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**Assessing the Impact of Impulse Control on Suicide Attempt: A Systematic
Literature Review**

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Assessing the Impact of Impulse Control on Suicide Attempts: A Systematic Literature Review

Abstract

Unregulated impulsivity is an implied health concern and is a critical component in key theories of suicides. Clinical studies suggest the erosion of impulse controls may develop to become the pivotal trigger in suicide bids yet the links between impulse control dysfunction and suicide attempts have hitherto been poorly addressed. Too often, impulsivity is misdiagnosed and subsumed within other psychiatric conditions which display similar compulsive behaviours but are regarded as a behavioural addiction rather than being a copresence thereby, adversely complicating appropriate and complete treatment. Clinicians have as yet been unable to access a clear delineation of what constitutes impulse dysregulation but its pervasive presence has been consistently detected in associated conditions that have resulted in suicide attempts and so must vouch for its importance as a contributing factor. A limited perception of the root causes in suicide attempts must necessarily restrict effective strategies to neutralise the destructive influence of impulse dysregulation in promoting suicidal ideation. It is important to view the role of suicidal thoughts and behaviours as a reliable precursor of a suicide attempt. This review's objective was to collect articles that focussed on impulsivity, its role in suicidal attempts, and clinical interventions to determine the strength of the relationship of the two constituents of suicidal attempts and impulse control. This study selected 140 articles and publications for a close systematic literature review in order to establish links between impulse dysregulation and suicide attempts. A total of 42 were in the final review and 24 publications were summarised and tabulated for easy referencing.

Keywords: Impulse control, suicide, impulsivity, dysregulation.

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Introduction

Impulse control difficulties are psychiatric conditions that affect an individual's ability to control their emotions and behaviours so it is important to understand the thought and mood processes that may lead to self harm while at the mercy of the inability to control destructive mood swings and emotions. Recognition that suicidal behaviours and thoughts are reliable predictors of suicidal acts is becoming more widely acknowledged. It is emerging that impulse dysregulation is a key factor in propelling those with hedonic appetitive cravings to self harm to the point of ending their life. Examples of impulse control difficulties include substance abuse, intermittent explosive disorder, kleptomania, oppositional defiant disorder, and pyromania as well as being a contributing component in multifactorial conditions such as in compulsive eating disorders, trichotillomania, internet addiction, psychotic gambling, compulsive buying addiction and sexual compulsion disorders. According to the fourth edition of the diagnostic and statistical manual of mental disorders (DSM-IV), 10.5% of the population is estimated to have an impulse control disorder. Males are more prone to this disorder than females, which may co-occur with substance abuse or other mental health disorders. In cases where Impulse Control Disorder, (ICD) is part of complex comorbidity, the failure to recognise its presence impedes patient recovery when therapeutic self help flounders because of failure to control impulsivity. Treatments for impulse disorders and difficulties include medication or behavioural therapies (Grant, J. E., et al., 2005).

Impulse dysregulation is manifested in many acts of self harm with substance abuse such as recreational drug use or alcoholism becoming more prevalent in everyday society. Several studies have discovered that alcohol and other addictive substances are a risk factor for suicide throughout a spectrum of increasingly risky behaviors. According to a study, the risk of suicide death among people with alcohol abuse disorders is ten times higher than the risk in the general population; the risk of people who use opium is 14 times higher than the risk in the general population and 17 times higher than the risk in the general population among people who use a combination of drugs (Garfinkel et al., 1982). In addition, the lifetime rate of suicide attempts among SUD patients ranges from 24-78%, with a high number of attempts. Suicide, as a result, represents a significant clinical concern in the context of substance use therapy (SUT), necessitating a thorough investigation of the factors involved and identifying successful remediation.

Mental illness constitutes the most common component leading to suicide in contemporary times; it is believed to account for around 90 percent of all suicides in the US. A potent warning signal in suicidal people is usually engaging in communications which express their view of the attractiveness of killing themselves, and a consuming interest in death and suicide. These can often occur after prolonged acts of self harm caused by an inability to control negative repetitive behaviours that lead to an all-encompassing sense of despair. 25-33 percent of successful suicides were preceded by a suicide attempt, with a pronounced differential between a preponderance of men to women. According to research, young males who have attempted suicide previously have a higher risk of attempting suicide in the future than young males who have not attempted suicide before (Garfinkel et al., 1982). Women who have attempted suicide in the past are three times more likely to try suicide in the future. According to a study, 1-6% of suicide attempters die by suicide in the first year after their attempt. Thus, the risk of suicide is mainly connected with the act of suicide rather than with the severity of the suicide attempt (Garfinkel et al., 1982). Individuals who are caught up in uncontrollable repetitive acts of self destruction are frequently over represented in these figures of death.

There is a multiplicity of variable behavioural and emotional disorders which can precipitate suicide attempts many of which may coexist within an individual case. They include depression, drug or alcohol abuse, bipolar disorder, schizophrenia, stressful life issues, post-traumatic stress disorder, a history of physical, sexual, or emotional abuse, and borderline personality disorder. The pressures of everyday life, however stressful, can normally be dealt with in due course. However, impulse control difficulties are psychiatric conditions that affect an individual's ability to control their emotions and behaviours to the extent that stressful life events are heightened so that they feel the intensity of their loss, sadness, anger and anxiety where deliberate action to end their life seems the only recourse.

