

Compulsivity and Impulsivity

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Dr Ashit Sheth, MD

Unlimited Potentialities

Marine Lines, Vile Parle(W), Borivali(W)

Impulsivity(Functional Aspect)

- ▶ A functional variety of impulsivity has also been suggested, which involves action without much forethought in appropriate situations that can and does result in desirable consequences. "When such actions have positive outcomes, they tend not to be seen as signs of impulsivity, but as indicators of boldness, quickness, spontaneity, courageousness, or unconventionality"[\[3\]](#)[\[5\]](#)

Historical Perspectives

- ▶ Popular culture and in the field of psychiatry **the impulse control disorders** have become a common
- ▶ Changes in our society and technological developments (like internet, social network etc) have brought to surface the hidden epidemic of various **behavior addictions** (internet addiction, Pornographic addiction, internet gambling, dating, shopping, paraphilias, etc)
- ▶ 6 – 14% of internet users are problematic users, 30% of companies reported termination of employees for improper internet users
- ▶ Misuse of internet is not restricted to developed part of the world but also spread to underdeveloped areas
- ▶ Problematic internet use has resulted in indiscriminate use of internet leading to social, psychological, educational problems
- ▶ Problematic internet use is also problem in patients suffering from mental disorder

Is Impulsivity an Important Symptom?

- ▶ Impulsivity, which can be defined as an overvaluation of short-term reward over long-term goals, is linked to other constructs, such as executive control and disinhibition.
- ▶ A transdiagnostic trait, impulsivity is a characteristic of many disorders that can appear to be rather distinct
- ▶ DSM emphasizes on dimensionality, which further highlighted impulsivity, and included of 2 new diagnostic groupings: **“obsessive-compulsive and related disorders,” which argues for a compulsive-impulsive spectrum, and “disruptive, impulse-control and conduct disorders**
- ▶ **Neuroimaging data** suggest differential activation, gray matter density, and functional connectivity in cortical areas, such as the prefrontal cortex, the orbitofrontal cortex, the anterior cingulate cortex, and the amygdala. Motor task studies, and, neuropsychological tests, show distractibility and delayed cognitive processing.

Assessment of Impulsivity and Aggression

- ▶ **Demographic or personal:** history of violence, violent threats or fantasies, age, sex, history of child abuse
- ▶ **Clinical:** diagnosis, relevant symptoms, treatment adherence
- ▶ **Situational:** social support, availability of weapons

- ▶ **Physician:**

The nature of the alliance with the patient,

The potential cognitive bias of the evaluator

Assessment through clinical history still remains the most important way to gauge potential violent behavior in patients with schizophrenia,

Although it is still impossible to predict with any certainty whether a patient will become aggressive. Dysfunctional impulsivity can be assessed with many self-report questionnaires and several tests of cognitive ability

Definitions of Impulsivity

- ▶ Wide range of actions that are poorly conceived, prematurely expressed, unduly risky, or inappropriate to the situation and often result in undesirable outcomes (Simply put- a tendency to act prematurely and without foresight)
- ▶ It is a predisposition toward rapid, unplanned reaction to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or to others
- ▶ Impulsivity is also defined as a decreased sensitivity to negative consequences, rapid unplanned reaction to stimuli (without adequate processing of information)

Impulsivity vs Disorders of Impulse Control I

- ▶ Impulsivity has been defined as a decreased sensitivity to negative consequence
- ▶ Rapid unplanned reactions to stimuli (without adequate processing of information)
- ▶ Lack of regard for long-term consequences
- ▶ Disorders of impulse control have been characterized as repeated failures to resist an impulse or perform an act that is harmful, with a preceding subjective sense of increasing tension (or arousal) and an experience of pleasure or gratification i.e. catharsis, while committing the act

Impulsivity vs Disorders of Impulse Control II

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Impulsivity vs Disorders of Impulse Control III

- ▶ Borderline personality disorder DSM-5
- ▶ Poor impulse control
- ▶ Individuals with these disorders all have in common a deficit in inhibiting damaging behavior
- ▶ Different to differentiate between compulsions, addictions and irresistible impulses

Disruptive Impulse Control

- ▶ Pyromania
- ▶ Kleptomania
- ▶ Intermittent explosive disorder
- ▶ Impulsive violence
- ▶ Borderline personality disorder
- ▶ Self harm /Parasuicidal behavior
- ▶ ASPD
- ▶ Conduct disorder
- ▶ Oppositional conduct disorder
- ▶ Mania
- ▶ ADHD

Substance / Behavioral

- ▶ Drug addiction
- ▶ Gambling
- ▶ Internet addiction/
Obesity
- ▶ Binge eating
- ▶ Compulsive shopping

Sexual Addictions

- ▶ Sexual Addiction
- ▶ Paraphilia

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Impulsivity is Heterogeneous Construct

- ▶ Whiteside and Lynam,⁸ suggest that impulsivity is a heterogeneous construct.

They used 4 distinct impulsivity-related traits:

1. **Urgency** (responding rashly to negative emotions),
2. **Poor Premeditation** (difficulties in foreseeing consequences of actions),
3. **Poor Perseverance** (tendency to give up easily), and
4. **Sensation Seeking** (preference for excitement and stimulation).

Definition of Compulsivity

- ▶ Repetitive behaviors that are performed according to certain rules or in stereotyped fashion. Compulsivity is a tendency to repeat the same, often purposeless acts which sometimes are associated with undesirable consequences

Obsessive Compulsive Related Spectrum Disorder

- ▶ OCD
- ▶ Trichotillomania
- ▶ Skin picking
- ▶ Hoarding
- ▶ Body dysmorphic disorder (BDD)
- ▶ Tourette's disorder/Tic disorder
- ▶ Stereotyped movement disorder
- ▶ Somatization disorder
- ▶ Autism Spectrum disorder
- ▶ Hypochondriasis

Impulsivity

- Impulsive choice: steeper reward discounting
- Delay aversion
- Lack of consideration when making decisions
- Change in response criterion
- Timing impairment

Mania

ADHD

Personality
Disorder

- Motor disinhibition
- Impaired ability to stop a response or sequence e.g. SSRT task

Substance
Abuse

Compulsivity

- Stereotypy
- Rigid strategies or attentional set
- Inappropriate persistence of habits: despite outcome devaluation or negative consequences
- Perseveration in reversal learning and resistance to extinction

OCD

Scizophrenia
Autism

Relationship Between Impulsivity And Compulsivity I

- ▶ Impulsivity and compulsivity may be viewed as diametrically opposed, or alternatively, as similar, in that each implies a dysfunction of impulse control
- ▶ Both types of behaviors share the inability to inhibit or delay repetitive behaviors
- ▶ Impulsive behaviors may become compulsive (driven behaviors without arousal) and compulsive behaviors may become impulsive (reinforced habits)

Relationship Between Impulsivity And Compulsivity II

- ▶ Impulsivity and compulsivity may be viewed diametrically opposite or alternatively as similar, in that each implies a **dysfunction of impulse control**
- ▶ Both involves alterations within a wide range of neural processes including attentions, perception and coordination of a motor or cognitive response
- ▶ Using domain-specific and sensitive neurocognitive tasks we may also be able to divide impulsivity and compulsivity into separate neuro-biologically specific domains

Impulsivity Vs. Compulsivity II

Compulsivity

- Compulsivity is a tendency to repeat the same according to certain rules, often purposeless acts, which has sometimes associated with undesirable consequences
- Patients on the compulsive end of the spectrum tend to have an exaggerated sense of threat from the outside world and engage in rituals/routines, such as OCD, to neutralize the threat or reduce the harm
- OCD rituals are not pleasurable activities engaged in for their own sake but are neutral or often irritating and unpleasant behaviors that are performed to reduce anxiety

Relationship Between Impulsivity And Compulsivity III

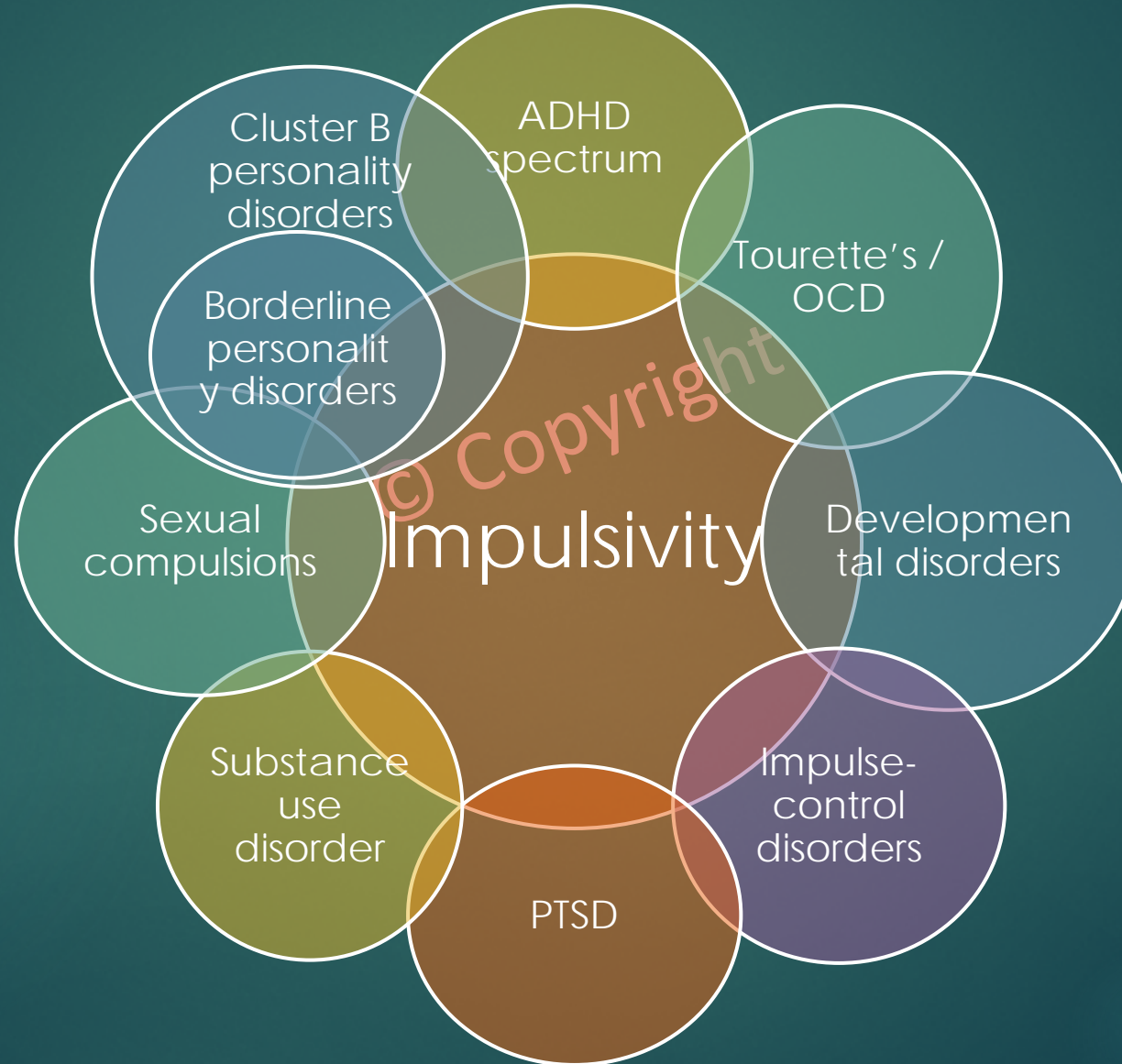
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Impulsivity Vs. Compulsivity I

