become one of the most popular activities worldwide, offering entertainment, social connections, cognitive arousal, and educational and occupational opportunities. However, at-risk individuals experience adverse outcomes, including increased stress, anxiety, depression, and higher gaming disorder prevalence (1). The gaming industry has gained a lot of traction in recent years with the integration of technologies like cloud gaming, augmented and virtual reality that have made games life-like that sustain player engagement, features exploit psychological principles such as operant conditioning or social reinforcement through variable reward schedules, in-game achievements, and social obligations (2). These play an immense role in the rise of prevalence rates of gaming disorder (3). Gaming disorder leads to social withdrawal, detachment from real life and promotes a sedentary lifestyle, which causes various physical and mental health deteriorations. It may lead to neglect of academic or professional responsibilities, impair social relationships, and even compromise sleep and health.

Everyone who plays for a long time does not risk developing a gaming disorder; research suggests that when high-frequency gaming is used to escape real-world problems and is prioritized over other essential activities, it indicates problematic gaming.

Even with high prevalence rates of gaming disorder, treatment-seeking is not typical among gamers; the ability to perceive gaming as a problem, understand its potential seriousness, and the need for support is often low. One of the reasons behind this is the inability to understand and distinguish regular gaming habits from problematic gaming. Conducting research on gaming disorder can be challenging due to the diversity of gaming experiences and cultural factors making the measuring of addiction severity difficult. Moreover, games usually give gamers a sense of achievement, relaxation, and distraction, and alter moods, such as feeling good, filling voids, stress management, etc. At the same time, the perceived harm include wasted time and energy, disrupted sleep, the ability to focus on other activities, a sedentary lifestyle, ignoring personal hygiene, etc. Thus, the perceived pros of gaming often

outweigh the cons. Gamers tend to perceive these as minimal harm compared with substance use disorders that are associated with immediate harm or death. In addition, the stigma and shame that gaming is not self-manageable often pull gamers back from seeking professional help (4). Treatment-seeking for mainly underage gamers is decided by their parents, and not the gamers themselves; external motivations like parental pressure make adolescents seek treatment.

Similar to substance use disorder, management of persons with gaming disorder requires a comprehensive approach, addressing not only the gaming behaviour, but also the associated complications that have occurred secondary to the gaming disorder as well as the various predisposing and perpetuating factors to prevent relapse. Also, management

Most of the time, therapy is sought after significant worsening of symptoms and functional impairments which hampers treatment engagement, cooperation, and effectiveness of the treatment.

requires interventions at several levels— individual, family (includes parent management training, improving the relations between the family members, etc), societal (increasing awareness) as well as policy level. Building public awareness about gaming disorders is the need of the hour.

Since gaming disorder is most commonly found among children and adolescents, some countries have tried to manage gaming disorder at the policy level by restricting the availability and accessibility of internet. Some examples of which include ‘gamer guard’ policy in Thailand, ‘fatigue system’ policy in China and ‘Shut down’ policy and ‘Tax and Rebate Policy’ in South Korea. However, since children often used accounts of their parents or other adults, many of these restrictions were not found to be very effective. ‘Tax and Rebate’ Policy of South Korea along with the fatigue system, however, has been found to be effective in reducing the number of online gamers using the same in an addictive pattern. In India, there is no national level policy to address gaming disorder as of now.

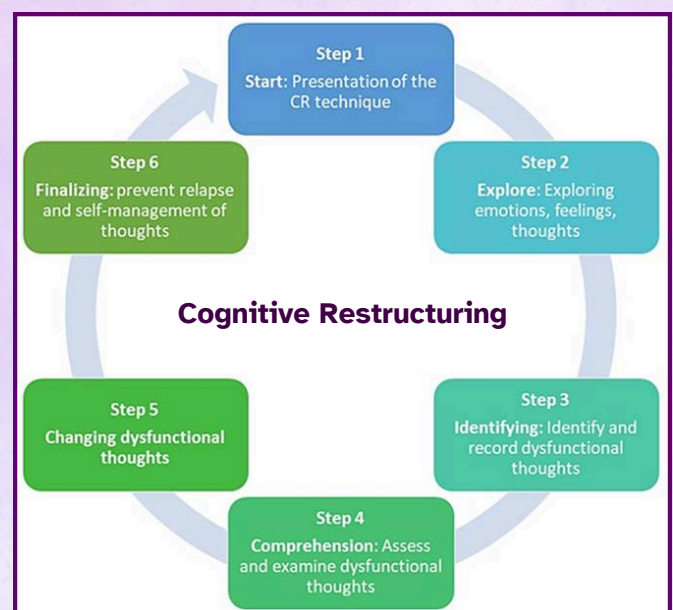
At the individual level, healthcare professionals often play a crucial role, from identifying the early signs of problematic gaming and underlying issues to developing personalized interventions based on the individual's needs and preferences to providing ongoing support and resources that can help individuals maintain their progress and prevent relapse. The most commonly used assessments are self-report screening questionnaires like Internet Gaming Disorder Scale, Gaming Addiction Scale and questionnaires for ruling out psychiatric comorbidities like depression, ADHD, anxiety disorders, other addictions etc.

The treatment needs for gaming disorders have increased in the last decade, with

an increase in the number of gamers and parents identifying gaming problems (5). Cognitive Behavioural Therapy (CBT) is the most commonly used therapy for gaming disorders. Most reviews have focussed on CBT, which has proved to have the highest treatment efficacy in symptom reduction. However, there are unclear findings on maintaining treatment gains (6). Practitioners often use an eclectic approach; the principles of CBT are frequently curated with psychoeducation family therapy, mindfulness skills, and gaming-specific or craving behavioral interventions (7). Motivational Interviewing is used to help individuals overcome their ambivalence or resistance to change their gaming patterns. The focus is primarily on increasing intrinsic motivation by raising awareness of gaming addiction, adjusting any self-defeating thoughts regarding it, and building motivation and commitment to change.

Studies on treatment for gaming disorder have shown that integrative psychotherapy has produced a larger effect size compared to treatment models like CBT (5). One such integrated therapy based on CBT is PIPATIC (Programa Individualizado Psicoterapéutico para la Adicción a las Tecnologías de la información y la comunicación); it is an individualized psychotherapy program that is curated for gaming disorders with components of psycho-education, intrapersonal, interpersonal, family intervention, and development of a new lifestyle. Studies suggest that the

PIPATIC program is promising, but it focuses on only adolescents, and it has specific methodological standards for the application and evaluation of the intervention, which does not adapt to the needs of gamers (8). Acceptance and Cognitive Restructuring Intervention Programme (ACRIP) uses principles of mindfulness and CBT to promote self-awareness and self-acceptance of one's thoughts and feelings and restructure distorted or unhealthy thinking patterns (9). The multimodal psychotherapy intervention



program for Internet Gaming Disorder, spanning ten sessions, employs a comprehensive approach, combining psychoeducation, motivational enhancement strategies, cognitive restructuring, behavioral strategies, and relapse prevention. It emphasizes a realistic appraisal of treatment expectations and addresses co-existing mental health difficulties, contributing to a holistic approach aimed at sustained recovery from Internet Gaming Disorder (10).

