Research Paper

Effectiveness of the Impulse Regulation Tool on Young Adults- A Pilot Study

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ABSTRACT

Objective: Impulsive-driven individuals find it very difficult to maintain self-regulation and often tend to give in to the impulses which may even cause psycho-social impairment. The aim of the present work is to verify the effectiveness of an Impulse Regulation Tool on impulsivity of young adults. *Method:* In the present one group pretest-posttest study, the Impulse Regulation Tool is the independent variable, trait impulsivity is the dependent variable and it is conducted on young adults ranging from 18 to 30 years of age. UPPS-P was administered to check trait impulsivity of the sample in pretest and posttest administration. Paired samples t-test was conducted on SPSSv.20 for Windows, to check the difference between the means of pretest and posttest trait impulsivity. *Results:* T-scores confirm a significant difference between the mean impulsivity scores, pre-administration and post-administration, at P 0.000. The mean of the posttest administration is much lower than that of the pre-test thus highlighting the effectiveness of the tool. *Conclusion:* Analysing the results, it can the concluded that the impulse regulation tool is effective for the young adult sample in the study.

Keywords: Impulse Control, Impulsivity, Impulse Control Disorders, Young Adults, Impulse Dysregulation

Impulsivity has been studied and categorized into various conceptual perspectives that have played an important role in understanding psychopathology. The definition of impulsivity as per the American Psychological Association (2013) is describing or displaying behaviour characterized by little or no forethought, reflection, or consideration of the consequences of an action, particularly one that involves taking risks. From this definition alone it is evident that impulsivity is implemented in action which results from a range of disputes in self-control and self-regulation. The multifaceted nature of impulsivity of humans and rats through experiments show that impulsivity consists of a 'choice' component and an

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'action' component (Broos et al., 2012). This explains that impulsivity may also be as complex as a personality trait.

Impulsivity refers to an activity provoked by the assessment of an observed or imagined object, event, or situation of the world as pleasant or unpleasant, good or harmful, and which is likely to influence that object, event, or state of the world (Frijda, Ridderinkhof and Rietveld, 2014). The assessment creates a condition of preparedness for the agent to establish, modify, maintain, or terminate his or her relationship with the item, event, or state of the world in question. This readiness may then prompt an action to achieve the agent's goal. Since these actions are not preceded by deliberation or the mental representation of any goal, they are labelled "impulsive." From a biological and cognitive standpoint, impulsivity is defined as the inability to control a potentially dangerous impulse for the individual or people around them (Chamberlain and Sahakian, 2007). This impulsive expression can damage interpersonal relationships, work reputation and to extent can endanger their physical health as observed in cases of addiction (Naser et al., 2016), impulsive sexual behaviour (Walton et al., 2017), binge eating (Mitchell, 2015) finally leading to severe stress (Leppink et al., 2016). Barratt (1994) classified impulse as having three components: motor (activity without contemplating), cognitive (rapid cognitive decision-making), and non-planning (a decrease in future orientation).

The definition of self-control states that it is an ability to supersede or alter one's internal responses while disrupting impulsive tendencies to finally abstain from acting upon the same (Hofmann et al., 2014). Recent research on trait self-control reveals stronger relation to involuntary behaviours such as developing practices or habits than voluntary control of actions (De Ridder et al., 2012). Studies on self-regulation and high trait self-control have proven that by utilizing facts about the issues coming forth with tempting situations one can make choices of avoiding the situations wholly (Ent, Baumeister and Tice, 2015).

The reason why self-control is important to understand impulsive behaviour is because several psychopathologies have their roots in the incapacity to control the thought content as well as its frequency (American Psychiatric Association, 2013) which is a core dynamic in impulsivity. Experimental findings have established that positive self-regulation is dependent on the capacity to impulses that are maladaptive with one's goals (Hofmann, Schmeichel, & Baddeley, 2012). To purposefully subdue any automated response before leading to a desired response is the ability termed as response inhibition (Snyder, Miyake, & Hankin, 2015). The aforementioned finding in addition to the significant negative correlation between self-control and impulsivity (Mao et al., 2013) makes it clear how individuals high on impulsivity trait possess low self-control which in-turn calls for effortful controlling or inhibition of maladaptive impulses. This is considered to be a difficult task but this effortful self-control or inhibition of problem responses has permitted positive consequences through the practice of healthy habits, furthermore enhancing long-term improvements (Galla and Duckworth, 2015)

Impulsive activity is associated to the psycho-physiological developmental phase of early adulthood. Cortical variations have been observed in healthy young individuals dominated by impulsive engagement (Kuber et al., 2018). Odlaug and his colleagues (2014) confirmed structural changes in the lingual gyrus as the vulnerability markers of impulsive act of trichotillomania in young adults. The lingual gyrus being responsible for perception of emotions when subjected to structural changes, can lead to impaired cognitive inhibitory control in difficult social circumstances along with increase in impulsive behaviour and susceptibility to emotional crisis (Giakoumatos et al., 2013).