Impulsivity

- ▶ A predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or to others
- ▶ Impulsivity is evidenced behaviorally as carelessness and underestimated sense of harm, extraversion, impatience, including the inability to delay gratification, and tendency towards risk taking, pleasure, sensation seeking
- ▶ An impulse is rash and lacks deliberation. It may be sudden and ephemeral, or a steady rising tension may reach a climax in an explosive expression of the impulse, resulting in careless actions without regard for self or others
- ▶ Impulsive behaviors generally have an element of pleasure, at least initially, although they may lose their pleasurable quality over time

Impulsive Disorder Spectrum



Genetic Basis of Impulse Control Disorders

- ▶ In pathological gamblers, 20% have a first degree-relative who is also a pathological gambler
- ▶ Twin pair studies have found a common genetic vulnerability for both pathological gambling and alcohol dependence
- ▶ Studies support an association between a major mood disorder and alcohol and substance abuse in first-degree relatives of individuals with kleptomania and pathological gambling
- ▶ Associations between anxiety disorders in the families of individuals with kleptomania and violent behavior and ADHD in families of individuals with intermittent explosive disorder have also been reported

Core Features of Impulse-Control Disorders

Essential features	Failure to resist an impulse, drive, or temptation to perform an act that is harmful to the person or to others
Before the act	The individual feels an increasing sense of tension or arousal
At the time of committing the act	The individual experiences pleasure, gratification, or relief
After the act	The individual experiences a sense of relief from the urge
	The individual may or may not feel regret, self-reproach, or guilt

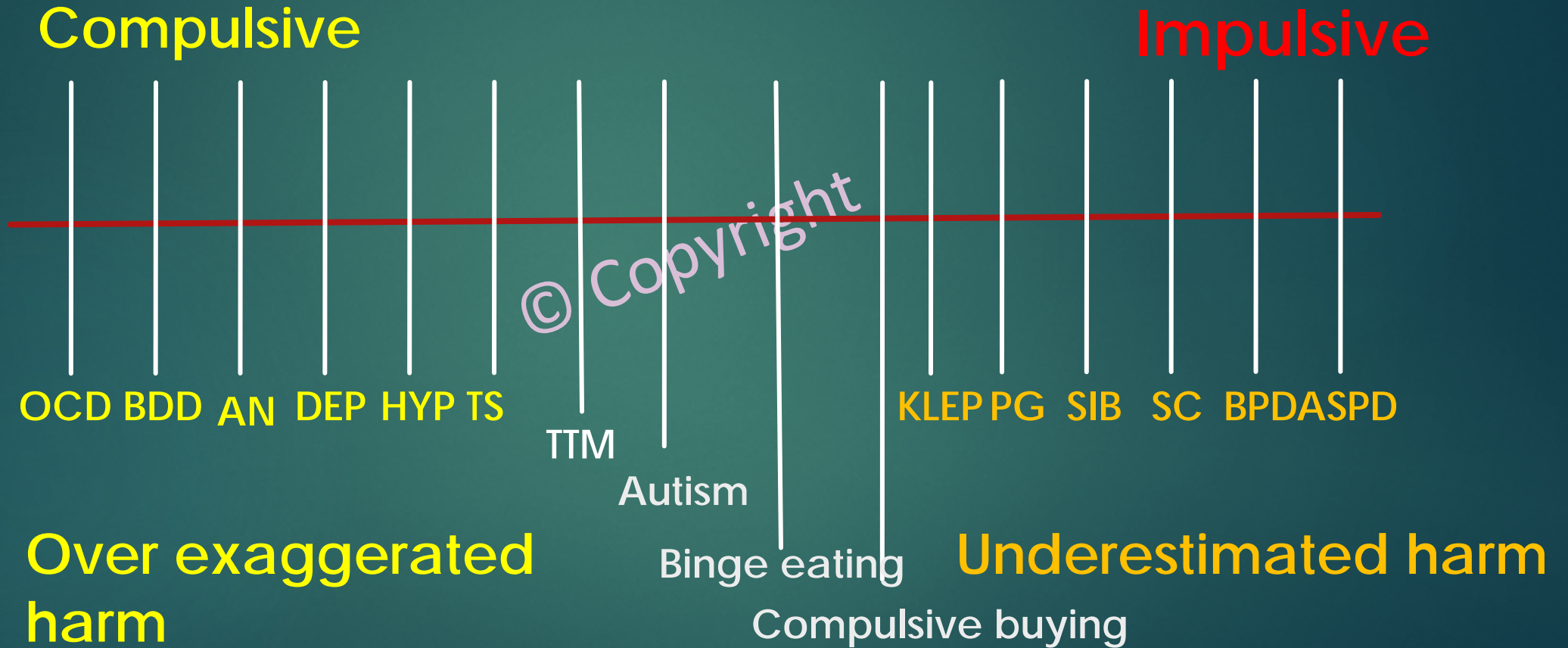
Cognitive Aspects of Impulsivity

- ▶ Inability to delay gratification
- ▶ Distractibility or the inability to maintain sustained attention on a particular task
- ▶ Disinhibition/ inability to restrain behavior in a manner that would be expected based on cultural norms and constraints

Dimensional Approaches To Impulsivity and Compulsivity

- ▶ Compulsive individuals, who are highly risk averse; they perceive their environment as risky and threatening, and they carry out ritualistic behaviors to neutralize the threat and reduce their anxiety
- ▶ Impulsive individuals, who tend to underestimate the degree of harm in the environment and therefore repeatedly engage in high-risk behaviors, after which they fail to learn from their errors in judgment
- ▶ In the middle Tourette's syndrome, trichotillomania, and autism, which have features of both compulsivity driven behaviors to reduce anxiety and impulsive behaviors associated with arousal, pleasure, or gratification

Risk Aversiveness / Impulsivity

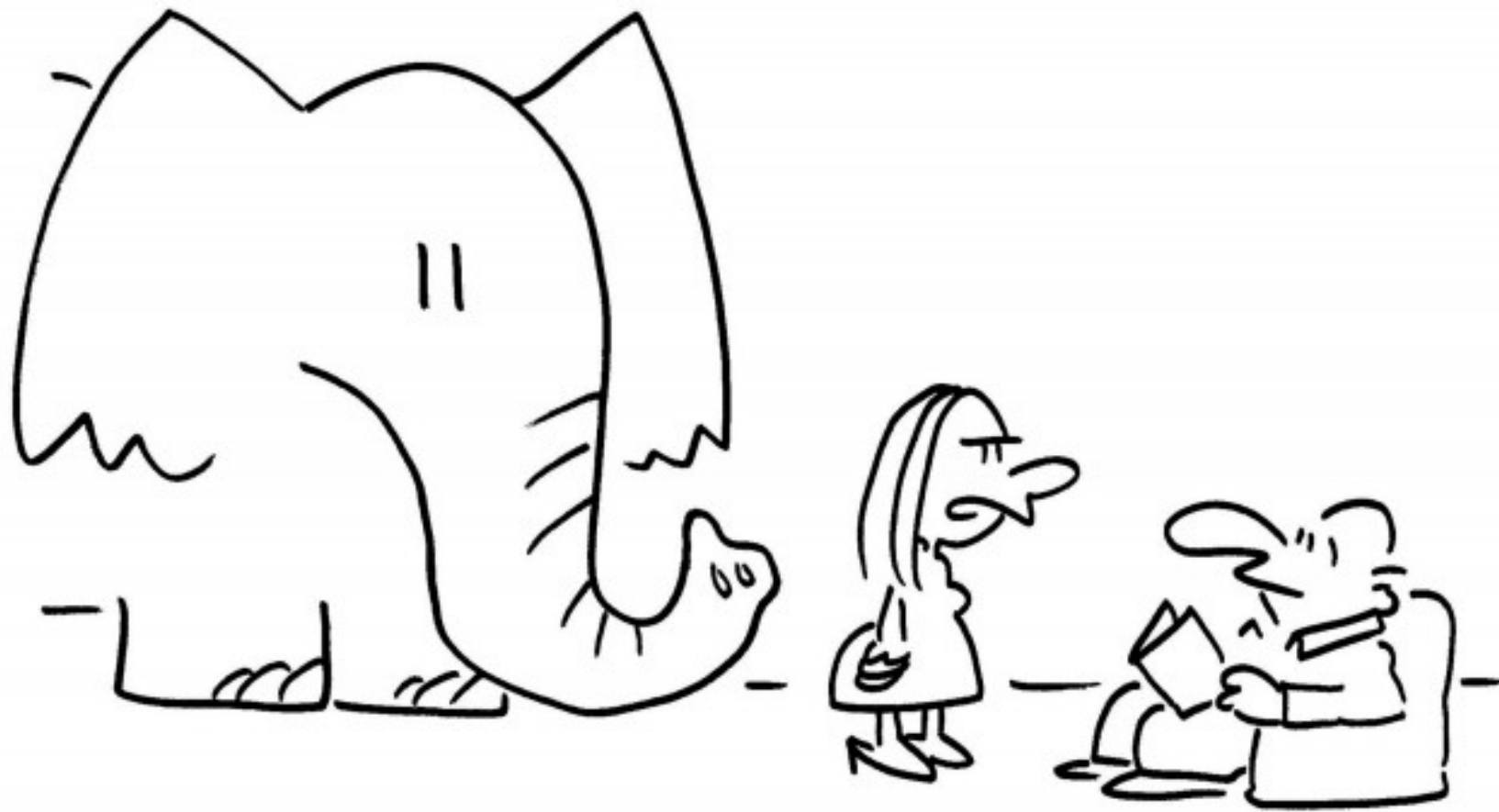


Contrast With Compulsivity

- ▶ The driving force behind the behavior is what distinguishes compulsivity from impulsivity
- ▶ Individuals at both ends of the spectrum have in common the inability to refrain from repetitive behaviors
- ▶ **Impulsive disorders** are usually perceived to be **ego-syntonic**, whereas **compulsive disorders** tend to be more **ego-dystonic**
- ▶ ICDs possibly represent a different phenomenological manifestation (↓ capacity to extinguish motor responses to affective states)