The research on treatments for IGD is rudimentary; these therapies are effective in symptom reduction, but long-term effects are yet to be explored. Gaming patterns

and attitudes towards gaming change with cultures. Hence, it is essential to consider cultural factors while customizing interventions. There is a definite need for cross-validation and development of culture-specific screening and interventions for gaming disorder. More research on the area is needed for comprehensive understanding and catering to the needs of individuals struggling with gaming disorder.

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The Indian Gaming Scene: Unpacking the Link to Gaming Disorder

Rachna Bhargava, Manmeet Kaur



Gamers engage in a broad variety of activities, from solving simple puzzles to playing complex massively multiplayer online role-playing games (MMORPGs). These games can be played solo or with others, on consoles, mobile devices, computers, or even using augmented reality. Most popular among these are e-sports and fantasy sports. E-sports are digital games that are played through a human-computer interface, including League of Legends, Counter-Strike: Global Offensive, Overwatch, Dota 2, Call of Duty, etc. In fantasy sports, like Dream-11 or FIFA, players assume the role of team managers and generate point values for head-to-head matchups in Fantasy sports (1).

The real money gaming segment is becoming a prominent source of revenue in the business. Gaming is increasingly being pursued as a vocation. Globally, professional E-sports players have the potential to earn annual incomes ranging from \$12,000 to \$187,000, based on their skill level and the level of popularity of the game they compete in (2). According to the HP Gaming Landscape survey of 2023, 40% of gamers have an annual income ranging from INR 6 lakhs to 12 lakhs,

while 6% earn even higher incomes. Monetary rewards and acknowledgment are already serving as stronger sources of motivation for gamers, with more than 25% stating that money alone is their primary motivator. Nevertheless, a significant 74% of gamers prioritize playing for enjoyment, indicating that the main motivations for the majority of players are entertainment and relaxation. Currently, 42% of parents view gaming as a legitimate hobby, and 40% of them openly admit that their perspectives have shifted due to the industry's increasing popularity (3).

The online gaming industry in India has witnessed unprecedented growth, ranking among the world's top markets. Between 2017 and 2021, the number of Indians playing online games increased by around 400%, with most players being under 25 years of age. Nearly 60% of respondents to a survey in India said they played fantasy sports once every two weeks, with an average weekly duration of 8.5 hours

Gaming & Mental Health

Video games can enhance emotional and cognitive well-being, especially in

moderation (4). However, a meta-analysis found no significant link between game proficiency and cognitive ability (5). Online multiplayer games and augmented-reality (AR)-based games during lockdowns temporarily alleviated stress and loneliness, but

Gaming disorder, as an entity, was first included in 2013 in the DSM-5, and the last decade has seen a large amount of research in this field leading up to its inclusion in the ICD-11 under disorders due to addictive behaviours.

excessive gaming can lead to addiction and social isolation, especially when relying solely on gaming for social engagement. Gaming disorder is a prevalent mental health issue, with a worldwide prevalence of 3.05%, with males having 2.5 times higher prevalence than females (6). IGD pooled prevalence among adolescents and young

adults, worldwide, is 9.9% (7) and in India, incidence of IGD among college students is reported to be 5.3% (8).

Psychological & Cultural Issues in Gaming

Many risk factors have been identified towards development of gaming disorder. Some of the risk factors include stress, long average game time, family dysfunction, poor academic performance, being bullied, bullying, interpersonal problems, psychiatric comorbidity (hyperactivity/inattention, anxiety, depression), emotional distress, and low self-esteem (7). A study among Indian college students found significant association between maternal education and IGD, with higher literacy potentially increasing the use of modern technology. Group gaming (6%) was found to increase the risk of developing IGD compared to solo gaming (4%), possibly due to diverse subgenres within multiplayer online games, such as simulation, real-time strategy, and action games which increases gaming frequency and duration, and excessive gaming time(8). Also, young people are more prone to peer influence and spend a lot of time online, making them prone to gaming and gambling promotions and activities. Additionally, personality traits have been found to both shield against and encourage harmful gaming behaviours. Gaming genres (e.g., MMORPGs) have been significantly associated with the severity of IGD symptom (persistence). Gaming characteristics might act as mediators in the relationship between problem gaming and suicidality.

Disorganised gaming that is characterized by longer gaming sessions, e-sports is cross-sectionally linked to increased sensitivity to disordered gaming. Network meta-analysis for adult online gamers (mean age 36 years) found that "cognitive flexibility," "gaming self-esteem," and "loss of control" were the primary cognitive protective factor, cognitive risk factor, and symptom of gaming disorder, respectively. Furthermore, the symptom of "escape" in GD, the cognitive risk factor of "loss sensitivity," and the cognitive protective factor of "cognitive flexibility" were

particularly significant in connecting various conceptions. These findings point to the existence of two separate mechanisms in GD: escapism and reward seeking. Thus, a significant association between "maladaptive gaming cognition," a cognitive risk factor, and GD symptoms (9) underlies vulnerability towards gaming disorder.

Evidence has generated another public health concern i.e. 'gablification' of gaming.


Video-game-related gambling includes betting on e-sports matches, accessing loot boxes, and using in-game items as wagers. In-game purchases with real money, or microtransactions, are available in freemium games along with loot boxes, which serve as intermittent reinforcement. A clear relationship has been documented between IGD, microtransactions,



and gambling problems (4). Griffiths initially brought up the structural parallels between gaming and gambling thirty years ago.

With the rising cases of gaming disorder, Indian regulations have also seen some changes. The government has introduced 28% Goods and Services Tax (GST), through an amendment to the Information Technology (IT) Rules, 2023. This will establish a framework for verifying online real money games. The rules include measures to safeguard children via age-rating mechanisms, prevent user harm (self-harm and psychological harm), and protect against gaming addiction, financial loss, and fraud by including repeated warning messages at higher frequency beyond a reasonable duration for a gaming session and provision to enable users to exclude themselves upon user-defined limits being reached or money spent (10). Notwithstanding these difficulties, the industry continues to engage millions of individuals in online gaming, including paying users. The continued active involvement of gamers, despite the tax consequences, implies that it had a minimal effect on overall sustained expansion and, the Indian gaming industry is expected to have a 20% rise and reach Rs 23,100 crore by FY25. Recently, a report was released on ethical gaming in India, highlighting a comprehensive code of conduct and setting clear standards for ethical behaviour to ensure accountability and transparency. Games of skill, rather than chance, are the focus of India's gaming federations, which aim to separate themselves from the gambling industry, with All India Gaming Federation (AIGF) having a skill games charter. The Supreme Court of India has upheld one online fantasy sports format as a 'game of skill' in its order in 2021. However, the Ministry of Information and Broadcasting recognises its addictive potential and mandates that fantasy sports advertisements must be accompanied by a disclaimer mentioning that the game involves financial risk and may be addictive and that the player plays at his/ her

own risk. From a mental health standpoint, new gaming IT regulations and increased taxes are a positive development. However, the industry needs to be regulated, particularly in the age of AI, to prevent games and protecting young players from becoming even more addictive to games.



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WHAT'S NEW

Global Drug Trends and Challenges: Key Insights from the World Drug Report 2024

Udit Kumar Panda, Akshay Garg



The World Drug Report (WDR) 2024 was released by the United Nations Office on Drugs and Crime (UNODC) in June 2024, providing a comprehensive overview of global drug trends and emerging issues. The report, available online on the UNODC website <https://www.unodc.org/unodc/en/data-and-analysis/world-drug-report-2024.html>, can be downloaded for free.