Gambling and impulse dyscontrol are two dissociable kinds of impulsivity that are linked to obesity in young individuals (Chamberlain et al., 2015). Early-life obesity is associated with neuropsychological abnormalities in impulsivity that may be vulnerability markers rather than long-term negative metabolic impacts on cognition. In a study by Reynold and colleagues (2019), multiple regression models showed a strong correlation between executive function and taking risks. In keeping with earlier study, executive function explained a greater proportion of variation in risky behaviours than self-reported impulsivity, but this was mediated by an aspect of executive function. Decision making under uncertainty appeared to better explain antisocial behaviour, but perseverance was more strongly associated with sexual behaviour and drug abuse. According to these findings, young adults who are healthy are more likely to engage in risky and potentially dangerous behaviours. Empirically generated impulsivity components are linked to genes and gene regulatory networks. Impulsive tendencies and behaviours are associated with gene networks that have previously been linked to immunological response, neurotransmission, and brain development (Khadka et. al, 2014).

Kumar et al. (2021), have shown in a study that verbal hostility and aggression were favourably connected with intent, whereas impulsivity and non-planning were negatively correlated with intent in young adults from a state in India. Aside from that, the findings of the regression analysis show that hostility and reduced motor impulsivity are important indicators of suicidal intent (Menon et al., 2015). The association between impulsivity and suicidal conduct has been supported by empirical research in both psychiatric and non-psychiatric populations (Giegling et al., 2009; Dougherty et al. 2004).

With regard to risky sexual conduct, impulsivity is a personality-based risk factor that has received much research. These characteristics have been linked to risky sexual conduct in samples of adolescents and college students, according to earlier studies. (Curry et. al, 2018).

Kleptomania is another impulse control disorder behaviour that is characterized by compulsive stealing of objects, usually starts between the ages of 16 and 20 years (Grant et al., 2009a) Pyromania or deliberate and purposeful fire-setting, is linked to a high rate of mental comorbidity throughout time, including emotional (14 - 61.9%), anxiety (33.3%), drug use (33.3%), and impulse control (66.7%) problems (Grant, 2008).

Antisocial behaviour has also been attributed to latent impulsive personality traits and sensation-seeking behaviour in adolescents and young adults (Mann et al., 2017). Several personality problems like the borderline personality disorder (Sebastian et al., 2013), antisocial personality and histrionic personality are all characterized by emotion dysregulation and impulsivity.

Impulsivity may be seen as two categories, one the state impulsivity and the other is the trait impulsivity which is much more complex and intrinsic to the individual's personality (Robbins, Gillan, Smith, de Wit, & Ersche, 2012). The personality trait approach to Impulsivity essentially portrays it as a drive or impulse dis-inhibition in addition to lowered conscientiousness which is assessed by self-report questionnaires like the Eysenck Impulsivity Questionnaire (Eysenck et al., 1993) and the Barratt Impulsivity Scale (BIS-11, Barratt et al., 2001). The newest questionnaire by Whiteside and Lynam (2001), UPPS-P identifies four components. These include (1) a lack of planning, (2) a need for sensation, (3) a lack of tenacity, and (4) a sense of haste. The most popular conceptualization of impulsivity is lack of premeditation, which reflects a failure to think or plan before acting and is well captured by the majority of self-report measures of impulsivity. Failure to maintain attention or effort

during tasks is reflected by a lack of perseverance. Finally, in emotional situations, urgency alludes to a proclivity forimpulsive or unpleasant behaviour. The domain of urgency can possibly be divided into two different domains: negative and positive urgency. The negative urgency domain, which occurs when people are experiencing negative or aversive emotions, is distinct from other aspects of impulsivity since it is linked to the personality trait neuroticism. About 17% of the general young adult population rate high on the impulsivity trait measures (Chamorro et al., 2012). The current study explores trait impulsivity in the young adult population.

A psychological intervention may be explained as the usage of an array of methods by a therapist to bring any change or alteration of behaviour, or expression of the personality of the any individual. These methods do not directly involve psychotropic drugs or pharmacological interferences, but is mostly used singularly or in combination of psychiatric medicines depending upon the condition of the client. Impulsivity, when takes a clinical form, is treated with psychopharmacological treatments along with psychological interventions as the problems arising in context to the trait is of high intensity and needs instantaneous solutions. Psychopharmacological treatment methods have found that anti-convulsant medications benefit individuals displaying impulsive aggression, interpersonal functioning and unstable affective conditions, especially topiramate (Ripoll, 2013).