Gender Predominance In The Impulse-Control Disorders

Male	Female
Pathological gambling	Kleptomania
Intermittent explosive behavior	Trichotillomania
Pyromania	Self-injurious behavior
Sexual compulsions	Compulsive buying
	Binge eating



"You knew I was an impulse shopper
when you married me!"

Impulsive Aggression - I

- ▶ Impulsive aggression is defined as deliberate, non-premeditated aggressive acts, either of a verbal or physical nature, that are directed at another person, object, or the self and intended to cause harm
- ▶ Impulsive aggressive behaviors are associated with morbidity and mortality, leading to profound impairment in social, vocational, and family functioning.
- ▶ Impulsive aggressive behaviors are often at the root of violent crimes such as rape, murder and assault, and accidents

Impulsive Aggression - II

- ▶ Patients with Cluster B personality disorders such as ASPD may present with both premeditated aggression and impulsive aggression linked to suicide
- ▶ A motivation for suicide may not be solely despair, but an urgent and uninhibited impulse to act on self-directed anger
- ▶ When behavior is simultaneously impulsive and aggressive, it is referred to as impulsive aggression

Conduct Disorder (CD)

- ▶ CD usually manifest in early childhood or adolescence and include aggressive actions that cause physical harm to others, damage to property, deceitfulness, theft and serious violations of rules
- ▶ Other hallmarks are risk taking and impulsive behavior, such as early onset of sexual behavior, drinking, smoking, drug use, and reckless behavior
- ▶ CD may display aggressive features, but it takes an impulsive nature to carry out the reckless actions
- ▶ CD is often a childhood precursor for the development of adult ICDs
- ▶ Pathological gamblers are impulsive but not necessarily aggressive and a premeditated murder is aggressive but not necessarily impulsive



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Impulse Control Impulsivity And Violence: Clinical Implications

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Difficulty To Distinguish / Violent Behavior

- ▶ impulses that cannot be resisted
- ▶ Impulses that are not resisted
- ▶ Irresistible impulse defense
- ▶ There is the possibility that the person has an inherent biological propensity to act violently and therefore ought to be excused
- ▶ The latter implies that the loss of control was voluntary and consequently not excusable

Impulsive Violent Offenders

- ▶ CSF – concentrations of the major metabolite of serotonin and 5-HIAA 5-hydroxyindoleacetic acid (5-HIAA)
- ▶ Serotonin is an important inhibitory neurotransmitter, amygdala, anterior cingulate cortex and dorsal-lateral prefrontal and orbitofrontal cortices
- ▶ Dysregulated serotonin activity is associated with impulsivity and aggression

- 
- ▶ Men who have high CSF levels of free testosterone and low levels of 5-HIAA are even more likely to be aggressive
 - ▶ Activities of low levels of D2/D3 receptors in the nucleus accumbens have impulsivity traits by interfering with the neural reward system
 - ▶ Epigenetic factors that modulate gene expression may either potentiate or ameliorate these traits

Alcohol And Violence

- ▶ Alcohol and substance abuse are probably the most powerful facilitators for impulsive aggression
- ▶ Severely maltreated individuals with high MAOA activity by third decade had highest rates of convictions of violent offences
- ▶ Alcohol abuse reduces serotonin neurotransmission, and intoxication may particularly provoke intemperate violent outbursts in individuals who have inherited dysregulated serotonergic neurotransmission
- ▶ Intoxication with stimulant drugs, such as methamphetamine, promotes disinhibition via the enhancement of dopamine and epinephrine pathways, but not consistently

Clinical Considerations of Violent Behavior

- ▶ It is rare for violent individuals to seek help voluntarily and involuntary admission
- ▶ A good clinician-patient relationship
- ▶ When no other disorder accounts for the behavior, intermittent explosive disorder (IED) is diagnosed (characterized in DSM-5)
- ▶ Life-time prevalence fo 1% to 11%
- ▶ Over a fifth of patients may have another impulse control disorder
OCD

Treatment

- ▶ Mood-stabilizers, SSRIs, atypical antipsychotics
- ▶ β -blockers and α 2-agonists have some efficacy in treating impulsive aggression
- ▶ Mood stabilizers are effective, especially carbamazepine, phenytoin and lithium
- ▶ Dialectical behavioral therapy-corrections modified, cognitive-behavioral therapy, group therapy, family therapy and social skill training are also considered to be valid interventions
- ▶ Prudent to use multimodal treatments – namely, a combination of drugs and psychotherapeutic approaches

Pathological Gambling; Presentation And Comorbidity



Impulsivity to Addiction: Gambling Disorder And Beyond

- ▶ DSM-5 reclassified pathological gambling from the impulse control disorders category to substance addictions
- ▶ The shift effectively recognized “gambling disorder” as the first compulsive administration of exogenous drugs
- ▶ While money is self-evidently a potent incentive, at a psychological level, it is a complex, learned reinforcer (as distinct from a natural reward, such as food or sex)
- ▶ Some gamblers, winning money appears to play a negligible role in maintaining their behavior

Recognizing The Disordered Gambler

- ▶ The symptoms include classic hallmarks of an addiction syndrome: preoccupation with gambling, gambling with larger amounts over time (akin to tolerance) and agitation when stopping gambling (akin to withdrawal)
- ▶ Continuing to play or returning to the venue at a later date in an effort to claw back recent debts
- ▶ The harms of gambling are continuously distributed: individuals who do not meet diagnostic criteria, nonetheless experience clear harm
- ▶ The prevalence estimates for “at risk” gambling are in the range of 2% to 7%, with full DSM diagnosis in 0.5% to 1%

Neurobiological Correlates

- ▶ Persons who have gambling disorder also show heightened levels of dopamine release
- ▶ Clinical observation that dopamine agonist treatments for Parkinson disease can sometimes induce excessive gambling and other risky reward behaviors

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Food Addiction - I

- ▶ Persons with food addiction can potentially benefit from the translation of existing effective treatments for drug addiction, such as medications that target μ -opioid receptors
- ▶ Exogenous stimulation of these neural hotspots can trigger excessive and binge-like eating beyond satiety
- ▶ Dopamine release to good cues enhanced in binge eaters but not in non-binge eaters
- ▶ This is comparable to the aforementioned effect in problem gamblers
- ▶ Sugar-bingeing rodents showed progressive behavioral signs of dependence and range of neuroadaptive changes in the brain related to drugs of abuse

Treatment Implications

- ▶ The DSM-5 reclassification has raised the profile of gambling disorder which appears to be having a beneficial effect on treatment
- ▶ CBT
- ▶ CBT such as the tendency to overinterpret winning or losing streaks in play or the significance of gambling near misses
- ▶ CBT has only moderate efficacy, it is also adaptable to group settings and web-based modes of delivery
- ▶ Only a minority of affected actively seek treatment for gambling
- ▶ Few large scale randomized controlled trials, there is no clear evidence for the effectiveness of pharmacological treatments for gambling disorder

Impulsivity and Schizophrenia

- ▶ Psychotic symptoms, such as delusions and hallucinations, with subsequent suspiciousness and hostility, may result in aggressive behavior.
- ▶ Aggression may be impulsive and caused by an environmental frustrating event particularly during acute episodes.
- ▶ Schizophrenic patients have less insight, experience greater thought disorder, and have poorer control of their aggressive impulses.
- ▶ Comorbidity with alcohol or other substances of abuse is frequent and complicates the agitation and the impulsivity.
- ▶ Patients with schizophrenia, MDD, and bipolar disorder, the risk for homicide is increased with comorbid alcohol

Treatment of Aggressive Patient Iz

- ▶ Proper assessment of underlying factors may be difficult particularly in presence of relatives
- ▶ Always remember that patients and their relatives are more disturbed than the doctor. A lot has transpired between patient and their relatives.
- ▶ Isolate the patient or keep one relative who has patient's trust
- ▶ If patient is paranoid and violent keep the hospital trained attendants available but at distance
- ▶ Restrain patient if he is uncooperative
- ▶ Try to examine the patient, particularly regarding alcohol and SA
- ▶ If necessary ask anesthetist to pass a Ryle's tube so that you can administer medications and food til the patient improves

Treatment of Aggressive Patient II

- ▶ Use conventional antipsychotics like haloperidol IM for excitement every 6hrly. Do not use haloperidol IV.
- ▶ Use anti-Parkinsonian drug to avoid any EPS
- ▶ Chlorpromazine 100-200mgmg is good sedative
- ▶ Clozapine is also good sedative 50-100mg for in acutely violent patient
- ▶ Atypical antipsychotics mood stabilizers and anticonvulsants can be used to treat hostility, impulsivity and aggression
- ▶ Non-adhering patients should be given LA preparation
- ▶ Clozapine is drug of choice in patients with persistent aggressiveness and violent behavior
- ▶ SA comorbidity increases with violent behavior and agitations can be controlled with BDZ