This year, the World Drug Report has been presented in an interesting way through four booklets/modules. The 'web-based drug market patterns and trends' module provides estimates and



trends in drug demand and supply in an interactive format, wherein each key finding is presented through important messages, along with data visualizations, including interactive graphs, infographics and maps. The data and visualisations from each key finding can also be downloaded individually. The 'key findings and conclusions' booklet provides selective findings of the drug demand and supply along with issues that need to be watched for. The 'Special points of interest' booklet provides a brief overview of important points covered in the 'key findings and conclusions' booklet. The 'contemporary issues on drugs' booklet looks at some other developments that may be relevant from policy standpoint. For example, the booklet discusses issues such as the effect of ban on poppy cultivation by the Taliban in Afghanistan, confluence of other crimes along with illegal supply of drugs in the Golden Triangle, etc. The present article summarizes the key findings of the report.

Global Drug Use Trends

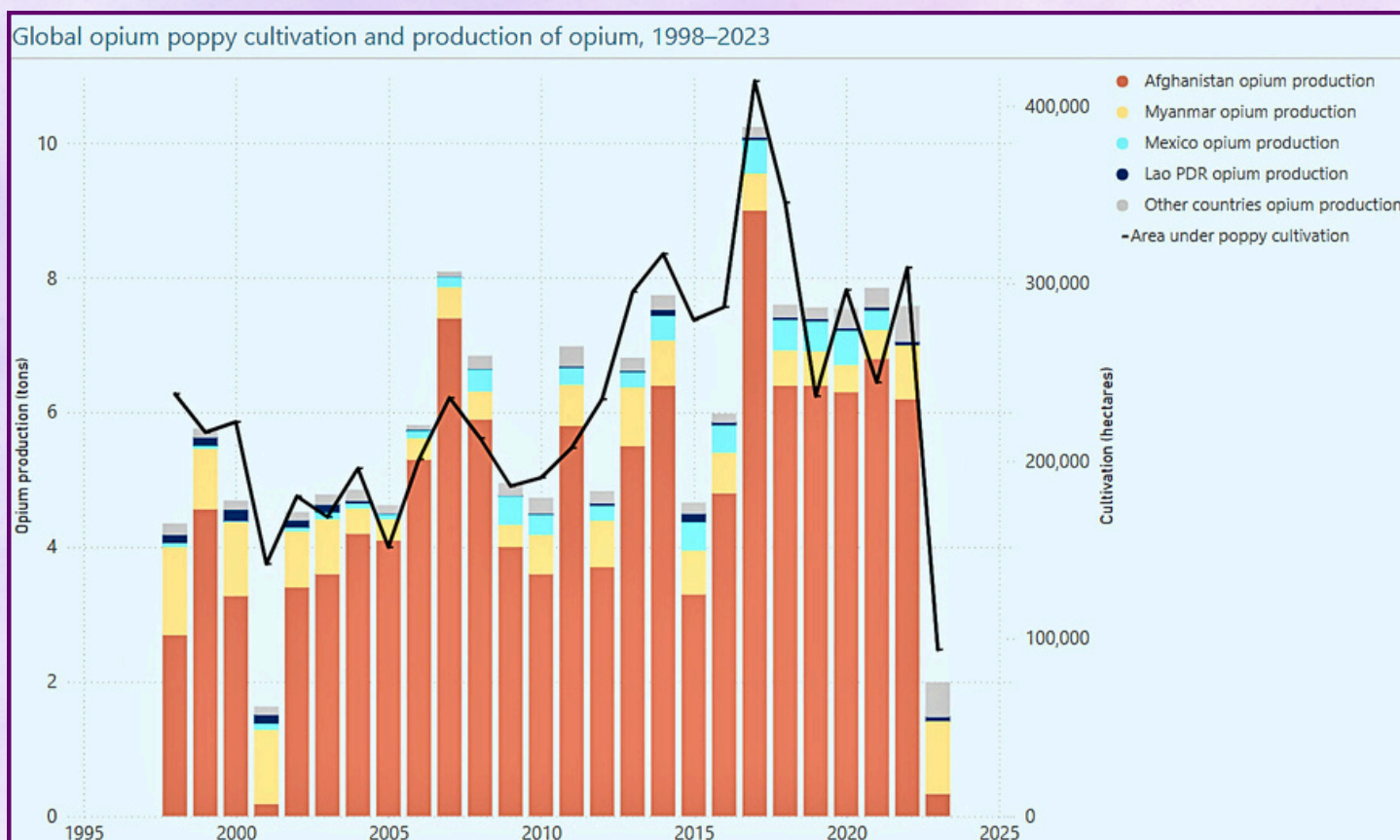
The WDR 2024 highlights a concerning rise in global drug use. In 2022, 292 million people (1 in 18 worldwide) are estimated to have used an illicit drug which is a 20% increase over the past decade. This alarming trend can be attributed largely to an increase in stimulant use such as cocaine and ecstasy, following a dip during the COVID-19 pandemic. Worldwide, approximately 64 million people suffer from drug use disorders, with opioids & cannabis being the primary drugs. Opioids remain the most dangerous drug class in terms of drug-related deaths. In approximately half of the

surveyed countries, cannabis use was associated with highest number of drug use disorders. There is growing prevalence of cannabis use, which accounted for approximately 41% of drug use disorder cases worldwide in 2019. Furthermore, approximately 38% countries reported cannabis to be the main drug of concern for individuals seeking treatment for drug-related problems.

Drug Production and Trafficking

Cocaine production was reported as a record high in 2022 which is a 20% increase from the previous year. Increase in drug trafficking routes towards the East has resulted in significant seizures reported in Asia. Increased violence affecting Latin America and the Caribbean have been linked to the cocaine trafficking. Cocaine markets are expanding beyond traditional strongholds in North America and Western Europe, extending into Africa and Asia.

The global opium production reduced by 74% in 2023 due to the Taliban's opium ban in Afghanistan. This reduction could potentially lead to heroin shortages in major markets if the ban continues in future. Myanmar has emerged as the world's largest producer of opium in 2023 with 54% of the global opium production. The production of synthetic drugs, particularly methamphetamine, has increased in South-East Asia's Golden region. Also, the seizures of methamphetamine in East and South-East Asia increased nearly four times in last years.



New and Emerging Issues

The number of new psychoactive substances (NPS) remained largely constant in 2022 with a small decline in newly identified opioids. A group of synthetic opioids called nitazenes have been reported to be increasing in use across North & South America and Western Europe. The report also discusses the relation of drug trafficking with other crimes like human trafficking and environmental crimes. For example, drug trafficking organizations in Latin American and Asian regions have diversified into various illicit activities like cybercrimes. The use of newer technologies such as markets in darknet, encrypted applications, and cryptocurrencies by criminal groups pose significant obstacles for law enforcement agencies in apprehending them.