The clinician may fail to recognise that a patient's inappropriate hedonic behaviour may be manifestations of a diminishing impulse control that masks the true dimensions of the patient's psychiatric distress. Complex harmful behaviour may be the outcome of an individual caught up in a problematic negative state of hedonic appetitive cravings. These characteristics have led to the description of impulse control difficulties as behavioural addictions and may co-occur within a disorder, complicating treatment or understanding of certain behaviours. Research into female eating disorders of anorexia, bulimia and binge eating reveal the intricate

interweaving of many psychiatric conditions where Impulse Control Disorder is given scant attention by the clinician (Fernández-Aranda, F., et al., 2008).

An awareness of the role that poor impulse regulation can inform a diagnosis and may result in early successful intervention. Although there is no exact definition of impulse dysregulation, there is an extensive framework (Gratz & Roemer, 2004), where impulse control is a primary factor associated with harmful and suicidal thoughts. Gratz and Roemer view emotional dysregulation as composed of many factors, including difficulties with emotional awareness, challenges in emotional clarity, inability in controlling impulses and the normalcy of using dynamic regulation strategies. Impulse control difficulties share genetic, clinical, biological, phenomenological features, although they are not entirely understood. Although lacking clear delineation, Gratz & Roemer (2004), have linked impulse dysregulation as a primary factor associated with harmful and suicidal thoughts. Detrimental repetitive behaviour is characteristic of individuals who are suffering from impulse control difficulties. Some of the qualities are diminished control over the behaviour that causes problems, repetitive engagement in a behaviour which, despite the obvious damage wrought on themselves and their family and associates, are unable to curtail their destructive impulses. In children, their ability to function properly is severely hampered if they are unable to maintain an impulse equilibrium resulting in serious disruption in the child's social, personal, family, and schooling. Children with these difficulties engage in negative actions such as stealing objects that may be superfluous to their actual needs.

Difficulties in impulse control appear to have some clinical overlap with compulsive behaviours, although this relationship has not been comprehensively explored. Some have considered the domains of compulsivity (the performance of repetitive behaviours to prevent anxiety rather than to provide pleasure) and impulsivity as lying at opposite ends of a spectrum. Impulsivity and compulsivity may co-occur within a disorder, complicating treatment or understanding of certain behaviours.

Definition of impulse control

According to Wagener (2021), the lack of impulse control is evidenced when the emotions of an individual dominate their situation so that they are in conflict with their milieu to the extent that their behaviour violates the rights of others. Estimates from the Diagnostic and Statistical Manual of Mental Disorders (DSM-MD) indicate that approximately 10.5% of the general population is vulnerable to impulse control disorder (Wagener, 2021) yet appropriate intervention is frequently denied through lack of discrete diagnosis. Wagener (2021) considers oppositional defiant disorder, conduct disorder, intermittent explosive disorder, and pyromania as conditions which reveal impulse dysregulation. The longstanding gradual dissipation of a person's feeling of self-worth by disinterested or abusive parents and caregivers pave the way for a child's future behaviour and may develop into a disregard of others' wellbeing and a lack of accountability for their actions. According to (Baer et al., 2019), a child's self worth can be damaged by parental bullying which colours their future conduct and emotions.

Impulse control constricted view

The horizons within the mind of a potential suicide risk are so restrictive and constrained that they regard the only emancipation from their insurmountable problems is to embrace ultimate self harm and to attempt suicide. A person caught up in repetitive acts of self harm becomes caught in a vortex of acts of impulsive gratification which increases their destructive powers rather than gives the relief which precipitated such actions. A sense of hopelessness becomes all encompassing and the cycle of impulse gratification becomes cyclical. This pervading sense of hopelessness is among the most popular theories on suicide ideation. That hopelessness is the result of the suicide's perception that his future is totally without any prospect of any possible future improvement. Quantifying the degree of hopelessness can help identify those at greater risk of attempted suicide according to most non-psychotic studies as studies have concluded that having a constricted view of the world as a likely risk factor in suicide attempts. (Pia et al., 2020). A sense of hopelessness can often be the result of setting unrealistic life goals where the perfectionist will fear humiliation for failing to achieve his unrealistic goals. In the Narrative-Crisis model, avoidance of humiliation is a significant determinant of suicide attempts (Pia et al., 2020). In eating disorders, a distorted view of what constitutes a perfect body shape infuses attempts to achieve it with profound despair.