Relationship Between Suicide And Impulsivity

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Relationship Between Suicide And Impulsivity

- ▶ Impulsivity considered important to the etiology and prediction of suicide in suicid risk
- ▶ Impulsivity as both a chronic and an acute suicide risk factor
- ▶ These widely held perceptions about impulsivity do not appear to be supported by research

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Controversy of Relationship Between Impulsivity And Suicide

- ▶ Attempters scored no higher on the Barratt Impulsiveness Scale than patients with suicidal ideation who had never attempted suicide
- ▶ Both suicide attempters and suicidal ideation scored higher on a measure of impulsivity
- ▶ Impulsivity scores were equivalent between attempters and patients with suicidal ideation who had never attempted suicide

Impulsivity - A Heterogeneous Construct

- ▶ Distinct impulsivity-related traits: urgency (responding rashly to negative emotions)
- ▶ Poor Premeditation (difficulties in foreseeing consequences of actions)
- ▶ Poor Perseverance (tendency to give up easily)
- ▶ Sensation seeking (preference for excitement and stimulation)
- ▶ Suicidal ideation exhibited equivalent scores on 3 of the dimensions (Urgency, Perseverance and Sensation seeking) attempters scored only very slightly higher on the fourth (Premeditation)
- ▶ Suicide attempters and suicidal ideation exhibit similar levels of trait impulsivity, a pattern that is contrary to clinical beliefs and guidelines

A Model Specifying The Role of Impulsivity In Suicide

- ▶ A potentially lethal suicide attempt
- ▶ Pain and fear of death serve one requires as barriers to making a suicide attempt
- ▶ Exposure to violence, nonsuicidal self-injury and substance use
- ▶ Impulsivity is not a strong or central predictor of suicide or suicide risk, what may be a more accurate

The Ideation-To-Action Framework

- ▶ Impulsivity offers little to no information about the risk of acting on that ideation and making a suicide attempt
- ▶ Individuals with suicidal ideation do not go on to attempt suicide

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3ST Model of Suicide And Suicidal Risk

- ▶ First, the combination of **pain and hopelessness** is what brings about suicidal ideation
- ▶ If the experience persistence is accompanied by hopelessness suicidal thinking begins
- ▶ It is the confluence of **pain and hopelessness that leads to suicidal thoughts**
- ▶ Connectedness prevents suicidal ideation from escalating in those at risk
- ▶ Connectedness to life to loved ones, to a valued role, or to any sense of meaning or purpose – exceeds the pain, suicidal ideation will remain at modest levels
- ▶ If pain exceeds the connectedness to or investment in life, suicidal ideation becomes strong and active

Three Specific Categories of Variables Contribute To Suicide Capacity

- ▶ Dispositional
- ▶ Acquired and
- ▶ Practical
- ▶ Capability for suicide may be largely genetic, Acquired variables are experiences associated with pain, injury, fear and death
- ▶ They can lead over time to a higher capacity for a suicide attempt

Conclusion

- ▶ The ideation-to-action framework may be able to specifically test the degree to which the impulsivity-suicidality relationship is explained by impulsivity's impact on the pain and hopelessness that cause ideation and/or on suicide capacity
- ▶ Instead of focusing on impulsivity, it may be fruitful to focus on domains that have been consistently shown to predict and motivate suicidal ideation and suicide attempts including pain and hopeless (especially in combination) connectedness, and suicide capacity

Disorders of Impulsivity - I

- ▶ Kleptomania (urges to steal)
- ▶ Trichotillomania (pull one's hair)
- ▶ Pyromania (set fire)
- ▶ Pathological gambling
- ▶ Sexual compulsions
- ▶ Compulsive shopping
- ▶ Skin picking

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Disorders of Impulsivity - II

- ▶ Childhood conduct disorders
- ▶ Binge eating disorder
- ▶ Bulimia nervosa
- ▶ Paraphilias
- ▶ Bipolar disorder
- ▶ Attention-deficit/hyperactivity disorder
- ▶ Substance use disorders
- ▶ Cluster B personality disorders

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Comorbidity Influences Treatment - I

- ▶ ICD, comorbid disorders are often present, including bipolar spectrum disorders, substance abuse, OCD, anxiety disorders, ADHD and depressive disorders
- ▶ When treating ICDs, identify the comorbid disorders precisely because they have an important impact on the treatment of ICDS
- ▶ A connection between impulsivity and bipolarity (including a comorbidity rate of about 30% between the two)
- ▶ Patients were treated with either lithium or valproate both groups responded equally

Comorbidity Influences Treatment - II

- ▶ Placebo-controlled trial with sustained-release lithium in 40 patients who met criteria for **both pathological gambling and the broader bipolar spectrum** (including bipolar II disorder, hypomania, mixed states, rapid cycling, or cyclothymia), lithium was significantly superior to placebo in reducing both impulsive gambling and mania scores
- ▶ It remains unclear whether improvement in impulsivity reduces affective instability, or improvement in affective instability results in decreased impulsivity

Impulse-Control Disorders And Cluster B Personality Disorders

- ▶ Impulsive aggression as a symptom domain with Cluster B personality disorders may progress to the point where it is considered a separate ICD
- ▶ Patients with borderline personality disorder might also meet criteria for kleptomania, trichotillomania, self-injurious behavior or binge eating disorder

Impulsivity Vs. Compulsivity

Impulsivity

- ▶ A predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or to others
- ▶ The failure to resist impulsive, drive, or temptation that is potentially harmful for ones self or others
- ▶ An impulse is rash and lacks deliberation. It may be sudden and ephemeral, or a steady rising tension may reach a climax in an explosive expression of the impulse, resulting in careless actions without regard for self or others
- ▶ Impulsivity is evidenced behaviorally as carelessness and underestimated sense of harm, extraversion, impatience, including the inability to delay gratification, and tendency towards risk taking, pleasure, sensation seeking

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- ▶ Substance use disorders
- ▶ Cluster B personality disorders

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Disorders of Compulsivity

- ▶ OCD
- ▶ Body dysmorphic disorder
- ▶ Trichotillomania
- ▶ Tourette syndrome
- ▶ Hypochondriasis

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Clinical Feature

Impulsivity

- ▶ The irresistible urge to act in a given way and may be considered as a subset of the obsessive-compulsive spectrum of disorders
- ▶ Impulsive behaviors generally have an element of pleasure, at least initially, although they may lose their pleasurable quality over time

Compulsivity

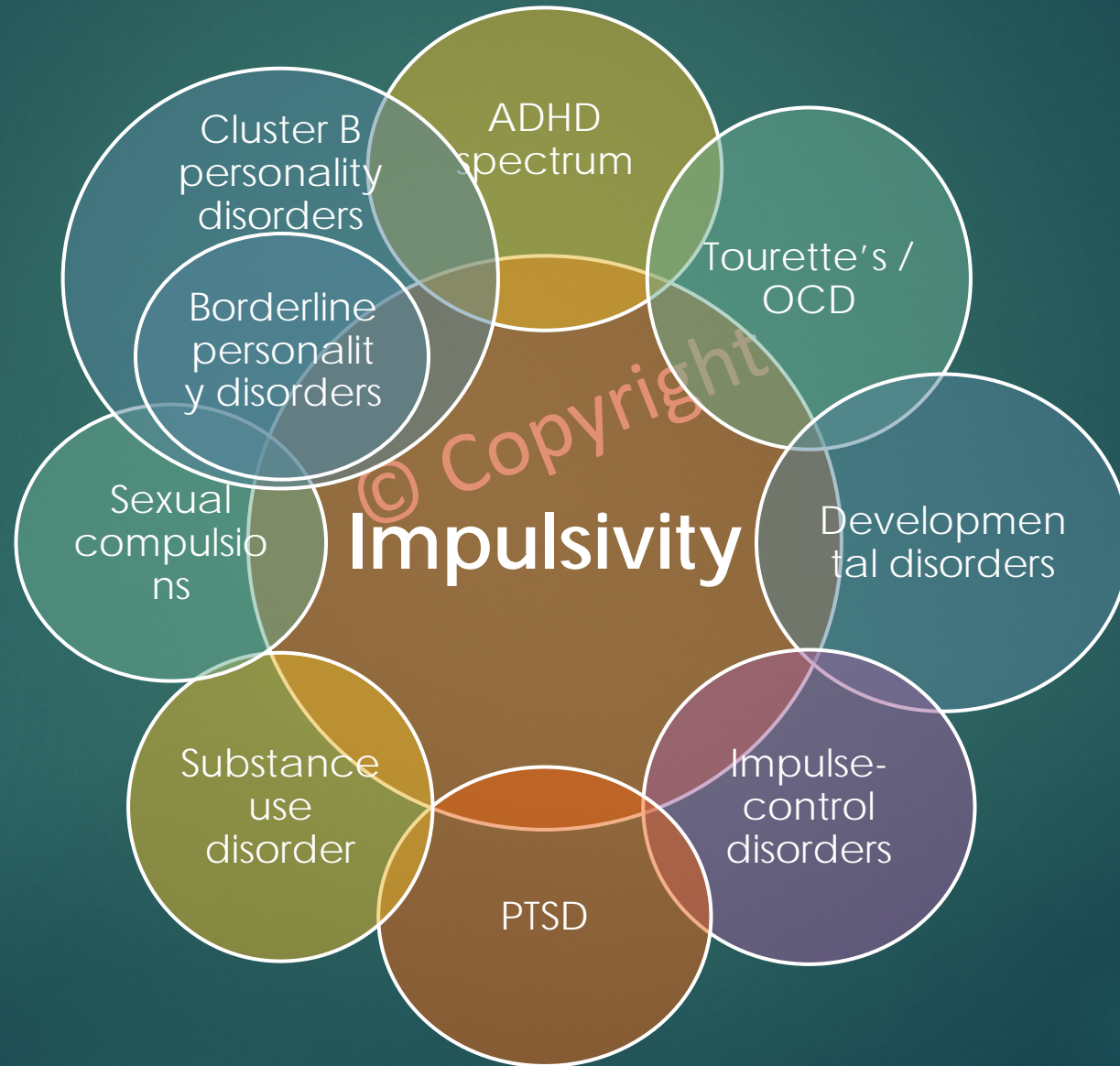
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- ▶ OCD rituals are not pleasurable activities engaged in for their own sake but are neutral or often irritating and unpleasant behaviors that are performed to reduce anxiety