Issues of South Asia and India

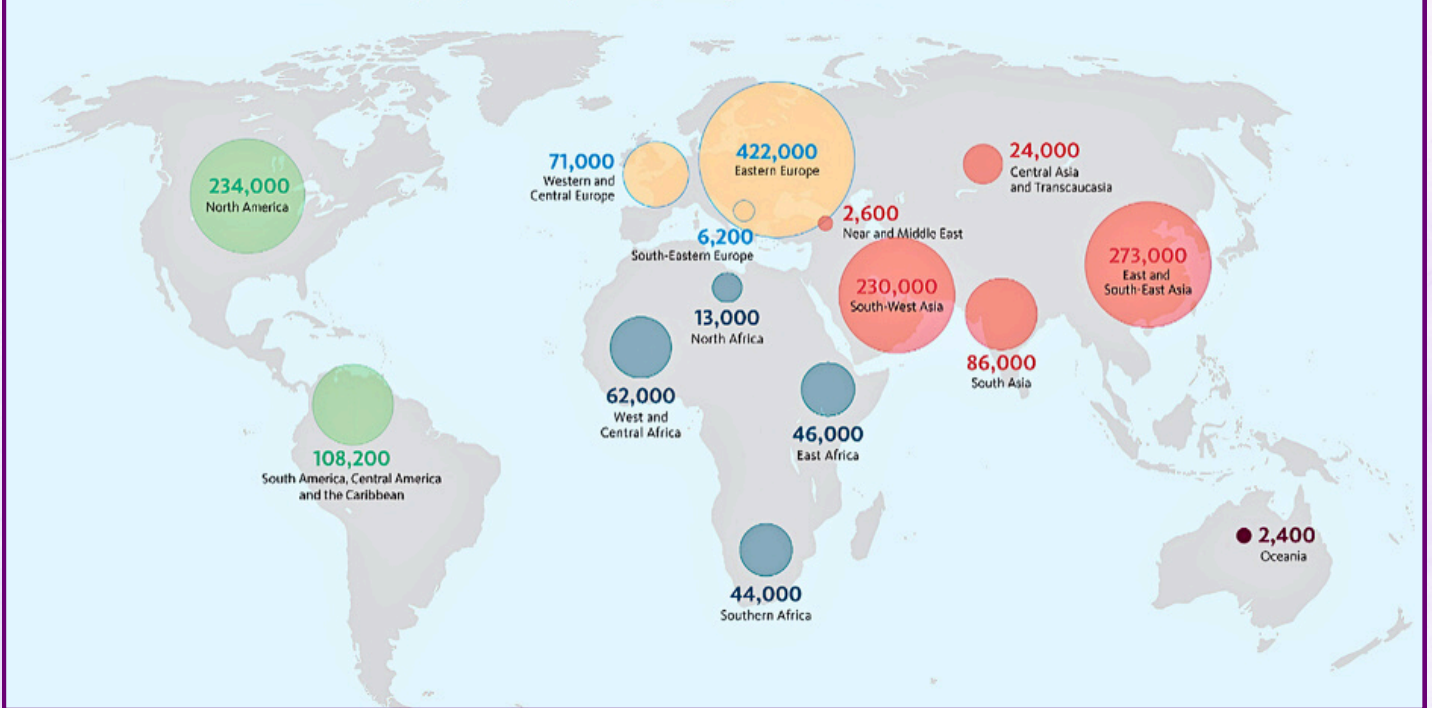
South Asia continues to be a major area for opioid use, accounting for half of the global opioid users. Additionally, an increasing abuse of Tramadol has been reported in Asia along with parts of Africa. The production and trafficking of methamphetamine has increased in Afghanistan affecting South-West Asia. Methamphetamine traffickers are now moving drugs from South-West Asia to the Middle East, joining routes from other areas. Cannabis users have significantly increased in South Asia. Additionally, an increased non-medical use of pharmaceutical opioids has been reported.

The WDR 2024 mentions about an increasing Cannabis and opioid use in Indian youth population. Increasing use of methamphetamine has also been reported, possible due to increased trafficking in South-East Asia. Treatment gap for drug use disorders continue to remain high in India with limited access to treatment facilities. India's position as a transit country for illegal drugs originating from regions such as the Golden Triangle and Golden Crescent is further complicated by its extensive coastline and vulnerable borders. The stigma associated with drug use disorders has been reported as a significant contributor to the issue.

Health Impacts and Treatment

The Report also highlights the severe health impacts of drug use worldwide. In 2022, approximately 13.9 million people injected drugs, resulting in high rates of HIV and hepatitis C infections. Those with injection drug use are 14 times more likely to contract HIV compared to the general population. The opioid crisis in North America continues to cause high mortality rates. There were 81,806 opioid overdose deaths reported from United States in 2022. Overall, only about 1 in 11 people with drug use disorders received treatment in 2022, marking a decline since 2015. This treatment gap is highest in Africa and Asia, where drug treatment coverage was just 2.8% and 5.1% of the total number of users.

Number of people who inject drugs living with HIV, 2022



Recommendations

The report recommends a multifaceted approach to address the problem. This includes providing novel socioeconomic alternatives to illicit activities, implementing health-based approaches focusing on prevention and treatment, and strengthening international cooperation to combat trafficking. There is recommendation for ensuring that controlled substances are available for medical use while preventing their misuse. The report also emphasizes on addressing environmental damage caused by drug production and trafficking, enhancing law enforcement's technological awareness, and implementing evidence-based treatment services. Developing targeted prevention programs, especially for youth, and reducing stigma associated with drug use to encourage help-seeking behavior are also under key recommendations. The report also highlights importance of improved surveillance and data collection for a better understanding of the problem.

Conclusion

The World Drug Report 2024 highlights how the global drug problem is becoming more complex, with changing patterns of drug use, production, and trafficking. Drug markets are increasingly linked to other crimes, causing environmental damage and making it hard to provide effective treatment and prevention.

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RECENT ADVANCES

Basic Sciences of Addiction

Sai Rishika Podapati, Jayant Mahadevan



The previous editions of this newsletter have described recent findings relating to neuroimaging and genetics of addictions, as well as the use of new technologies such as optogenetics, to understand circuit and synaptic biology of addiction in animal models. The understanding of the molecular biology of addictions is another active area of research.

The ‘hijacking’ of brain systems intended for natural rewards by drugs of abuse is a commonly accepted neurobiological hypothesis and is supported by decades of research. An interesting recent study sought to identify a neural substrate or network that processes both natural and

drug rewards by using multimodal neurobiological methods, such as brain-wide neuronal activity mapping, in vivo calcium imaging, and gene sequencing. Rheb, a gene linked to the mTOR signaling pathway, was found to regulate these changes in response to chronic drug use, particularly in dopaminergic neurons. Disruption of Rheb through CRISPR demonstrated its

The study found that nucleus accumbens (NAc) is crucial for both drug-induced and natural rewards. Neurons in the NAc showed overlapping responses to drugs (cocaine, morphine) and natural rewards (food, water), but drugs produced stronger activation. Repeated drug use altered the dynamics of specific neuron types, leading to increased drug responses and decreased natural reward processing after drug withdrawal.

role in diminishing natural reward consumption after chronic drug exposure. The orbitofrontal cortex was also identified as another key region influencing the shift from natural reward processing to drug prioritization (1).

Another recent study explored the molecular and cellular effects of a single intoxicating exposure to ethanol and investigated how these changes could influence alcohol-related behaviors such as increased consumption and relapse later in life. The researchers used high-resolution mass spectrometry (MS) to detect synaptic protein changes induced by acute ethanol exposure in mice and examined the role of these

changes in both short-term and lasting structural plasticity in the brain. The ethanol-dependent protein changes were more pronounced in peri-adolescent animals (P30) compared to older ones (P210),

The study revealed that acute ethanol exposure resulted in synaptic proteome changes, including alterations in dozens of proteins. Among the key proteins affected were mitochondrial proteins and structural proteins like MAP6 and ankyrin-G, both of which are essential for the stability of dendritic spines and the axon initial segment (AIS), respectively.

indicating that younger brains may be more susceptible to ethanol-induced synaptic alterations. There were also significant alterations in neuron structure and mitochondrial function, which could underlie the formation of ethanol-related memories and contribute to the development of addictive behaviors (2).