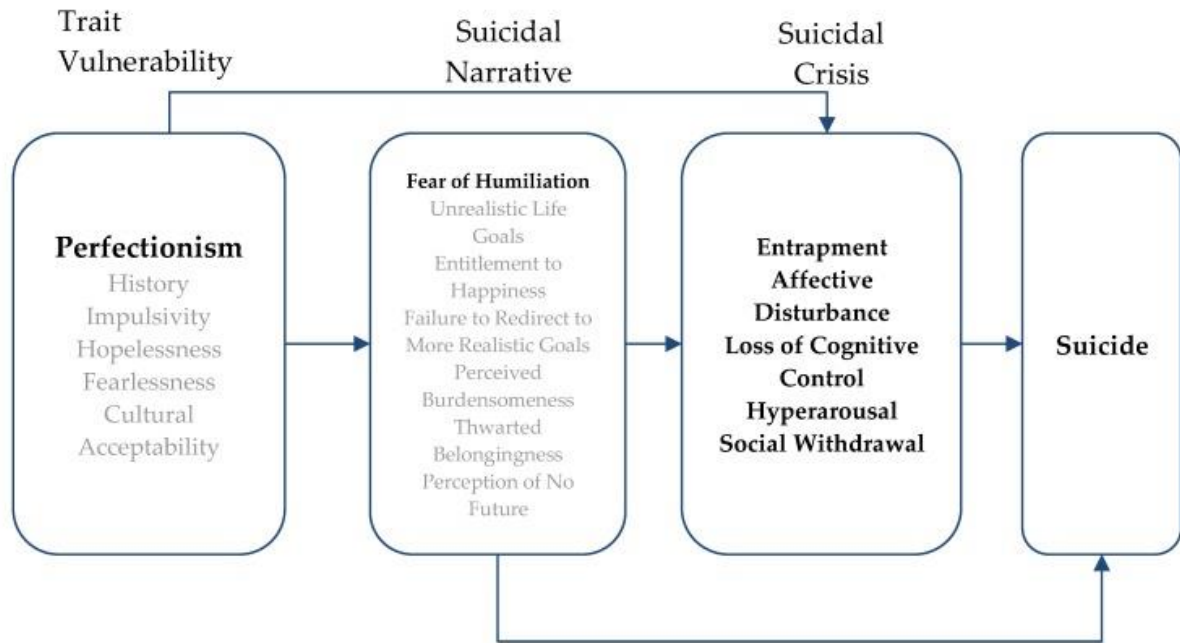


Figure 1: Narrative-Crisis Model(Pia et al., 2020)

Impulse control and personality

Some personality types are more prone to exhibit low depressive symptoms as in the case of those with those displaying low extraversion, high levels of neuroticism, and decreased levels of conscientiousness. In a study, it was established that people who tended to have high levels of agreeableness and cooperation, were less prone to suicide, while those who tended to have high rates of impulsivity, hostility, and neurotically-prone characteristic were at high risk of suicide ideation and attempts(David Batty et al., 2018). The standard demographic risk factors, that included gender, education, and marital status were factored into the study giving it a high degree of reliability and insights into suicide personality types.

Social environments that precipitate suicidal attempt

Environmental factors of cultural and ethnic backgrounds affect the degree of suicidal ideation within a population with some ethnic groups more at risk. For example, 90.5% of suicide attempts in America are from Caucasian Americans (Amitai & Apter, 2012). Nevertheless, the suicide rate for black adolescents is rapidly rising to equal that of European Americans. Adolescent boys in western countries are susceptible to pressures resulting in suicide because of high rates of antisocial disorder and substance abuse (Amitai & Apter, 2012). Depression is a key determinant in youthful suicide bids where elevated levels of depression in European girls has outstripped their rate of suicide bids compared to the lower rate of depression inspired suicide bids in boys. Being a victim of sexual abuse is a potent environmental risk propelling suicidal attempts in American teenagers.

There is an elevated chance of suicidal behaviour when there is discord between family members. Conflict between parents and children is a prime environmental factor among American youthful suicides but proportionally more so in girls than in boys (Amitai & Apter, 2012). The poor quality of a family environment is reflected in the presence of suicidal behaviour where the risk factors that predict suicidal attempts include parental psychopathology, disagreements and discords within the family, loss of a parent or family member, parental breakups or divorce parents and a family history of suicidal cases, (Amitai & Apter, 2012). However, research has indicated that suicidal behaviour may also be genetic and independent of a psychiatric disorder within a family. However, Impulsive Control Disorder can be detected in some multi generational eating disorders where several family members suffer from compulsive eating and try to rid themselves of excess food intake through induced vomiting and laxatives.

Social connections

Strong social connections and the positive interaction with a number of people have been shown to enhance the individual's sense of wellbeing and to act as a protection against suicide attempts. Positive family bonding and a favourable attitude and experience during school years provide a defence against negative suicidal thoughts. Hospital-controlled case studies have indicated that when there were scant social connections the rates of suicide attempts were high in unattached men who numbered less than 6 friends and who did not join in community endeavours or were not church members. Social support is multi faceted and provides informational (where one provides advice), emotional (showing love and care, esteem and value), instructional (providing instructional guidance on solving problems), and appraisal support (giving relevant information that will help improve self-evaluation).

Case scenario

John (an assumed name) divorced, was admitted to hospital in a nearly comatose condition having overdosed on about thirty tablets of Valium, 5mgm, and being heavily alcoholic intoxicated. His habitual excessive drinking behaviour has led him to be unemployed for the past three months. The result of being fired was increasing depression, insomnia, loss of weight, and anorexia. John indicated that he wanted to die and had been thinking of taking his life for the past one week, planning to overdose, yet lacking the courage to do so, thus, continuing to drink excessive alcohol. John was devastated that he survived his suicide bid blaming a lack of outside help and his inability to help himself. John viewed death as the only option to rid himself of his inability to control the negativity of his current life.

Method

The approach taken for this study was that of a systematic literature review. The goal was to collate articles that focused on impulsivity, suicidal attempts, and clinical interventions on suicidal attempts with the association of the two variables suicidal attempts and impulse control were studied. The study adopted the use of research questions which would help in understanding the research literature better.

Research questions

The research questions identified were:

RQ1: What is the theme/context of the study?

RQ2: What are the indicators for impulse-related suicides?

In order to fulfil RQ1, the concern was to discern the patterns/themes of the studies that have been conducted in this field in documents published from the year 2005. The central point of reference was identifying the year the article was published and the primary concern/point of the research which was conducted. The analysis method employed in reporting results in the research articles helped determine its reliability.

Concerning RQ2, the study focused on the origins of the article in order to assess its validity. The study also sought to identify the nature of each individual article in the collated studies, such as whether they were conference proceedings or research articles.