Core Features of Impulse-Control Disorders

Essential features	Failure to resist an impulse, drive, or temptation to perform an act that is harmful to the person or to others
Before the act	The individual feels an increasing sense of tension or arousal
At the time of committing the act	The individual experiences pleasure, gratification, or relief
After the act	The individual experiences a sense of relief from the urge
	The individual may or may not feel regret, self-reproach, or guilt

Source. American Psychiatric Association 2000

Impulsive Disorder Spectrum



Impulsivity

- ▶ The failure to resist an impulse, drive, or temptation that is potentially harmful to oneself or others
- ▶ Is both a common clinical problem and a core feature of human behavior
- ▶ An impulse is rash and lacks deliberation
- ▶ Impulsivity is evidenced behavior orally as carelessness, an underestimated sense of harm, extroversion, impatience, including the inability to delay gratification and a tendency toward risk taking, pleasure, and sensation seeking

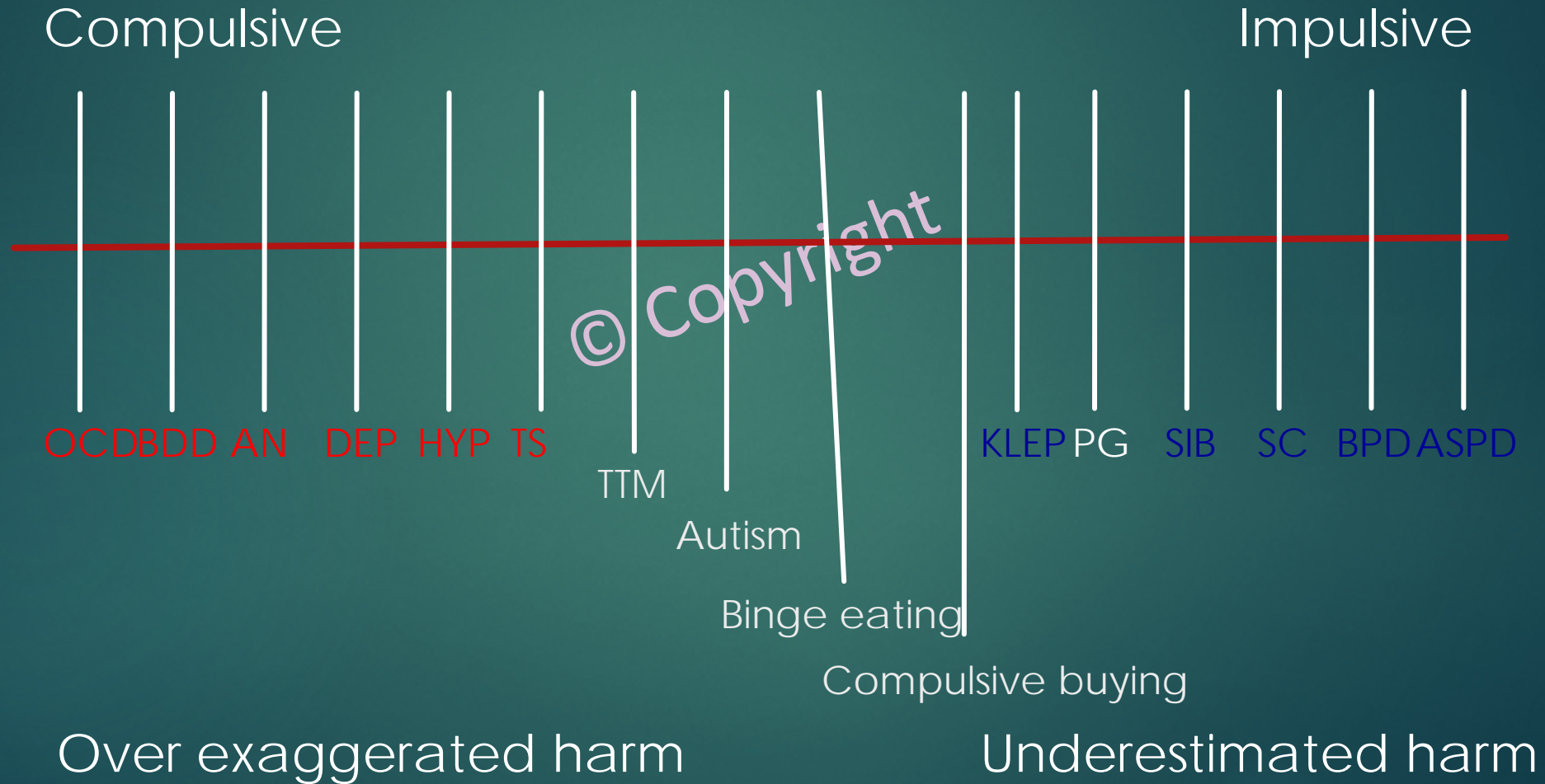
Cognitive Aspects of Impulsivity

- ▶ Inability to delay gratification
- ▶ Distractibility or the inability to maintain sustained attention on a particular task
- ▶ Dis-inhibition inability to restrain behavior in a manner that would be expected based on cultural norms and constraints

Dimensional Approaches To Impulsivity

- ▶ Compulsive individuals, who are highly risk averse; they perceive their environment as risky and threatening, and they carry out ritualistic behaviors to neutralize the threat and reduce their anxiety
- ▶ Impulsive individuals, who tend to underestimate the degree of harm in the environment and therefore repeatedly engage in high-risk behaviors, after which they fail to learn from their errors in judgment
- ▶ In the middle Tourette's syndrome, trichotillomania, and autism, which have features of both compulsivity driven behaviors to reduce anxiety and impulsive behaviors associated with arousal, pleasure, or gratification

Risk Aversiveness / Impulsivity



Contrast With Compulsivity

- ▶ The driving force behind the behavior is what distinguishes compulsivity from impulsivity
- ▶ Individuals at both ends of the spectrum have in common the inability to refrain from repetitive behaviors
- ▶ Impulsive disorders are usually perceived to be ego-syntonic, whereas compulsive disorders tend to be more ego-dystonic
- ▶ ICDs possibly represent a different phenomenological manifestation (↓ capacity to extinguish motor responses to affective states)

Impulsive Aggression - I

- ▶ Impulsive aggression is defined as deliberate, non-premeditated aggressive acts, either of a verbal or physical nature, that are directed at another person, object, or the self and intended to cause harm
- ▶ Impulsive aggressive behaviors are associated with morbidity and mortality, leading to profound impairment in social, vocational, and family functioning. Also impulsive aggressive behaviors are often at the root of violent crimes such as rape, murder and assault, and accidents

Impulsive Aggression - II

- ▶ Patients with Cluster B personality disorders such as antisocial personality disorder may present with both premeditated aggression and impulsive aggression linked to suicide
- ▶ A motivation for suicide may not be solely despair, but an urgent and uninhibited impulse to act on self-directed anger
- ▶ When behavior is simultaneously impulsive and aggressive, it is referred to as impulsive aggression

Conduct Disorder (CD)

- ▶ CD usually manifest in early childhood or adolescence and include aggressive actions that cause physical harm to others, damage to property, deceitfulness, theft and serious violations of rules
- ▶ Other hallmarks are risk taking and impulsive behavior, such as early onset of sexual behavior, drinking, smoking, drug use, and reckless behavior
- ▶ CD may display aggressive features, but it takes an impulsive nature to carry out the reckless actions
- ▶ CD is often a childhood precursor for the development of adult ICDs
- ▶ Pathological gamblers are impulsive but not necessarily aggressive and a premeditated murder is aggressive but not necessarily impulsive

Comorbidity Influences Treatment - I

- ▶ ICD, comorbid disorders are often present, including bipolar spectrum disorders, substance abuse, OCD, anxiety disorders, ADHD and depressive disorders
- ▶ When treating ICDs, identify the comorbid disorders precisely because they have an important impact on the treatment of ICDS
- ▶ A connection between impulsivity and bipolarity (including a comorbidity rate of about 30% between the two)
- ▶ Patients were treated with either lithium or valproate both groups responded equally

Comorbidity Influences Treatment - II

- ▶ Placebo-controlled trial with sustained-release lithium in 40 patients who met criteria for both pathological gambling and the broader bipolar spectrum (including bipolar II disorder, hypomania, mixed states, rapid cycling, or cyclothymia). Lithium was significantly superior to placebo in reducing both impulsive gambling and mania scores
- ▶ It remains unclear whether improvement in impulsivity reduces affective instability, or improvement in affective instability results in decreased impulsivity

Pathological Gambling; Presentation And Comorbidity



Impact of Gender

- ▶ Impulsivity, are manifested in different ways across the genders
- ▶ Pathological gambling, pyromania, sexual compulsions, and intermittent explosive disorder appear to be more prevalent in males
- ▶ Whereas kleptomania, trichotillomania, compulsive shopping, self-injurious behavior, binge eating disorder seem to be more prevalent in females

Gender Predominance In The Impulse-Control Disorders

Male	Female
Pathological gambling	Kleptomania
Intermittent explosive behavior	Trichotillomania
Pyromania	Self-injurious behavior
Sexual compulsions	Compulsive buying
	Binge eating

Impulse-Control Disorders And Cluster B Personality Disorders

- ▶ Impulsive aggression as a symptom domain with Cluster B personality disorders may progress to the point where it is considered a separate ICD
- ▶ Patients with borderline personality disorder might also meet criteria for kleptomania, trichotillomania, self-injurious behavior or binge eating disorder

Biological Basis of Impulsivity That Informs The Conceptualization of Impulse-Control Disorders