Another recently published cross-species meta-analysis of transcriptome-wide data from the brains of individuals diagnosed with alcohol use disorder (AUD) and alcohol-dependent animal models revealed several important insights about the molecular underpinnings of AUD. It focused on three key brain regions: the prefrontal cortex (PFC), nucleus accumbens (NAc), and amygdala (AMY) and used findings from 36 transcriptomic datasets comprising 964 samples.

Notably, the PFC's inflammatory gene dysregulation was largely found in astrocytes, supporting the idea that neuroinflammation is a major factor in AUD progression. Surprisingly, the NAc, which plays a central role in reward processing, showed fewer transcriptomic changes, suggesting that this brain region might be less affected during later stages of AUD, as compared to its role in the initial phases of alcohol exposure. Both in the PFC and AMY, there was significant dysregulation in genes related to the integrity of the BBB and neuroimmune responses. This supports the idea that chronic alcohol consumption may lead to peripheral inflammation, which penetrates the brain through the impaired BBB, further contributing to neurodegeneration. Genes related to metallothionein (MT) pathways were significantly upregulated in the PFC, suggesting that zinc deficiency, commonly observed in AUD patients, may play a role in disease

The transcriptomic profiles of the PFC exhibited the most significant alterations, with 13 common differentially expressed genes (DEGs) shared across species (humans, monkeys, rodents). Key DEGs were linked to inflammatory processes, blood-brain barrier (BBB) integrity, and cell proliferation. Genes like SERPINA3 emerged as potential biomarkers for AUD.

Both in the PFC and AMY, there was significant dysregulation in genes related to the integrity of the BBB and neuroimmune responses. This supports the idea that chronic alcohol consumption may lead to peripheral inflammation, which penetrates the brain through the impaired BBB, further contributing to neurodegeneration. Genes related to metallothionein (MT) pathways were significantly upregulated in the PFC, suggesting that zinc deficiency, commonly observed in AUD patients, may play a role in disease

maintenance. Zinc regulation might be a potential therapeutic target for AUD. These findings point to new targets for AUD treatment, including anti-inflammatory strategies, zinc supplementation, and MAPK pathway modulation (3).



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Gut Microbiome and Vulnerability to Addiction

Mohit Varshney, Srajit Singh



Pharmacotherapy for SUDs is particularly challenging in patients with pre-existing liver disease due to several factors, including the potential risk of further liver damage, limited provider knowledge and confidence in prescribing these medications, low patient adherence to treatment, and patient variability. Hence, there remains a major clinical gap for management of SUD in patients with liver disease and most such patients are just labelled as “Addicts” and left to fend with their SUDs by themselves along with worsening liver disease; even delaying eligibility for life saving Liver Transplant.

To address this gap, research has focused on newer therapeutic regimes, including gut bacteria modulation. It is known that the gut microbiota that colonise the gut offer numerous benefits by establishing a symbiotic relationship with the host. Over the past few years, studies have shown relationship of gut microbiota with various neurological processes, including modulation of neurotransmitters such as GABA and serotonin. Such relationship has been explored in mental illnesses such as depression, anxiety, and autistic spectrum diseases. Research on relationship of gut microbiota with addiction is gaining high relevance, mainly for alcohol. Alcohol, for example, is associated with major alterations in the gut microbiome in humans and rodents. These alterations may

affect experience of withdrawals, craving, and in turn, relapse.

Opioids (Morphine, Fentanyl) and Stimulants (cocaine, methamphetamine) are also associated with alterations in gut microbiomes. A recent article presents a novel theory that gut microbiome dysbiosis—induced by microbial competition—could influence addiction behaviours (1).

Using evolutionary modelling, the study demonstrated how ‘dysbiosis’, or reduced microbial diversity, prolongs withdrawal and increases relapse risk. This microbial imbalance affects brain function and behavioural regulation, creating a feedback loop that worsens addiction. Microbes that thrive under poor dietary conditions outcompete beneficial species, leading to persistent cravings and compulsive consumption.

Another recent study explores the intricate relationship between gut microbiota

and food addiction, a disorder marked by a loss of control overeating (2). Using the Yale Food Addiction Scale 2.0, researchers classified human participants and mice into addicted and non-addicted groups. They found that the relative abundance of *Blautia*, beneficial gut bacteria, was significantly reduced in individuals with food addiction. By administering *Blautia* and non-digestible carbohydrates (lactulose and rhamnose) to mice, the study demonstrated a reversal of addiction-like behaviours, suggesting the potential therapeutic role of gut microbiota modulation in managing food addiction. In both human and animal models, an increase in harmful bacteria from the Proteobacteria phylum was linked to food addiction.

Another article reports significant association of gut microbiota to patterns of alcohol use and relapse (3). The authors prospectively analysed retrospective clinical data and stored stool samples in patients with alcoholic hepatitis undergoing fecal microbiota transplant (FMT) or corticosteroid therapy. Final analysis was done for a cohort of 16 patients on FMT and 14 patients on corticosteroids. *Pedobacter* and *Streptophyta* species at the commencement of treatment predicted alcohol relapse in steroid-ineligible patients receiving FMT and steroid-treated patients, respectively. Similarly, alcohol relapse was significantly more in those on steroid therapy. The findings suggest that restoring microbial balance might offer therapeutic potential in treating addictions.

These studies may have the disadvantage of small sample size. Further research with adequate sample size is, hence, required to replicate the findings. However, these studies are opening new avenues for addressing the biological mechanisms behind addictive behaviours.



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From poppies to precarity: The worldwide implications of Afghanistan's opium ban

Since the early 2000s, Afghanistan has dominated global illicit opiate production, with the "Golden Crescent" region, including Iran and Pakistan, central to this trade. Vulnerable rural communities have depended on opium cultivation, a drought-resistant and profitable crop, due to economic instability, widespread drought, and lack of sustainable income alternatives.

The economic fallout of Afghanistan's opium ban

The 2022 opium ban in Afghanistan has been enforced with unprecedented rigor, resulting in an estimated 95% reduction in poppy cultivation between 2022 and 2023, a stark contrast to the brief 2000-2001 ban (1). According to the World Drug Report 2024, Myanmar has now overtaken Afghanistan as the leading illicit opium producer. Amid Afghanistan's deepening humanitarian crisis and a contracting economy, farmers' opium income dropped by 92% despite a fivefold increase in farm-

In August 2021, the Taliban regained power and in April 2022, they announced a comprehensive ban on "poppy cultivation and all other narcotics" across the country in April 2022. This ban encompassed the use, transport, sale, trade, import and export of all types of drugs and drug-producing plants with strict penalties for violations. This prohibition is expected to significantly impact regional and global illicit drug markets.

gate opium prices (2). Seizure data shows traders are offloading inventories from previous record harvests to meet the 2023 shortfall. With few viable alternatives, many farmers have turned to wheat, which is far less profitable. This economic collapse highlights the far-reaching impact of the Taliban's policy on rural communities. Compounding these challenges is the growing need for addiction treatment in a context where such services are increasingly scarce (3). Furthermore, as heroin production has decreased, there has been a surge in methamphetamine

trafficking in the region, fuelled by synthetic precursors in clandestine labs, demonstrating the drug trade's adaptability and escalating public health and security challenges.