Inclusion/Exclusion Criteria

The study examined a plethora of articles from nursing and medical databases retrieved from online databases. To maintain the required quality, and inclusion/exclusion the following criteria was employed:

Inclusion criteria

The inclusion criteria were based on the following features:

- The studies focused on impulse control and the effects it might have in suicidal attempts
- The study reported a discrete relation between suicidal attempts and impulse control
- The studies were written in the English language
- The studies had been peer-reviewed
-

Exclusion criteria

The exclusion criteria were as follows:

- The article did not discretely address impulse control and suicide
- The report addressed the issue of impulse control only in general terms
- The studies have been written in other languages other than English
- The studies do not fall in the timeline that has been stated

Quality assessment

The SLR was evaluated using the Centre for Reviews and Dissemination (CDR), which was developed based on the quality assessment questions stated below:

QA1: Has the author indicated an adequate inclusion/exclusion criterion in the study?

QA2: Has the research covered all the studies done in the area of impulse control and suicidal attempts?

QA3: Was there a description of the validity and quality of the study?

QA4: Was there a fundamental description of the data in the study?

Data collection

The research used Mendeley software to save the articles used in the study. The data that were collected from each piece captured the following information:

- The source (that is, whether it was a journal paper, a conference proceeding) and the complete reference of the source
- The classification of the study that is, whether it was an SLR or a meta-analysis
- The main focus topic of the study
- The authors and their countries of origin
- A summary of the study questions that were addressed
- The quality of the evaluation of the study
- Whether the survey took an evidence-based approach
- The number of primary studies that were included in the research

The data extraction alone was not enough as there was also the need to perform a thorough analysis of the research to understand the quality and the context in which the study was done. A total of 42 articles were finally studied in the SLR. The articles' exclusion and choice followed the PRISMA criteria, whereas other articles were dismissed because they did not adhere to this study's requirements. The quality of expressing the undertaken research and reaching an incisive conclusion was taken into consideration as well as the inclusion/exclusion criteria that have been defined. The article's appearance in several databases was also a point of concern and the duplicates were excluded. Thereafter, a full-screen analysis of the article was undertaken in order to understand its relevance to the topic at hand. The most appropriate articles were selected for this study.

Data Analysis

The data was tabulated in order to capture the following diagram:

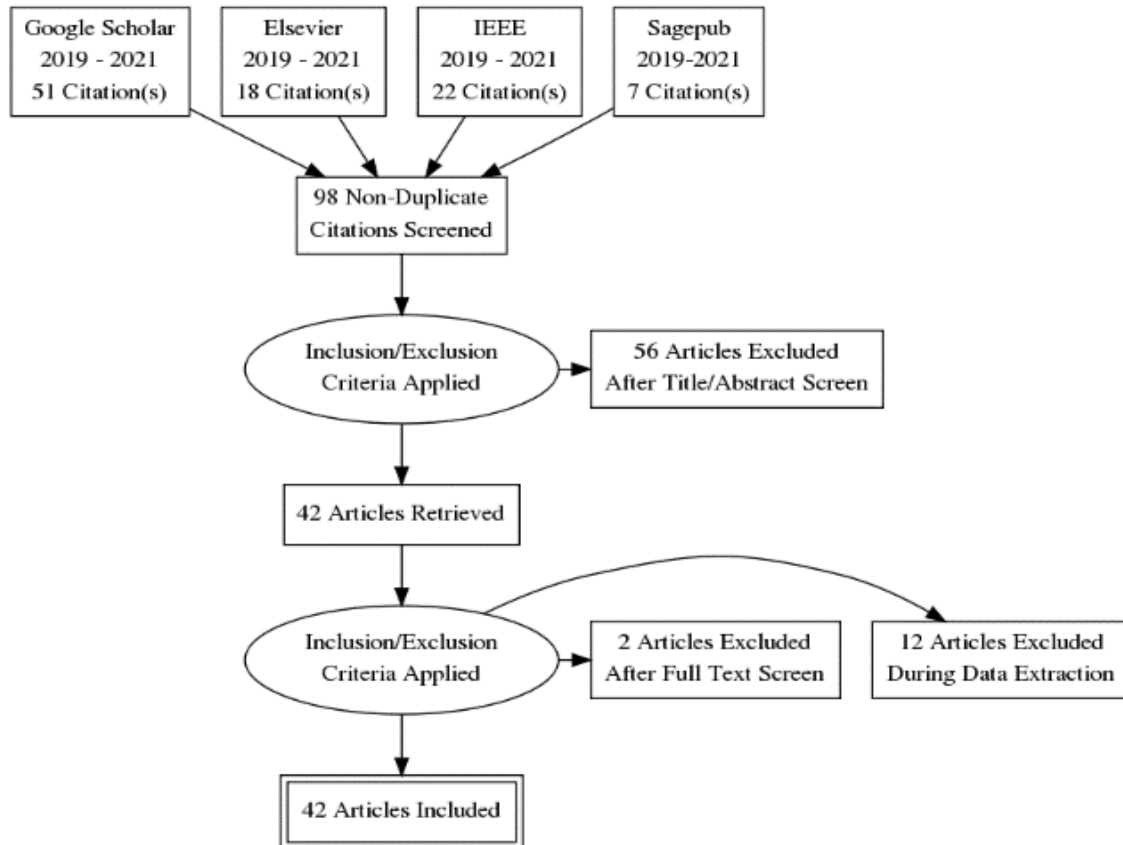


Figure 2. Tabulation

- The number of SLRs that were published per year
- The authors and their affiliated institutions.
- The quality score for each article
- The database where the report has been published

Data charting process

The included articles are presented in a tabular format that records the title, date of publication, the published journal, and the key findings. The study design, data sources that were used, and the article's theme were captured.