- ▶ A deficiency of central serotonin is associated with greater impulsivity
- ▶ In rats, lesions in the **nucleus accumbens, orbitofrontal cortex, and basolateral amygdala** are associated with impulsive choice on delayed reward tasks

Genetic Basis of Impulse Control Disorders

- ▶ In pathological gamblers, 20% have a first degree-relative who is also a pathological gambler
- ▶ Twin pair studies have found a common genetic vulnerability for both pathological gambling and alcohol dependence
- ▶ Studies support an association between a major mood disorder and alcohol and substance abuse in first-degree relatives of individuals with kleptomania and pathological gambling
- ▶ Associations between anxiety disorders in the families of individuals with kleptomania and violent behavior and ADHD in families of individuals with intermittent explosive disorder have also been reported

Assessment of Impulsivity And The Impulse-Control Disorders

Differentiating Symptoms From A Disorder

- ▶ **Recreational gamblers** are capable of accurately calculating risks or odds, are able to control the impulse to gamble, and have no functional impairment as a consequence of gambling
- ▶ **Pathological gamblers**, by contrast, allow gambling to severely interfere with their daily lives
- ▶ They may lose their spouses and social networks, their jobs, and their savings to gambling
- ▶ Biological factors may distinguish pathological from non-pathological gambling populations

Core Features of Impulse-Control Disorders

Essential features	Failure to resist an impulse, drive, or temptation to perform an act that is harmful to the person or to others
Before the act	The individual feels an increasing sense of tension or arousal
At the time of committing the act	The individual experiences pleasure, gratification, or relief
After the act	The individual experiences a sense of relief from the urge
	The individual may or may not feel

DSM-IV-TR

Impulse-Control Disorders - IV

Paraphilias

Exhibitionism	Sexual sadism
Fetishism	Transvestic fetishism
Frotteurism	Voyeurism
Pedophilia	Paraphilia not otherwise disinhibition
Sexual masochism	



DSM-IV-TR

Impulse-Control Disorders - V

Bipolar disorder

Attention-deficit/hyperactivity disorder

Substance use disorders

Cluster B personality disorders

Neurological disorder with disinhibition

What Is Impulsivity?

The failure to resist an impulse drive or temptation that is potentially harmful to oneself or others

Cognitive Aspect of Impulsivity

- ▶ Inability to delay gratification
- ▶ Distractability
- ▶ Disinhibition

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Impulsivity

- ▶ Obtain arousal and gratification
- ▶ Ego centric

Compulsivity

- ▶ Reduce anxiety
- ▶ Ego dystonic

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Gender Predominance In The Impulse-Control Disorders

Male

- ▶ Pathological gambling
- ▶ Intermittent explosive behavior
- ▶ Pyromania
- ▶ Sexual compulsions

Female

- ▶ Kleptomania
- ▶ Trichotillomania
- ▶ Self-injurious behavior
- ▶ Compulsive buying
- ▶ Binge eating

Pathological Gambling



Impulse Control Disorder

- ▶ In spite of the fact that these disorders form a substantial proportion of illnesses, it's only recently included in DSM IV R
- ▶ Patients with ICD tend to be shamefully secretive about their repeated impulsive activity

Historical Perspective

- ▶ Artist and authors have clearly described powerful portraits of impulse ridden personalities
- ▶ Personal and social damage by these behaviors is well established in literature
- ▶ French Psychiatrist Jean-Etienne Esquirol (19th century) described patients whose irresistible impulsiveness demonstrated “all the features of passion, elevated to the point of delirium”

Features of Impulse Control Disorders Nos.

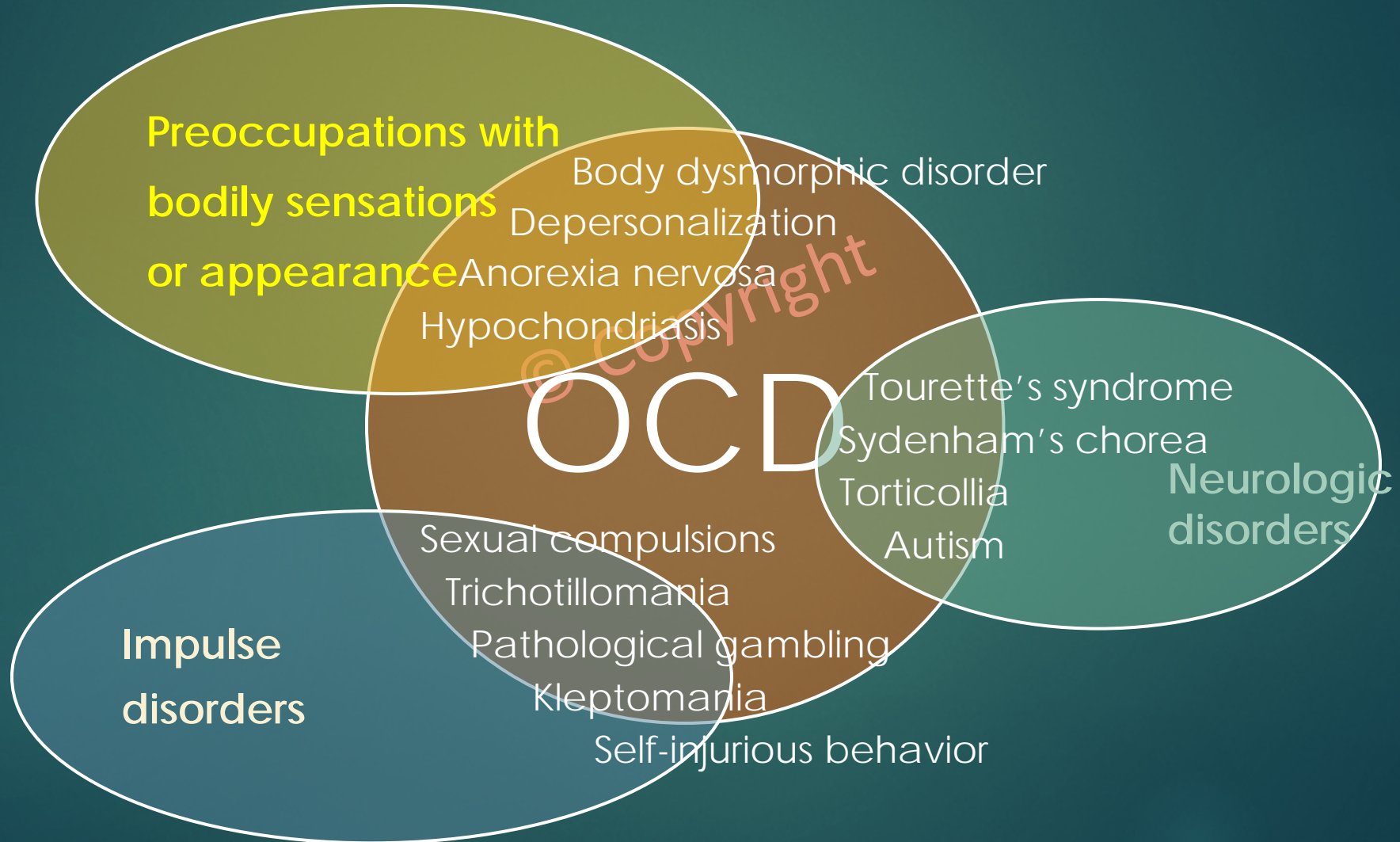
Common features is repeated inability to resist an impulse that is harmful to self or others

Before the event the individual experiences maintaining tension with anticipatory pleasure

After the event the individual experiences immediate gratification and relief

Sooner or later the individual experiences feelings of guilt, remorse and dread

Obsessive Compulsive Related Disorders



Compulsivity-Impulsivity

Dimension

Compulsiv

e

Hypochondriasis

Body dysmorphic disorder

Anorexia nervosa

Depersonalization disorder

Tourette's syndrome

Trichotillomania

Pathological gambling

Sexual compulsions

Impulsive personality disorder

Impulsive

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Hypothesized Relationship Between Compulsivity, Impulsivity, Unipolarity, and Bipolarity Along With A Single Dimension

Compulsivity /
Unipolarity

Mixed
Compulsive-
Impulsive and/or
Affective States

Impulsivity /
Bipolarity

Harm-avoidant behaviors,
Inhibited thinking & beh,
Resistance to impulses
and behaviors and
absence of pleasure

Harmful behaviors, disinhibited,
little insight into
dangerousness of symptoms,
little resistance to carrying out
impulses and
behaviors, and pleasurable
feelings

OCD/Major
Depression

OCD with Impulsive
Features, Compulsive
ICDs, ICDs comorbid
with OCD, Bipolar II
Disorder