Implications for the global community

The sharp decline in Afghan opium production is expected to create a significant void in the global illicit opiate market, which previously fulfilled around 80% of worldwide demand. In 2021, South Asia's opiate use prevalence (1.1%) was almost double the global average (0.6%) (4). Most opiates found in South Asia originate in South-West

Asia, primarily Afghanistan. Among other markets, Afghanistan is also the primary source of heroin for the European Union. With most trafficking occurring through the Balkan and Southern routes, changes in drug seizures along these paths could indicate possible shifts in European opioid consumption. A similar scenario occurred during the brief 2000-2001 ban, where some European countries experienced various fall-

India with an estimated 11 million opiate users, accounted for 90% of South Asia's opiate users, representing 34% of the global total. Between 2017 and 2021, India was responsible for capturing two-thirds of the total amount of heroin seizures in South Asia. As a result, the substantial decrease in heroin availability is likely to alter current illicit opiate use patterns in India and surrounding South Asian regions.

outs such as decline in heroin purity, a shift toward fentanyl and other prescription opioids among others (5, 6). A similar trend may unfold again compounded by the easier availability of drugs and precursors through online supply chains unlike 2001. With decrease in availability of heroin, treatment needs are expected to increase, which if unmet, increases the probability of switching to other potential replacements. Heroin shortages can be expected to drive up prices and reduce purity, prompting a dangerous shift toward potent synthetic opioids like fentanyl and stimulants. The surge in methamphetamine production and trafficking is one of many probable substitutes, posing new risks to public health and security. Emerging higher potency synthetic opioids such as nitazenes may also become more prevalent as traffickers adapt to the evolving landscape (7).

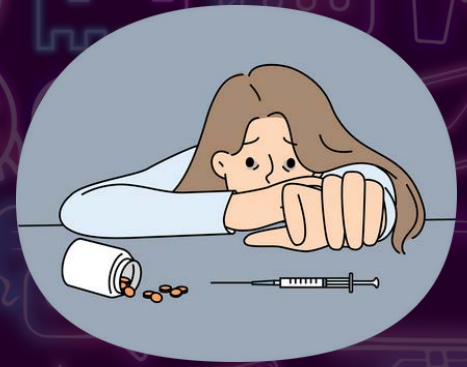
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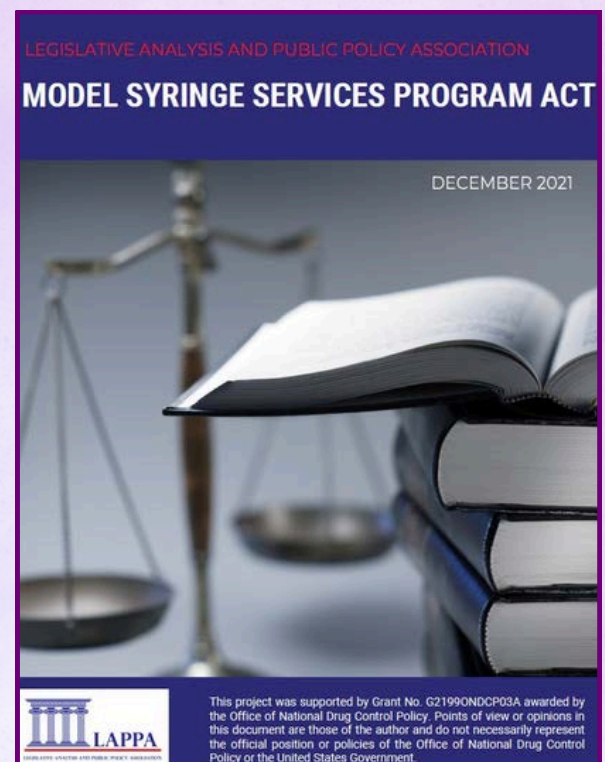
Special Populations

Tamonud Modak



People Who Inject Drugs (PWID) face several health risks, including the risk of HIV and hepatitis transmission, drug overdose, abscesses, and vein damage. The high morbidity and mortality associated with injecting drug use have led to the development of several harm reduction measures for PWID. These include providing clean needles and syringes, providing education on safer injection practices, distributing naloxone for overdose prevention, and offering supervised injection facilities. Scientific research overwhelmingly supports the effectiveness of harm-reduction strategies. Studies consistently show that programs like needle exchange programs (NSPs) and naloxone distribution reduce HIV and hepatitis C transmission rates, as well as prevent overdose deaths among people who use drugs. These strategies prioritize safety and public health, even when complete abstinence isn't achieved. Despite the evidence, harm reduction services have faced controversy due to legal, moral, and resource allocation concerns. However, recent advances have ignited hope that policymakers might be turning a page and accepting the importance of harm reduction services.

Recently, the *Model Syringe Services Program Act* was passed in the United State of America (USA) in 2021, which provides a framework for states to expand access to syringe services programs (1). The act authorizes establishing comprehensive syringe services programs and delineates the required components for needle syringe programs (NSPs). By mandating NSPs to directly provide or offer referrals to expanded services, such as substance use disorder treatment, including medications for addiction treatment, HIV and viral hepatitis testing and treatment services, access to opioid antagonist kits, and mental health services, the act serves to improve the quality and the breadth of services that offered by NSPs. In addition,



the act crucially provides immunity from criminal arrest, charge, and prosecution for the possession, distribution, or furnishing of hypodermic needles and, syringes and other supplies. This ensures that NSPs can provide their services without fear of prosecution for abetting substance use. This was also the fear in India as well, as anyone who abets substance use (and providing needle syringes could be seen as aiding drug use) is subject to the same penal provisions as selling drugs under the Narcotic Drugs and Psychotropic Substances (NDPS) Act. The HIV and AIDS (prevention and control) Act, 2017, now provides legal immunity to the workers involved in NSPs (2).

Another recent policy update in the USA has brought relief for PWID who are on opioid agonist treatment (OAT). In February 2024, the COVID-19-era flexibilities that expand eligibility for patients to receive take-home doses of OAT medicines were made permanent (3). This implies that more people are more likely to qualify easily for take-home medications. This will help reduce the burden on patients to visit clinic frequently. Research has consistently shown that patients receiving take-home doses are more likely to remain in treatment and less likely to use illicit opioids. The same policy update also allowed for initiation of treatment via telehealth for methadone and buprenorphine, thus removing transportation barriers. In addition, the policy update has allowed for the relaxation of the eligibility criteria for maintenance treatment.

There have also been a few recent scientific advances about Supervised injection facilities (SIFs) for PWID. SIFs are locations that provide a hygienic, safe space for people to inject pre-obtained drugs under the supervision of trained staff, with a focus on overdose prevention and harm reduction. SIFs remain controversial, though the evidence and opinion favor them. The



Institute for Clinical and Economic Review (ICER) recently published its Final Evidence Report on the comparative clinical effectiveness and value of SIFs (4). The ICER report concluded that the global evidence is adequate that SIFs provide a net health benefit superior to that offered by the NSPs alone. The ICER report also concluded that SIFs prevent overdose deaths. Additionally, the ICER report also concluded that SIFs are cost effective and cost saving compared to NSPs. The ICER report has strengthened the case for SIFs that can be considered for many

countries, including India.