Table 1. Included articles

S/No 1	Author	Citation
	Agne, NA Tisott, CG Ballester, P	(Agne et al., 2020
	Title	Aim
	<i>Predictors of suicide attempt in patients with obsessive-compulsive disorder: An exploratory study</i>	The study aimed to determine the trigger factors for suicide attempts in patients.

S/No 2	Author	Citation
	Domingues-Castro, MSTorresan, RC	(Domingues-Castro et al., n.d.)
	Title	Aim
	<i>Bipolar disorder comorbidity in patients with obsessive-compulsive disorder: Prevalence and predictors</i>	The study aimed to establish the cause of suicide by investigating patients with obsessive-compulsive disorder (OCD). The research aimed at trying to establish the link between anxiety and suicide attempts

S/No 3	Author	Citation
	Fan, Siyan Lippard, Elizabeth T.C. Sankar, Anjali Wallace, Amanda Johnston, Jennifer A.Y. A.Y. Wang, Fei Pittman, Brian Spencer, Linda Oquendo, Maria A. Blumberg, Hilary P.	(Domingues-Castro et al., n.d.)
	Title	Aim
	<i>Gray and white matter differences in adolescents and young adults with prior suicide attempts across bipolar and major depressive disorders</i>	The study aimed to establish the brain circuitry that could cause suicide attempts.

S/No 4	Author	Citation
	(LYU et al., 2018)	LYU, Chun Ping PEI, Jian Ru BESELER, L. Cheryl LI, Yu Ling LI, Jian Hui REN, Ming STALLONES, Lorann REN, Shu Ping
	Title	Aim
	<i>Case-Control Study of Impulsivity, Aggression, Pesticide Exposure, and Suicide Attempts Using Pesticides among Farmers</i>	The study aimed to find the link between organophosphate in pesticides and suicide attempts. The relation between impulsivity and suicide attempt were hypothesized to be positively correlated.

S/No 5	Author	Citation
	(Pisetsky et al., 2017)	Pisetsky, Emily M. Haynos, Ann F. Lavender, Jason M. Crow, Scott J. Peterson, Carol B.
	Title	Aim
	<i>Associations between emotion regulation difficulties, eating disorder symptoms, non-suicidal self-injury, and suicide attempts in a heterogeneous eating disorder sample</i>	The study aimed to investigate the role of emotion dysregulation and eating disorder and their link to attempted suicide.

S/No 6	Author	Citation
	(Harris et al., 2018)	Harris, Lauren Chelminski, Iwona Dalrymple, Kristy Morgan, Theresa Zimmerman, Mark
	Title	Aim
	<i>Suicide attempts and emotion regulation in psychiatric outpatients</i>	The researchers sought to establish the likely link between maladaptive strategies for emotion control and suicide attempts and behaviour

S/No 7	Author	Citation
(Gili et al., 2019)		Gili, Margalida Castellví, Pere Vives, Margalida de la Torre-Luque, Alejandro Almenara, José Blasco, Maria J. Cebrià, Ana I. Gabilondo, Andrea Pérez-Ara, M ^a Angeles Lagares, Carolina Parés-Badell, Oleguer Piqueras, José A. Rodríguez-Jiménez, Tiscar Rodríguez-Marín, Jesús Soto-Sanz, Victoria Alonso, Jordi Roca, Miquel
	Title	Aim
	<i>Mental disorders as risk factors for suicidal behaviour in young people: A meta-analysis and systematic review of longitudinal studies</i>	The study aimed to establish the link between mental disorders as the leading cause of suicidal behaviour among young people and adolescents

S/No 8	Author	Citation
(Park et al., 2018)		Park, Subin Lee, Yeeun Youn, Tak Kim, Byung Soo Park, Jong Ik Kim, Haesoo Lee, Hyo Chu Hong, Jin Pyo
	Title	Aim
	<i>Association between the level of suicide risk, characteristics of suicide attempts, and mental disorders among suicide attempters</i>	The study aimed to understand the relationship between the risks of suicide attempts and mental disorders as the trigger. The aim was to establish the varying degrees of suicide attempts

S/No 9	Author	Citation
	(Tamam et al., 2017)	Lut TAMAM,1 Özlem PALTACI,1 Necla KESKİN1
Title		Aim
<i>Prevalence and characteristics of impulse control disorders in a group of medical students.</i>		The aim was to establish the suicide attempts among medical students and the sociodemographic factors that could trigger them. Impulse control disorders are highlighted as the leading causes of the suicide attempts

S/No 10	Author	Citation
	(Favril et al., 2020a)	Favril, Louis Indig, Devon Gear, Craig Wilhelm, Kay
Title		Aim
<i>Mental disorders and risk of suicide attempt in prisoners</i>		The study was to identify the mental disorders and their role in the suicide attempts of prisoners. The conduct of prison officers also established the degree of impact on the suicide process. The overrepresentation of suicide attempts in prisoners is the motivation of the research study

S/No 11	Author	Citation
	(Baer et al., 2018b)	Baer, Margaret M. LaCroix, Jessica M. Browne, Joy C. Hassen, Helena O. Perera, Kanchana U. Soumoff, Alyssa Weaver, Jennifer Ghahramanlou-Holloway, Marjan
	Title	Aim
	<i>Impulse control difficulties while distressed: A facet of emotion dysregulation links to Non-Suicidal Self-Injury among psychiatric inpatients at military treatment facilities</i>	The study sought to understand the role of suicide ideation and what factors lead to their development within the United States military officers. The study sought to understand the impulse control difficulties when emotional controls are hard to manage

S/No 12	Author	Citation
	(Mohan et al., 2017)	Mohan, Titus Dolan, Sarah Mohan, Riche Dawson, Jessica
	Title	Aim
	<i>Aripiprazole and impulse-control disorders in high-risk patients</i>	The study sought to establish the association between the prescription of Aripiprazole and mental disorders.