ICDs/Bipolar
Disorder

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Models of Impulsivity

Addiction triggers

Craving → impulse

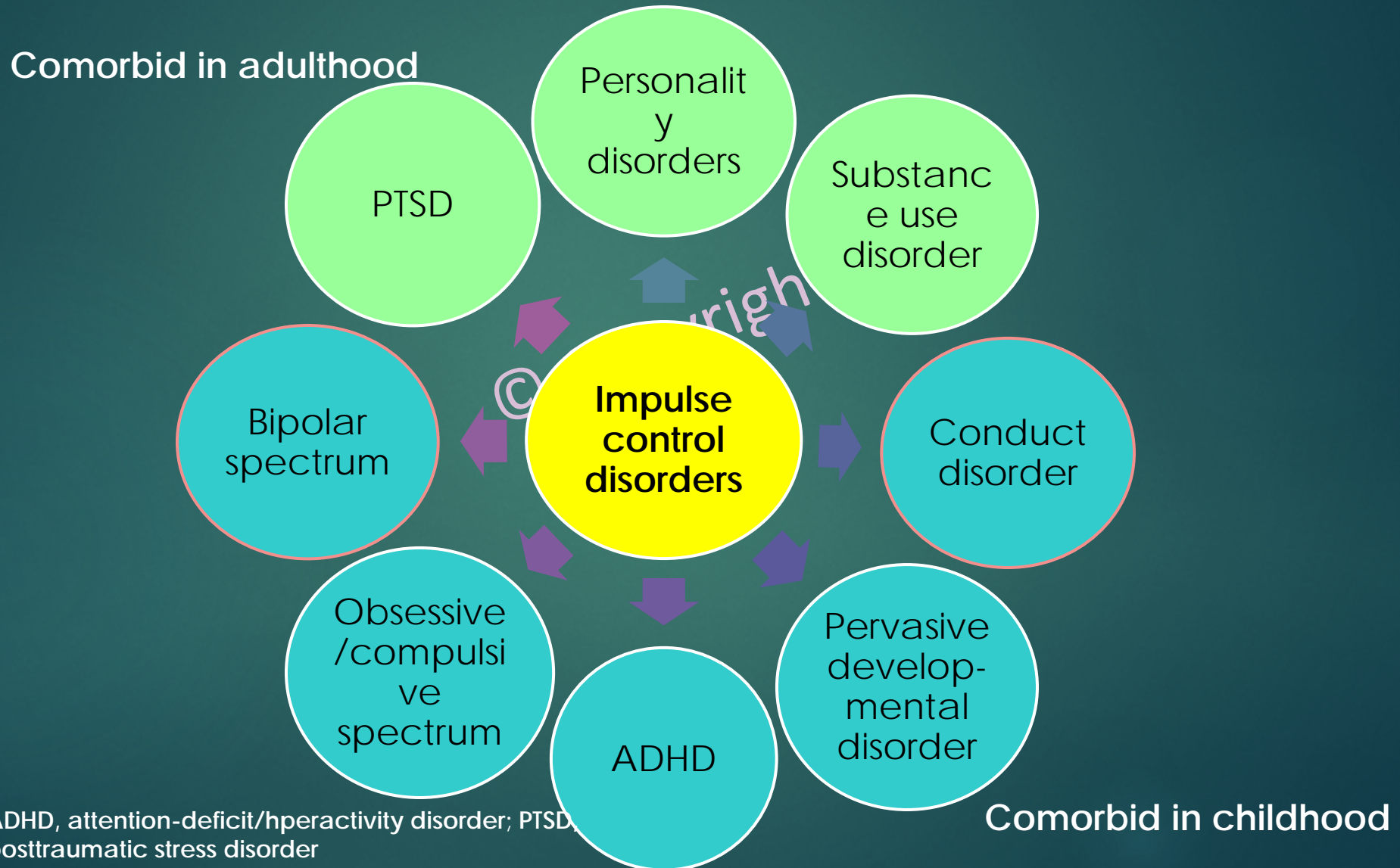
Affect-driven triggers

Mood switch — affective state (anger) →
impulse

Compulsive triggers

Anxiety → compulsive/impulsive

Comorbidities of Impulse Control Disorders



Treatment Approaches For Compulsive Behavior

- ▶ CBT is more effective for compulsive behavior in adults
- ▶ SSRI – delayed onset of action (8-12 weeks) only partial symptom reduction
 - ▶ Response failure or intolerability in 40-60%
- ▶ In refractory cases:
 - ▶ Increase the dose
 - ▶ Change to another SSRI or clomipramine
 - ▶ Augment with small dose of atypical antipsychotics (amisulpiride)
 - ▶ Treat comorbid disorder

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Drug Treatment of Impulsivity Related to Cluster B And IC Disorders

↓ DA and ↑ 5HT → reduce impulsivity and normalize arousal

↓ Excitatory glutamate and

↑ Inhibitory GABAergic transmission

Reducing or stabilizing NE effects

SSRI

Lithium

AED

Candidates For OC Spectrum Disorder In DSM V

(Michael First, Eric Hollander And Joseph Zohar)

OCPD	Hypochondriasis
Hoarding	Autism
Tic disorders	Eating disorders
PANDAS	Pathological gambling and other behavior addictions
Trichotillomania	Substance dependence
Body dysmorphic disorder	

Treatment For Comorbid Impulsivity – Condition (Consideration)

- SSRI-may induce manic behavior in Pathological Gambling (Li or Valproate a preferred treatment)
- Li and Valproate may be useful in comorbid BP
- Borderline Personality Disorder may be accompanied by PMS, bulimia,

- Addiction triggers

Craving → impulse

- Affect-driven triggers

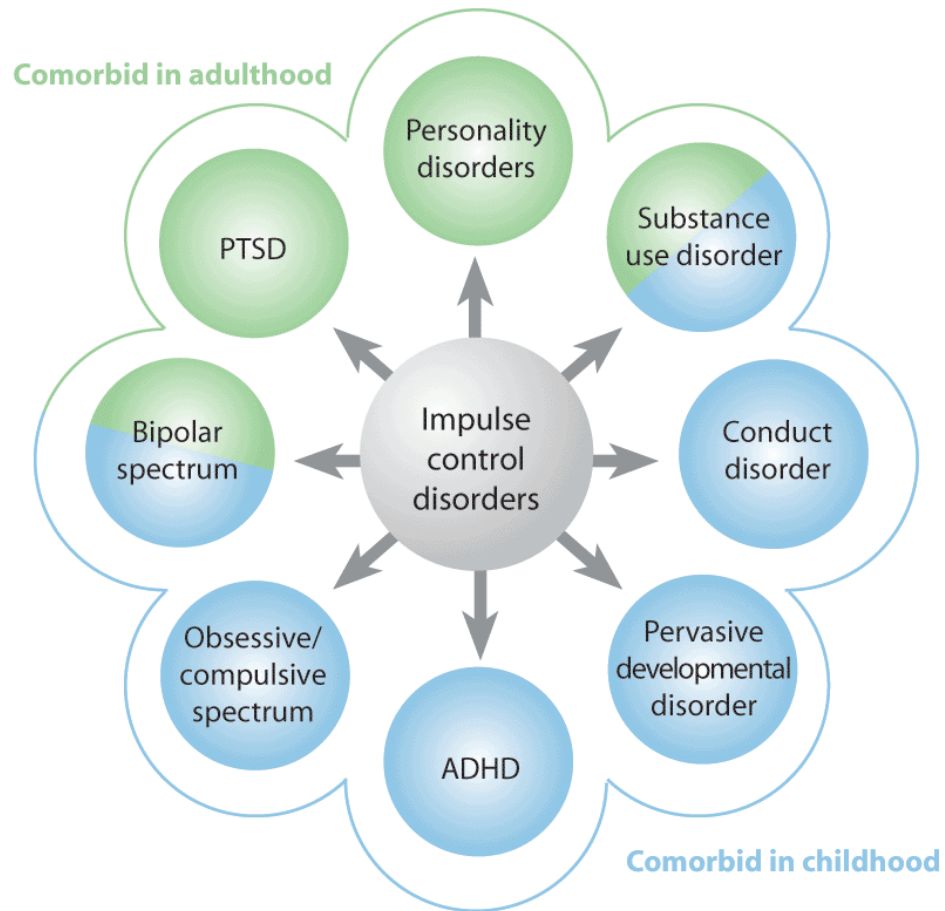
Mood switch — affective state (anger) → impulse

- Compulsive triggers

Anxiety → compulsive/impulsive

Figure 3

Comorbidities of impulse control disorders



ADHD, attention-deficit/hyperactivity disorder; PTSD, posttraumatic stress disorder.

3 Steps Model of Suicide and Suicidal Risk



Combination of
Pain and Hopelessness
Together

Connectedness to Life
Loved ones, Sense of Meaning

Capacity to Make
an Attempt to Commit
Suicide

What is Compulsivity?

- ▶ We use the word “compulsive” to imply controlled, repeated, inexorable, repetitive, imperative, stereotyped, and necessary—something you “have to” do.
- ▶ Compulsivity is associated with addiction, obsessive–compulsive disorder, paraphilia, obesity, anorexia, bulimia, hoarding, pathological buying and gambling, kleptomania, body dysmorphic disorder, trichotillomania,
- ▶ With addiction, compulsivity is understood as the final stage of a process of positive reinforcement that results in a habit from which the individual can no longer escape: the emphasis lies on the subjective experience of loss of control

Different Meaning of Compulsivity in Various Disorder

- ▶ With tics, compulsivity is closer to the idea of a motoric, pre-reflective component that precedes explicit awareness. Tics are a peculiar hybrid of a voluntary and an involuntary act.
- ▶ With trichotillomania, the emphasis is on the urge—the uncontrollable, impulsive aspect. Performing the act may indeed be compulsive, but it is also satisfying.
- ▶ In obsessive–compulsive personality disorder, compulsivity seems to be associated with a personality-linked, imperative engagement with the world, a form of rigidity with no functional meaning and usually with a total lack of insight on the part of the patient.
- ▶ Compulsivity is not an exclusively human trait but manifests itself in different ways among different species of animals, with the repetitive element being the most salient.

Confusion of Compulsivity

- ▶ Is Compulsivity means different for various disorders?
- ▶ What is core aspect of compulsivity combines these various disorders?

What Is Compulsivity?

- ▶ Compulsivity is the result of an internal struggle, akin to disappointment or frustration in which the “self” always loses. In this respect, it is entirely understandable that it is especially compulsivity that generates a feeling of loss of control.
- ▶ A patient’s suffering is always associated with compulsivity, with “having to” vis-à-vis themselves. The experience of compulsivity in turn generates shame, guilt, lack of self-confidence, and anxiety.
- ▶ Compulsivity is a harsh confrontation with the fact that we as human beings are determined by something other than ourselves, that we have brains that think and act independently, that we live in an environment that follows its own rules.



“The perfection of a science is shown in the perfection of its language,”

Condillac (1746)

Impulsivity

- ▶ **Impulsivity** (or **impulsiveness**) is a multifactorial construct^[1] that involves a tendency to act on a whim, displaying behavior characterized by little or no forethought, reflection, or consideration of the consequences.^[2] Impulsive actions are typically "poorly conceived, prematurely expressed, unduly risky, or inappropriate to the situation that often result in undesirable consequences, which imperil long-term goals and strategies for success.

Impulsivity(Functional Aspect)

- ▶ A functional variety of impulsivity has also been suggested, which involves action without much forethought in appropriate situations that can and does result in desirable consequences. "When such actions have positive outcomes, they tend not to be seen as signs of impulsivity, but as indicators of boldness, quickness, spontaneity, courageousness, or unconventionality"[\[3\]](#)[\[5\]](#)

Components of Impulsivity

- ▶ Acting without an appropriate amount of deliberation, [\[3\]](#) which may or may not be functional; ,
- ▶ Choosing short-term gains over long-term ones.