SIFs can not only prevent overdose deaths and transmission of HIV and viral hepatitis but can also serve as focal points in the elimination of Hepatitis C. A recent study published in the Medical Journal of Australia by MacIssac et al., 2023, evaluated the feasibility of testing and treating people who utilized an SIF for hepatitis C (5). Since PWID who use a SIF are disproportionately more likely to be affected by hepatitis C, the provision of testing, fibrosis assessment, and antiviral therapy at a SIF would likely be more effective. The authors concluded that although the proportion of people who underwent testing and treatment was small, nine in ten people diagnosed with hepatitis C were prescribed direct-acting antiviral therapy. This implied testing and treatment of Hepatitis C can be an additional service provided by SIFs.

In conclusion, there have been significant changes in the USA policy regarding harm reduction. These updates aim to expand access to both NSPs and opioid maintenance treatment and would serve as a model for policy experts in India. Scientific advances now conclusively support SIFs, which prevent overdose deaths, offer cost-effective care, and can even address hepatitis C through testing and treatment.



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Relationship between Buprenorphine initiation dose and mortality outcomes

Buprenorphine plays a critical role in opioid use disorder (OUD) treatment, and recent research has highlighted the impact of the initial dose on patient outcomes. A study analysed data from Kentucky's prescription monitoring system (KASPER) and death records, examining 49,857 residents who started buprenorphine between 2017 and 2019 (1).

Patients were divided into three dose categories for their first 30 days of treatment: ≤ 8 mg, > 8 to ≤ 16 mg, and > 16 mg. Results showed that those receiving > 8 to ≤ 16 mg had a 55% lower risk of opioid-involved overdose death compared to those on ≤ 8 mg (adjusted sub-distribution hazard ratio [aSHR] 0.45; 95% CI 0.34–



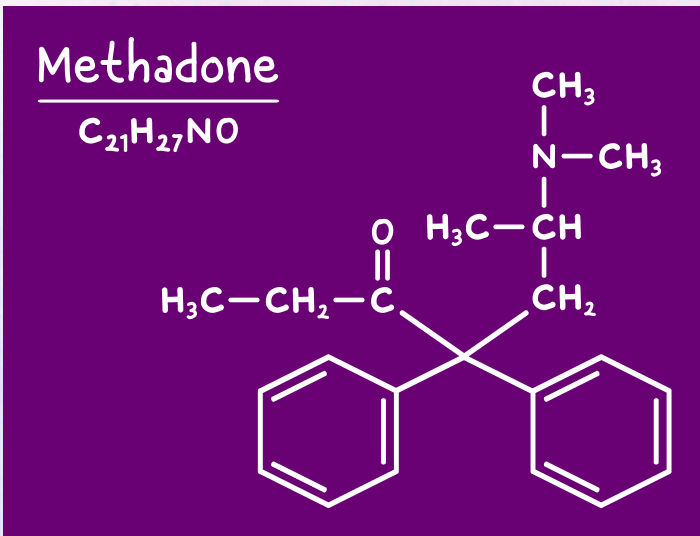
0.60), while those on > 16 mg experienced a 64% reduction (aSHR 0.36; 95% CI 0.25–0.52). Higher doses also decreased the risk of death from other causes, with the > 8 to ≤ 16 mg group showing a 22% reduction (aSHR 0.78; 95% CI 0.62–0.98) and the > 16 mg group a 38% reduction (aSHR 0.62; 95% CI 0.47–0.80). These findings suggest a protective effect of early, higher-dose, buprenorphine treatment against both opioid-involved and all-cause mortality.

However, the study findings have limitations as factors such as medication adherence, psycho-social support, or behavioural therapies, which are critical to OUD treatment, were not accounted for. Nevertheless, these findings underscore the potential benefits of higher initial doses, suggesting further research could inform updated clinical guidelines to enhance patient survival rates.

Rapid Methadone induction among Fentanyl users

Another study explored a rapid methadone induction protocol tailored to the needs of fentanyl users, conducted at an outpatient opioid treatment program in San Francisco (2).

This protocol started patients at 40 mg on day one, increasing to 80 mg by day three, with nurse supervision and careful monitoring for oversedation. Among 93 participants, 70% completed the protocol, reaching an average dose of 89 mg by day 7, with no cases of overdose or death reported. Retention at 30 days was higher for those who completed the protocol (88% vs. 79%), though this difference was not statistically significant (Odds Ratio [OR]



.9; 95% CI 0.6–6.2), indicating potential benefits in maintaining patients in treatment.


While promising, the study's small sample size and single-centre design limit the generalizability of its findings. The absence of a control group also makes it difficult to draw firm conclusions about the protocol's superiority over traditional, slower induction methods. Confounding factors like Methamphetamine use at baseline significantly affected protocol completion, with only 64% of methamphetamine-positive patients completing it compared to 95% of those who tested negative (OR 0.1; 95% CI 0.01–0.8). Additionally, this study only included patients who could tolerate rapid dose increases, which might not be feasible for all settings or populations.

Implications for India and other low-resource settings

In India, where fentanyl use is less common and resources for MAT are limited, these studies still offer valuable insights. The findings on higher initial buprenorphine doses from the first study may have particular significance, as buprenorphine is more widely used in India compared to methadone. Adapting more flexible buprenorphine dosing protocols could improve patient retention and outcomes, even in settings with fewer medical resources. By reaching therapeutic doses faster, this approach could help stabilize patients more effectively and potentially reduce early treatment dropout. Overall, these findings suggest the need for adaptable clinical guidelines that address the unique challenges of treating OUD in low-resource environments, where optimizing care with available resources is essential.

The need for prospective studies in OUD treatment

Prospective studies are essential in advancing OUD treatment, as they enable researchers to track patients over time, offering insights into long-term outcomes and potential causal relationships between treatment approaches and patient survival. They also help control for confounding variables, providing a clearer picture of how different dosing protocols affect retention, relapse, and overall health. Given the evolving opioid crisis and the emergence of potent synthetic opioids like fentanyl, prospective studies can adapt to changing drug patterns, informing clinical guidelines that balance efficacy and safety. Observational studies, like those summarized here, offer valuable real-world insights, but prospective trials are needed to validate these findings and refine treatment protocols, particularly for use in diverse and resource-limited settings.