Psychotherapeutic methods like the DBT or dialectical behaviour therapy has shown great improvements in management of risky impulsive behaviour like suicidal intentions, self-harm, drug dependence as associated symptoms of borderline personality disorder. DBT works by educating clients and guiding them to develop distress tolerance, mindfulness, emotion regulation and interpersonal effectiveness skills essentially to target impulsive tendencies (May & Richardi, 2016). Mindfulness training is effective in delaying immediate gratification of urges that seek rewards of maligned nature, indicating reduced impulsivity. It improves time perception or the subjective awareness of time, which is generally overestimated by impulsive personality leading them to gratify their urges instantly (Soler et al., 2016).

Effective self-control and self-regulation skills have also been deemed as a beneficial way to manage impulse control issues. Self-control is an essential quality to for optimal performance in everyday life, to achieve greater success and refrain from risky impulsive behaviours (Sosa et al., 2019). Techniques to develop self-control may either be taught by a therapist directly or practiced as a self-monitoring task during the therapeutic phase. Self-monitoring may be practiced by the client through handouts provided by the therapist as a part of their homework and holistic development.

Impulse Control Disorders are based on the difficulty or the inability to regulate ones' desires. This is turn disrupts their daily functioning and creates immense guilt and distress after the impulse activity is over.These two factors are two major determinants contributing to the need for impulse control intervention. In this empirical study an impulse control tool has been constructed comprising of some structured instructions and information regarding impulse control. The aim of the research is to find the effect of this impulse regulation tool on the level of impulse in an individual.

METHODOLOGY

The aim of this quasi-experimental study is to observe the effect of Impulse Regulation Tool on young adults having difficulty in controlling their impulse.

Objectives:
- The objective of the experimental work is to find out the level of impulsivity among the age range of 18 to 30 years (males and females).
- To compute the effect of the Impulse Regulation Tool on level of impulsivity in participants having severe impulse control issues.

Hypothesis
There is significant difference on implication of Impulse Regulation Tool on the levels of impulsivity of young adults.

Procedure
In this quasi-experimental design, the one group pretest-posttest method has been followed to observe any significant changes in the impulsivity of the participants after implementation of the impulse control tool. Purposive sampling technique was followed to collect the sample for the experiment. A consent was signed by from all the participants before participating in the research. They were informed about the research purpose and all ethicalities were maintained. Data was collected from 136 individuals from which, 49 individuals fit the criterion for impulsive behaviour (Mean > 2.5) as per the UPPS-P. The sample was then handed over the Impulse regulation Tool for 30 days and were kept in contact with a co-researcher to confirm their regular usage of the tool. After a span of 15 days the sample was again tested on the UPPS-P for the post-test examination. The data was tabulated and statistically verified using the SPSS 20 for windows software. Paired Samples t-test was used to verify the difference between the pretest and posttest mean impulsivity as the present work is a pilot study. Interpretation and conclusion have been drawn according to the results.

Sample
The sample ranges from age 18 to 30 years consisting of both males and females from India. The sample consists of undergraduates, graduates and working professionals. 35 out of the 49 individuals were in their post graduate studies with an average age of 23. Healthy individuals within the specified age range were included. Individuals scoring low on trait impulsivity were excluded from the study.

Instrumentation
<u>**UPPS-P:**</u> The instrument chosen to measure impulsivity of the sample is UPPS-P, a 59 item Likert-Type scale that provides assessment of impulsive behaviour on five traits: Sensation seeking, lack of premeditation, lack of perseverance, positive and negative urgency. The UPPS scale was initially created by Whiteside and Lynam (2001) to provide agreement on the features that are examined across many impulsivity assessments that are already in use. The measure was developed through a factor analysis of pre-existing self-report scales measuring a variety of impulsive personality traits. The four factors- Sensation Seeking indicates the propensity to seek stimulation through novel experiences; Negative urgency is the propensity to make quick decisions when feeling very bad, Lack of Premeditation indicating at propensity towards acting impulsively and Lack of Perseverance indicates the inability to maintain focus on the task at hand. Positive Urgency (Cyders et al., 2007) was incorporated as an additional trait that brings about impulsive behaviour under heightened positive affect.

Later, several studies through confirmatory factor analyses have established adequate fit indices of the five correlated factors model as proposed by the UPPS-P impulse behaviour scale (Pinto et al., 2021). Internal consistency of the total scale has been revealed to be strong (0.93). Subscales were found to have adequate internal consistency as per the values of 0.86

for Negative Urgency, 0.79 for Lack of Premeditation, 0.82 for Lack of Perseverance, 0.89 for Sensation Seeking and 0.91 for Positive Urgency (McCredie et al, 2021).