Most of the problems in life are because
of two reasons

We act without thinking

Or

We keep thinking without acting

Impulsivity and Compulsivity are
both a facet of Personality
and

A major component of various
disorders,

Similarities and Differences Amongst Impulsivity and Compulsivity

- ▶ Impulsivity and compulsivity are interrelated in that each exhibits a tendency to act prematurely or without considered thought and often include negative outcomes.
- ▶ Compulsivity may be on a continuum with impulsivity on one end and impulsivity on the other, but research has been contradictory on this point.¹²²
- ▶ ¹Compulsivity occurs in response to a perceived risk or threat
- ▶ impulsivity occurs in response to a perceived immediate gain or benefit,
- ▶ Compulsivity involves repetitive actions,
- ▶ Impulsivity involves unplanned reactions.

ADHD and Impulsivity

- ▶ Fidgeting and squirming in seats
- ▶ Talking nonstop
- ▶ Dashing around, touching or playing with anything and everything in sight
- ▶ Having trouble sitting still during dinner, school, and story time
- ▶ Being constantly in motion
- ▶ Having difficulty doing quiet tasks or activities

:Manifestations Primarily of impulsivity in ADHD

- ▶ Be very impatient
- ▶ Blurt out inappropriate comments, show their emotions without restraint, and act without regard for consequences
- ▶ Have difficulty waiting for things they want or waiting their turns in games
- ▶ Often interrupts conversations or others' activities

Importance of Impulsivity in ADHD

- ▶ impulsivity is commonly considered to be the central feature of ADHD,
- ▶ The impulsive and combined subtypes are the major contributors to the societal costs associated with ADHD.
- ▶ Impulse inhibiting prepotent responses are linked with deficits in (PFC) functioning, which is also common dysfunction associated with other impulse-control disorders.↓

Role of Impulsivity in Substance Abuse- Acquisition Phase

- ▶ The acquisition phase of SA involves the escalation from single use to regular use.
- ▶ Impulsivity is responsible for seeking instant gratification provided by the substance may offset the larger future benefits of abstaining from the substance,
- ▶ Also people with impaired inhibitory control may not able to overcome motivating environmental cues, such as peer pressure
- ▶ individuals that discount the value of delayed reinforcers begin to abuse alcohol, marijuana, and cigarettes early in life

Role of Impulsivity in Substance Abuse- Escalation/Dysregulation Phase

- ▶ In escalation phase individuals "lose control" of their addiction with large levels of drug consumption and binge drug use.
- ▶ Animal studies suggest that individuals with higher levels of impulsivity may be more prone to the escalation stage of substance abuse.

Role of Impulsivity in SA-Abstinence, Relapse, and Treatment stages

- ▶ High scorers on the Barratt Impulsivity Scale (BIS) were more likely to stop treatment for cocaine abuse.
- ▶ They adhered to treatment for a shorter duration had greater cravings during withdrawal periods and were more likely to relapse than people that scored low on impulsivity .
- ▶ The current research suggests that

Substance Abuse Influencing Impulsivity

- ▶ The promoting effect of impulsivity on SA and the effect of SA on increased impulsivity creates a positive feedback loop that maintains substance seeking behaviors
- ▶ Various substances influence impulsivity differently Alcohol > Amphetamine(mixed result)

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Impulsive Overeating

- ▶ Overeating of tempting food related to breakdown of self control, due to self-regulatory resources are previously depleted by another task,
- ▶ Binge eating of unhealthy food is more related loss of impulse control
- ▶ Greater food consumption occurs when people are in a sad mood, although it is possible that this is due more to emotional regulation than to a lack of self-control
- ▶ Binge eating disorder, compulsive overeating, and bulimia nervosa. Are all related to overeating even non palatable food and is more common in women and may be consequences

Pathological Buying.



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Difficulty To Distinguish / Violent Behavior


- ▶ Difficult distinction between impulses that cannot be resisted
- ▶ Impulses that are not resisted
- ▶ Irresistible impulse defense
- ▶ There is the possibility that the person has an inherent biological propensity to act violently and therefore ought to be excused
- ▶ The latter implies that the loss of control was voluntary and consequently not excusable

Impulsive Violent Offenders

- ▶ CSF – concentrations of the major metabolite of serotonin and 5-HIAA 5-hydroxyindoleacetic acid (5-HIAA)
- ▶ Serotonin is an important inhibitory neurotransmitter- amygdala, anterior cingulate cortex and dorsal-lateral prefrontal and orbitofrontal cortices
- ▶ Dysregulated serotonin activity is associated with impulsivity and aggression

Difficulty To Distinguish Violent Behavior

- ▶ Impulses that cannot be resisted
- ▶ Impulses that are not resisted and violence was voluntary and consequently not excusable
- ▶ Violence being more inherent biological propensity and requires different approach

- 
- Men who have high CSF levels of free testosterone and low levels of 5-HIAA are even more likely to be aggressive
 - Activities of low levels of D2/D3 receptors in the nucleus accumbens have impulsivity traits by interfering with the neural reward system
 - Epigenetic factors that modulate gene expression may either potentiate or ameliorate these traits

Alcohol And Violence

- ▶ Alcohol and substance abuse are probably the most powerful facilitators for impulsive aggression
- ▶ Severely maltreated individuals with high MAOA activity by third decade had highest rates of convictions of violent offences
- ▶ Alcohol abuse reduces serotonin neurotransmission, and intoxication may particularly provoke intempemate violent outbursts in individuals who have inherited dysregulated serotonergic neurotransmission
- ▶ Intoxication with stimulant drugs, such as methamphetamine, promotes disinhibition via the enhancement of dopamine and epinephrine pathways, but not consistently

Clinical Considerations of Violent Behavior

- ▶ It is rare for violent individuals to seek help voluntarily and involuntary admission
- ▶ A good clinician-patient relationship
- ▶ When no other disorder accounts for the behavior, intermittent explosive disorder (IED) is diagnosed (characterized in DSM-5)
- ▶ Life-time prevalence fo 1% to 11%
- ▶ Over a fifth of patients may have another impulse control disorder OCD

Impulsivity to Addiction: Gambling Disorder And Beyond

- ▶ DSM-5 reclassified pathological gambling from the impulse control disorders category to substance addictions
- ▶ The shift effectively recognized “gambling disorder” as the first compulsive administration of exogenous drugs
- ▶ While money is self-evidently a potent incentive, at a psychological level, it is a complex, learned reinforcer (as distinct from a natural reward, such as food or sex)
- ▶ Some gamblers, winning money appears to play a negligible role in maintaining their behavior

Treatment

- ▶ Mood-stabilizers, SSRIs, atypical antipsychotics
- ▶ β -blockers and α 2-agonists have some efficacy in treating impulsive aggression
- ▶ Mood stabilizers are effective, especially carbamazepine, phenytoin and lithium
- ▶ Dialectical behavioral therapy-corrections modified, cognitive-behavioral therapy, group therapy, family therapy and social skill training are also considered to be valid interventions
- ▶ Prudent to use multimodal treatments – namely, a combination of drugs and psychotherapeutic approaches

Neurobiological Correlates

- ▶ Persons who have gambling disorder also show heightened levels of dopamine release
- ▶ Clinical observation that dopamine agonist treatments for Parkinson disease can sometimes induce excessive gambling and other risky reward behaviors

Recognizing The Disordered Gambler

- ▶ The symptoms include classic hallmarks of an addiction syndrome: preoccupation with gambling, gambling with larger amounts over time (akin to tolerance) and agitation when stopping gambling (akin to withdrawal)
- ▶ Continuing to play or returning to the venue at a later date in an effort to claw back recent debts
- ▶ The harms of gambling are continuously distributed: individuals who do not meet diagnostic criteria, nonetheless experience clear harm
- ▶ The prevalence estimates for “at risk” gambling are in the range of 2% to 7%, with full DSM diagnosis in 0.5% to 1%

Food Addiction - I

- ▶ Persons with food addiction can potentially benefit from the translation of existing effective treatments for drug addiction, such as medications that target μ -opioid receptors
- ▶ Exogenous stimulation of these neural hotspots can trigger excessive and binge-like eating beyond satiety
- ▶ Dopamine release to good cues enhanced in binge eaters but not in non-binge eaters
- ▶ This is comparable to the aforementioned effect in problem gamblers
- ▶ Sugar-bingeing rodents showed progressive behavioral signs of dependence and range of neuroadaptive changes in the brain related to drugs of abuse

Treatment Implications

- ▶ The DSM-5 reclassification has raised the profile of gambling disorder which appears to be having a beneficial effect on treatment
- ▶ CBT
- ▶ CBT such as the tendency to overinterpret winning or losing streaks in play or the significance of gambling near misses
- ▶ CBT has only moderate efficacy, it is also adaptable to group settings and web-based modes of delivery
- ▶ Only a minority of affected actively seek treatment for gambling
- ▶ Few large scale randomized controlled trials, there is no clear evidence for the effectiveness of pharmacological treatments for gambling disorder

Can We Identify the Potential Drug Addict?

- ▶ Deficits in executive function and response regulation as well as anxious-impulsive personality traits may represent endophenotypes associated with the risk of developing cocaine or amphetamine dependence.
- ▶ The identification of addiction endophenotypes may be useful in facilitating the rational development of therapeutic and preventive strategies.
- ▶ Both **impulsivity and sensation-seeking** traits have been prospectively associated with a higher risk of drug abuse and addiction. Psychological constructs such as self-efficacy, which describes the confidence in being able to achieve a certain outcome or the perceived control that a person has over life events may mediate the risk of problem drug abuse

Impulsivity vs Disorders of Impulse Control

- ▶ Borderline personality disorder DSM-5
- ▶ Poor impulse control
- ▶ Individuals with these disorders all have in common a deficit in inhibiting damaging behavior
- ▶ Different to differentiate between compulsions, addictions and irresistible impulses

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