S/No 13	Author	Citation
(Zelazny et al., 2019)		Zelazny, Jamie Melhem, Nadine Porta, Giovanna Biernesser, Candice Keilp, John G Mann, J John Oquendo, Maria A Stanley, Barbara Brent, David A
	Title	Aim
	<i>Childhood maltreatment, neuropsychological function, and suicidal behaviour</i>	The rise of suicide deaths in young people was the focus for this study. There has been a link between childhood maltreatment, psychopathology, and neuropsychological and suicide attempts in young people

S/No 14	Author	Citation
(Zheng et al., 2020)		Zheng, Le Wang, Oliver Hao, Shiyang Ye, Chengyin Liu, Modi Xia, Minjie Sabo, Alex N. Markovic, Liliana Stearns, Frank Kanov, Laura Sylvester, Karl G. Widen, Eric McElhinney, Doff B. Zhang, Wei Liao, Jiayu Ling, Xuefeng B.
	Title	Aim
	<i>Development of an early-warning system for high-risk patients for suicide attempts using deep learning and electronic health records</i>	The study is in the form of a system that sought to build an early warning system for identifying those vulnerable to suicide attempts. The research used advanced

	machine learning algorithms to establish the high-risk suicide attempts
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S/No 15	Author	Citation
	(Hatkevich et al., 2019)	Hatkevich, Claire Penner, Francesca Sharp, Carla
	Title	Aim
	<i>Difficulties in emotion regulation and suicide ideation and attempt in adolescent inpatients</i>	The purpose of the study was to establish the six dimensions of emotional dysregulation and their association with suicide attempts

S/No 16	Author	Citation
	(Wolff et al., 2019)	Wolff, Jennifer C. Thompson, Elizabeth Thomas, Sarah A. Nesi, Jacqueline Bettis, Alexandra H. Ransford, Briana Scopelliti, Katie Frazier, Elisabeth A. Liu, Richard T.
	Title	Aim
	<i>Emotion dysregulation and non-suicidal self-injury: A systematic review and meta-analysis</i>	The study aimed to establish the link between low emotional regulation and non-suicidal self-injury

S/No 17	Author	Citation
	(Mallorquí-Bagué et al., 2018)	Mallorquí-Bagué, Núria Mena-Moreno, Teresa Granero, Roser Vintró-Alcaraz, Cristina Sánchez-González, Jéssica Fernández-Aranda, Fernando Del Pino-Gutiérrez, Amparo Mestre-Bach, Gemma Aymamí, Neus Gómez-Peña, Mónica Menchón, José M. Jiménez-Murcia, Susana
	Title	Aim
	<i>Suicidal ideation and history of suicide attempts in treatment-seeking patients with gambling disorder: The role of emotion dysregulation and high trait impulsivity</i>	. The study sought to establish the link between gambling disorder and suicide attempts. These links have been understudied

S/No 18	Author	Citation
	(Wang et al., 2020)	Wang, Huan Zhu, Rongxin Dai, Zhongpeng Tian, Shui Shao, Junneng Wang, Xinyi Sun, Yurong Chen, Zhilu Li, Xuesong Yao, Zhijian Lu, Qing
	Title	Aim
	<i>Aberrant functional connectivity and graph properties in bipolar II disorder with suicide attempts</i>	The study sought to explore the link between the psychological mechanism of Bipolar II and suicide attempts in patients

S/No 19	Author	Citation
	(Simons et al., 2019)	Simons, Kelsey Van Orden, Kimberly Conner, Kenneth R. Bagge, Courtney
	Title	Aim
	<i>Age Differences in Suicide Risk Screening and Management Before Suicide Attempts</i>	The study seeks to establish the differences by age in patients who were screened as suicide risks who visit Veterans Health Administration

S/No 20	Author	Citation
	(Chen & Chun, 2019)	Chen, Wan Lan Chun, Chin Cha
	Title	Aim
	<i>Association between Emotion Dysregulation and Distinct Groups of Non-Suicidal Self-Injury in Taiwanese Female Adolescents</i>	The study sought to validate previous research showing that female adolescents are likely to engage in non-suicidal self-injury to regulate their emotions and link any identified factors

S/No 21	Author	Citation
	(Baer et al., 2019)	Baer, Margaret M. LaCroix, Jessica M. Browne, Joy C. Hassen, Helena O. Perera, Kanchana U. Weaver, Jennifer Soumoff, Alyssa Ghahramanlou-Holloway, Marjan
	Title	Aim
	<i>Lack of Emotional Awareness is Associated with Thwarted Belongingness and Acquired Capability for Suicide in a Military Psychiatric Inpatient Sample</i>	The study sought to understand the role emotional awareness and the ways in which it contributes in controlling the likelihood of suicide attempts

S/No 22	Author	Citation
	(Gvion, 2018)	Gvion, Yari
	Title	Aim
	<i>Aggression, impulsivity, and their predictive value on medical lethality of suicide attempts: A follow-up study on hospitalized patients</i>	The study aimed to discover the role of impulsivity and aggression in the likelihood of attempted suicide

S/No 23	Author	Citation
	(Sánchez-Teruel et al., 2018)	Sánchez-Teruel, David Muela-Martínez, José Antonio González-Cabrera, Manuel Fernández-Amela, Herrera María Remedios García-León, Ana
	Title	Aim
	<i>Variables related to a suicide attempt in a Spanish province over three years (2009-2011)</i>	The study sought to know the variables associated with suicide attempts in the Spanish province. Impulse control in suicide attempts was clearly shown to be a decisive factor