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CREATIVE SECTION



वो बीस-बाइस साल का लड़का
मेरा हमउम्र
मेरे बगल के कमरे में रहता था;
किताबों से भरा मेरा कमरा
खाली रहता था ;
और धुंए और शराब की महक में
वो कमरा अक्सर दोस्तों से भरा रहता था ।

मेरे कमरे से
बस चन्द पन्नो को पलटने की आवाज़
आया करती थी ;
और उस बगल के कमरे से
निकली वो नए गानों की धुन
बहुत दूर तक जाया करती थी ।

मेरी सब ख्वाहिशें
लालटेन की उस मन्द लौ में जल रही थी ;
मगर सिगरेट में जलती
शराब में धुत, वो दोस्तियां
मेरे बगल में पूरे शबाब में पल रही थी ।

और वो लड़का कबका रुखसत हो गया
दुनिया से
और बगल के उस कमरे में
आज कोई नया लड़का , नए दोस्तों के साथ
आया है जिंदगी नए अंदाज में जीने ।

कई साल बीत गए
मेरी जिंदगी आज भी
किताब के किसी पन्ने पर सिमटी हुई है
या शायद किसी कहानी की
दो लाइनों के बीच उलझी हुई है ;



Art Work

A man smoking Chillum

Upendra Bhojani



This sketch is of an Indian Sadhu (ascetic) smoking a chillum. Chillum is basically a straight conical pipe made of clay or stone, a few inches long. There is generally a small stone inserted in the stem as a stopper with a hole and/or slits on margins that prevents debris but allows smoke to pass by. Such pipes in its variations were in use by societies across Asia, Africa, and Americas for smoking herbs and at times were associated with spiritual rituals. In India, chillum use became popular in the eighteenth century. Some Indian sadhus especially used chillums to smoke cannabis, opium, or tobacco with some sort of a spiritual connection with the lord Shiva. Chillums are becoming popular again and are made with a variety of materials beyond clay (glass, wood, etc.) with various engravings including cultural symbols. Tobacco use in any form, including chillum smoking is harmful for health, increasing risks for cancers, heart diseases, lung diseases and many other illnesses. This sketch is based on a photograph (CC license) by Vijay Richhiya.

Art Work Silencing Shame: Building Trust Together

Gargi Sinha



This painting depicts the fear of a woman in disclosing her alcohol use and her inability to prevent her baby from Fetal Alcohol Spectrum Disorder (FASD). Young females are often misinformed or uninformed about the link of alcohol consumption during pregnancy and Fetal Alcohol Spectrum Disorder (FASD). Additionally, lack of non-judgmental attitude by health providers can result in non-disclosure of alcohol use by a woman. Hence, the need of the hour is to prevent FASD by reducing stigma around female drinking. In order to gain trust we need to stop shaming and blaming the woman.

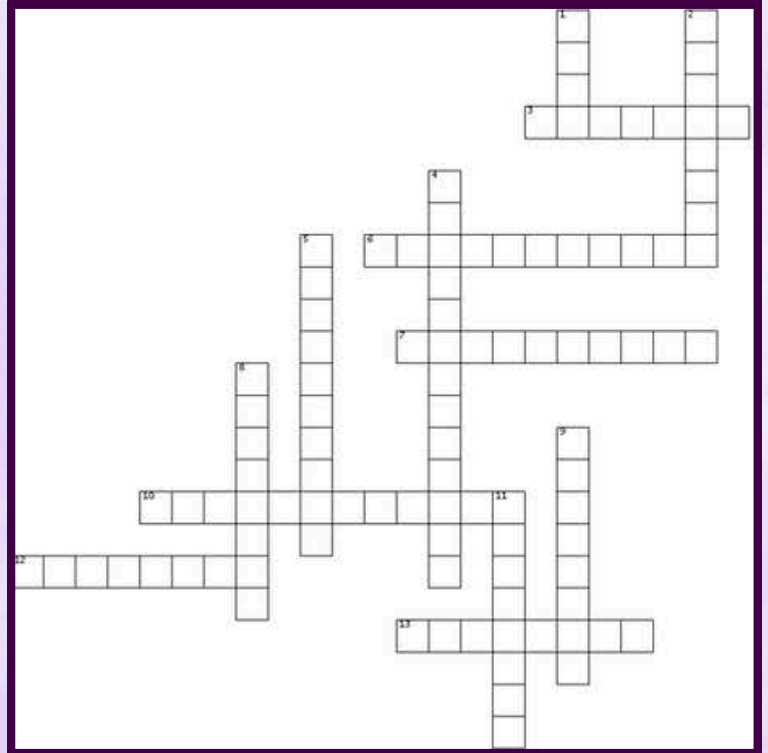
APSI Mindbender 4

Challenge your brain!!



ACROSS

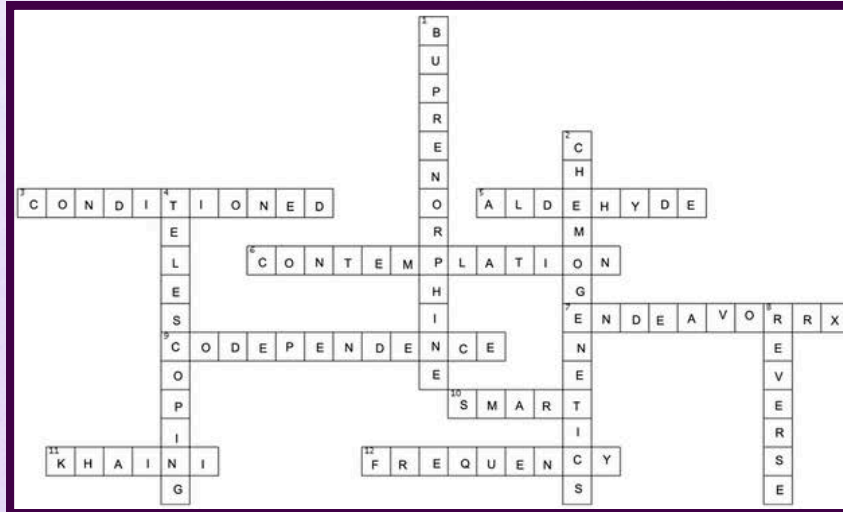
- Last name of the person who synthesized LSD for the first time.
- "Meow-Meow" is the street name for which drug?
- Mechanism of action on Buprenorphine on kappa opioid receptors.
- Use of internet for personal use, while pretending to use it for work purpose.
- Wherein the brain is the ventral tegmental area located?
- The term used to describe acute tolerance in case of alcohol is _____ effect.



DOWN

- The metabolism of alcohol follows which order kinetics?
- Neurotransmitter which is primarily associated with the reward system.
- The medication of choice for agonist maintenance treatment for opioid use disorder in pregnancy.
- Which anti-parasitic agent is used as an adulterant in cocaine and also enhances its action?
- Name the psychoactive substance, whose 'Use disorder' has been included under 'Conditions for Further study' in DSM 5?
- Increasingly severe withdrawal symptoms experienced with repeated detoxifications is due to _____ phenomenon.
- Which behavioral addiction is included under 'Substance-Related and Addictive Disorders' in DSM5?

Solution for APSI Mindbender 3



ACROSS

3. When a previously neutral stimuli after repeatedly pairing with drug withdrawal, it alone precipitates a withdrawal-like state, it is called as _____ withdrawal.
5. The enzyme inhibited by Disulfiram is _____ dehydrogenase.
6. The Stage of Change in which patient acknowledges the pros and cons of continued substance use but is ambivalent about change.
7. The first FDA approved game-based digital therapeutic device to improve attention among children with ADHD.
9. This term refers to a family member's harmful overinvolvement with the addiction process.
10. The Global _____ Programme was launched in 2008 by UNODC to monitor synthetic drugs problem and to design policies and programmes accordingly.
11. Most common form of smokeless tobacco used in India.
12. Benzodiazepines increase the _____ of GABA-Areceptor chloride channel opening.

DOWN

1. The opioid agonist maintenance medication found to be associated with shorter duration of Neonatal Abstinence syndrome in the MOTHER study.
2. A biological technique in which DREADDs are used to modulate neuronal activity.
4. Accelerated progression from initiation of substance use to development of substance use disorder.
8. When the effect of a substance increases over time with the same dose of substance, it is called as _____ tolerance.



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Links to the Addiction Psychiatry Society of India below