S/No 24	Author	Citation
	(Bagge et al., 2017)	Bagge, Courtney L. Littlefield, Andrew K. Glenn, Catherine R.
	Title	Aim
	<i>Trajectories of Affective Response as Warning Signs for Suicide Attempts: An Examination of the 48 Hours Before a Recent Suicide Attempt</i>	The study sought to establish the leading signs of suicide attempts within 48 hours before the suicide attempt. The aim was to reveal whether any differences exist between the groups of victims

Synthesis of results

This section includes a summary of the primary studies that were undertaken and contains brief details about the articles that were studied. The systematic literature review was synthesized into three themes. The three themes include the *impact of mental disorders on suicide attempts*, *the role of impulse control on suicide risk*, and *warning signs for suicide attempt likelihood*.

Selected primary studies

A total of 42 articles were selected to be included in the study indicating the approaches that were undertaken to understand correlations between impulse control and suicidal attempts. 98 articles were selected for study from Google Scholar, Elsevier, and Sagepub. In the search process, the words “impulse control”, “suicidal attempts”, “suicide”, “impulse” with the use of logical words like AND/OR to be able to get to acquire the necessary material.

Data sources and search strategies

The study and research strategy used PRISMA guideline where articles from different databases were sought. To obtain the most recent articles, Google Scholar, Springer, and Nursing databases were used.

Themes selected from the study

Three themes were identified in the articles. They include:

1. Impact of mental disorders on suicide attempts,
2. The role of impulse control on suicide risk,
3. Warning signs for suicide attempt likelihood.

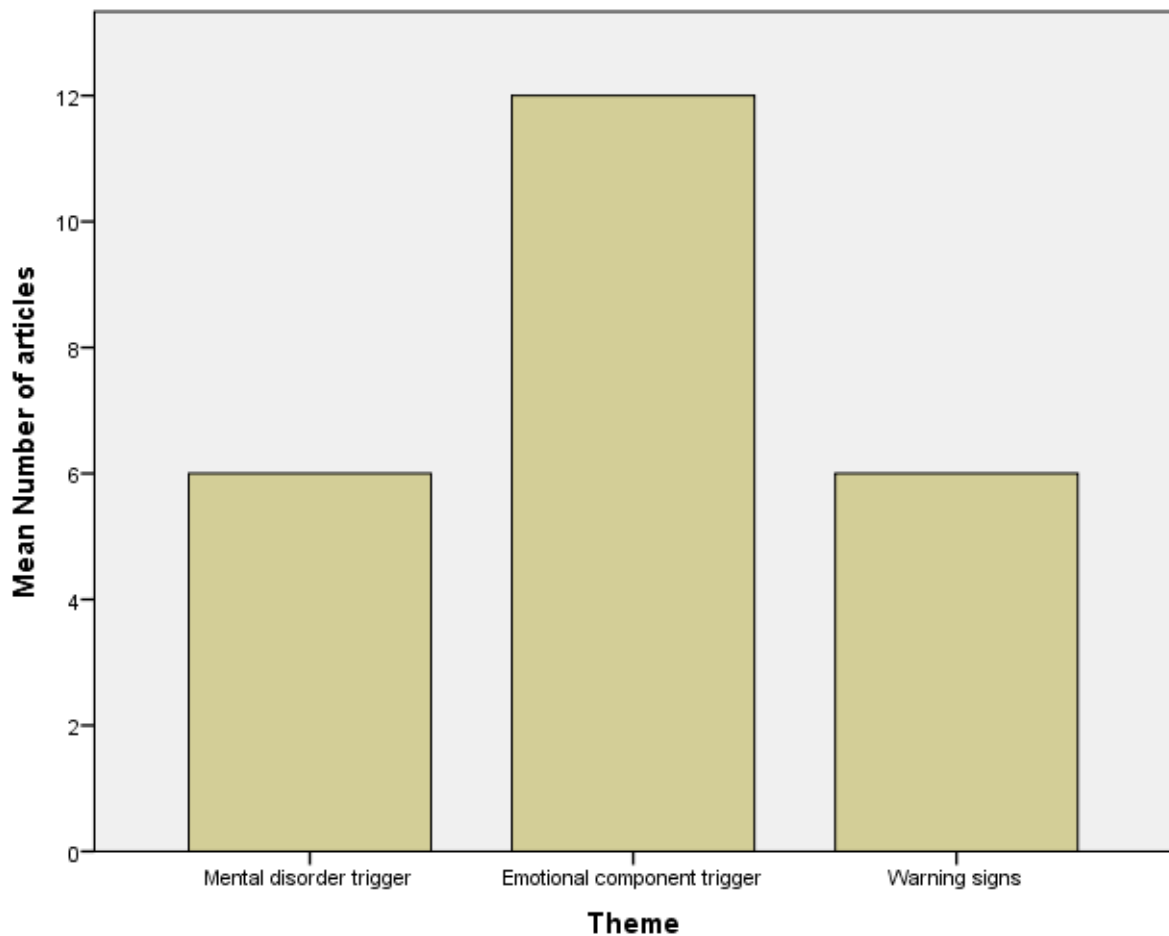


Figure 3. *The three themes identified*

Role of mental disorders on suicide attempts

Several articles identified the impact of mental disorders in triggering suicide attempts. The study by Domingues-Castro *et al.* (2020) illustrates the effects of mental disorders in prompting suicide attempts. The specific mental disorder studied was obsessive-compulsive disorder. Other articles also point to the role of mental disorders in impacting on the likelihood of suicide attempts (Domingues-Castro *et al.*, n.d.; Favril *et al.*, 2020b; Gili *et al.*, 2019; Wang *et al.*, 2020).

Impulse control on suicide attempts

Several articles demonstrate the role of impulse control and emotional control influencing the likelihood of suicide attempts. Dynamic control has an essential role in affecting suicide attempts in an individual. The articles point to impulsivity, aggression, emotion regulations as the most potent triggers to suicide attempts.

Warning systems

Several articles advocated the need to develop warning systems for critical stakeholders. (Bagge et al., 2017; Mohan et al., 2017; Simons et al., 2019; Zelazny et al., 2019; Zheng et al., 2020). These articles reveal the important role of recognising warning signs. The suggestion of using machine learning algorithms to identify risky patients was highlighted by Zheng et al. (2020) using the latest techniques in technology in order to reduce the likelihood of attempted suicides.

Strengths and limitations

One of the study's limitations is a reliance on recent articles from the year 2005 onwards with alterations if articles from different periods were to be included. Another limitation is that articles have been retrieved from popular online databases. Inclusion of articles from other databases may be beneficial.

Recommendations

The findings from reviewing recent literary links between impulse control difficulties and suicide attempts strongly indicate that there is an urgent need to implement all the available preventative strategies through therapy or medication, appropriate to the nature of the mental issues or conditions. The expression of an interest in death and of committing suicide are recognised early warning signs of suicidal intentions. The overwhelming regularity of impulse dysregulation coexisting within a wide spectrum of diverse suicidal conditions indicates a drastic need for the clinician to identify its hidden destructive power within his cases. Little attention has been devoted in determining the point when the lack of impulse control negatively affects moods, behaviours and creates suicidal ideations. In the hypothetical case history in this review, John has lost his job through his excessive alcohol consumption and his desperation is reinforced by his views that he cannot help himself or that no one is willing to help him, and have placed him firmly on the pathway to self-destruction. Clinicians must be alert to the notion that uncontrolled impulses might be the precipitators in compulsive over indulgence of alcohol,

substance abuse, binge eating and related negative compulsive behaviour. The lack of impulse control may be the cause rather than a symptom thereby complicating treatment and, at best, achieving only partial recovery especially if it involves an element of self-maintained action from the patient, something which their lack of impulse control prevents them from ever achieving. Clinicians must therefore look afresh at their case notes on patients inclined to self-destruction for discrete evidence of early impulse dysregulation and to investigate its possibility if there is not yet a substantive record of it when suicide ideation does not respond positively to treatment. The task is enormous because impulse dysregulation has been observed as a comorbidity in suicidal patients suffering from depression, drug, food or alcohol abuse, bipolar disorder, schizophrenia, stressful life issues, post-traumatic stress disorder, history of physical, sexual, or emotional abuse, and borderline personality to name but a few mental conditions. Patients who are the victims of mood disorders and depression are especially vulnerable to their lack of impulse control being overlooked and openly recognised as the probable trigger. Additionally, the clinician must take into account whether a suicidal point has been reached because of a relatively new state of societal isolation perhaps through divorce, job loss, financial difficulties or moving from home into a new environment and experiencing a dearth of support from family or friends. The world is into its third year of the Covid pandemic with governmental restrictions on social interchanges and a trend towards working from home thereby denying the customary social interaction with its support mechanism. Added to the mix, is the ever presence of school aged children in the home placing both parents and children in unexpected constant proximity to each other emphasising existing conflicts and, indeed, perhaps creating them. Largely educated through remote learning and denied supportive social interaction with their age cohorts, the child is left to look inwards with no modifying peer influence to counteract any self-indulgent destructive behaviour, thus increasing vulnerability to compensatory unchecked impulsive behaviour. A sharp rise in alcoholism through stay at home Covid restrictions with a commensurate increase in domestic violence are breeding grounds for the rapid development of stress related mental issues. Clinicians therefore, must be mindful of the ways in which unregulated impulse control can be disguised among a plethora of symptoms in the time bomb of Covid initiated mental illness waiting to explode on the mental health horizon. Without the consideration that impulse dysregulation may be the root cause, and not a mere adjunct among undifferentiated symptoms, suicide ideation may result in what might have been a preventable loss of life.

Conclusion

The goal of this literature review is to make the considerably neglected role that Impulse Dysregulation plays in suicide ideation more reachable to the concerned clinician seeking alternative solutions in cases that have been found not wholly responsive to currently employed therapies. Indeed, its role might have been entirely overlooked and this review might provide an easily digestible introduction to solving the complexities of cases with multiple comorbidities. Tabulating the most accessible relevant current literature will hopefully encourage clinicians to explore its role in cases that might have been regarded as wholly behavioural conditions. Much is reliant on the clinician clearly identifying Impulse Control Disorder especially in multi factorial presentations. Without proper recognition of the presence of impulse dysregulation, appropriate complete remediation cannot take place especially when one of the strategies employed might be of a self-help nature. Without a full knowledge of its contribution, treatment can only be partial and ultimately ineffective in achieving the goal of preventing suicides. Thus, awareness of the part that impulse dysregulation plays in suicidal attempts must be promoted more vigorously among clinicians. It is hoped that this review of extant literature of the links between impulse dysregulation will encourage clinicians to explore its importance in hitherto unsuccessful remediation. With wider exposure to the role that Impulse Dysregulation plays in exacerbating, or indeed creating, suicidal ideation, a patient may be brought back from the brink of ultimate self-destruction.

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