Description of the Impulse Regulation Tool

The present study utilized an Impulse Regulation Tool that allows one to regulate their own impulsive decisions and actions by calculating the intensity of the effects produced in manifesting them. The tool initially instructs to summarize or choose 5 most potent impulsive acts or behaviour that has been interfering with the individual's adjustment. The individual shall score both the positive and harmful effects of these impulsive actions/behaviours on a scale of 1 - 10 where 1 indicates minimum pleasurable and 10 stands for maximum pleasurable. After subjective assignment of scores, the candidate is supposed to weigh the total of positive effects and negative effects of the impulsive act and consider to choose whether the act shall be carried out or not. If the scores of both the contingencies are similar, then the candidate is instructed to postpone the action for a span of 24 hours. The tool further suggests to substitute the positive effects of the impulsive behaviour with another pleasure activity that shall not feature the negative or harmful aspects of the behaviour at hand. Certain immediate distress tolerance skills have also been incorporated in the tool for the candidate to deal with the overpowering emotions accompanying the impulse.

The tool engages the client with emphasis on impulsive behaviour by weighing the consequences resulting in self-monitoring their present thoughts, actions and desires.

RESULTS

Table 1: Mean, S.D., t-score and level of significance for impulsivity scores in pretest and posttest phase of the study.

	N	Mean	Standard Deviation S.D.	t-score	Level of Significance
PRETEST	49	156.63	8.65		
POST-TEST	49	130.45	8.98	20.494	.000

Figure 1: Graphical representation of Mean and S.D. of impulsivity in the pretest and posttest phase.

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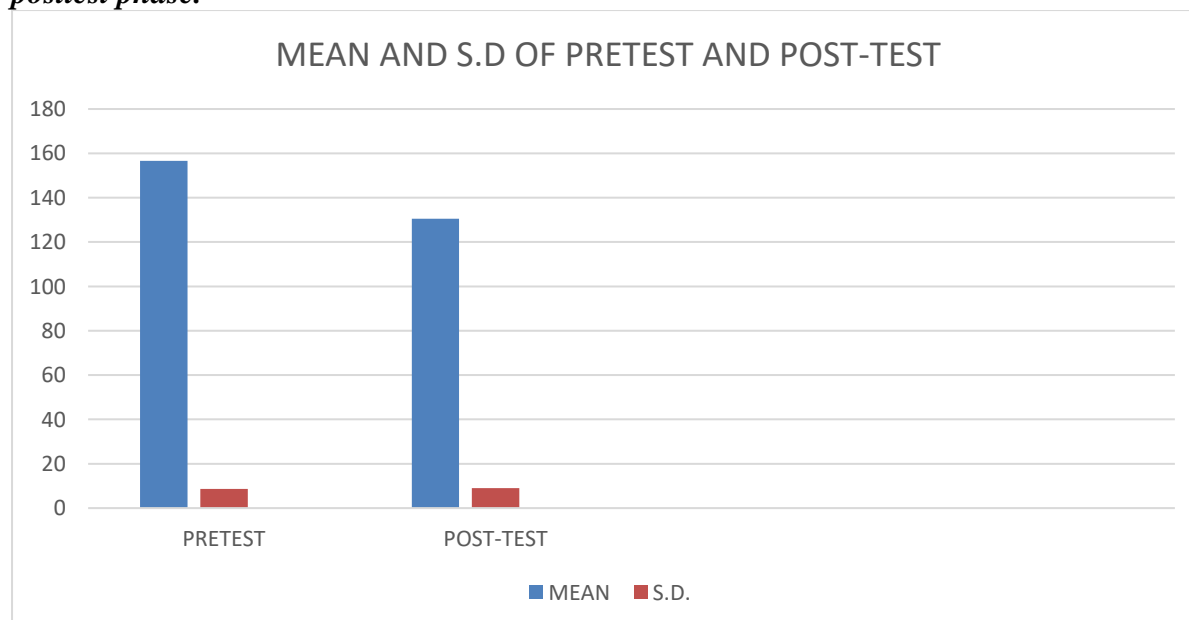
The Statistical computation by the SPSS software revealed that the mean impulsivity raw score of the young adult sample was found to be 156.63 and 8.65 as the S.D. as measured by the UPPS-P indicating high impulsivity trait in the study sample. After implementation of the treatment that is the original Impulse Regulation Tool, the mean impulsivity raw score was found to be 130.45 as measured by the UPPS-P and a S.D. of 8.98. This post-test scores indicate reduced trait impulsivity of the sample after administration of the aforementioned treatment tool. A raw score of 130.45 indicates low impulsivity which would manifest as very rare due to the absence of impulsive actions and decisions with a significant amount of self-control for improved functioning of any individual. The paired samples t-test score of 20.494 at P 0.000, emphasizes a highly significant difference between the pre-test and post-test phase of the experiment confirming the hypothesis that there is a significant difference on implication of Impulse Control Tool on levels of impulsivity of young adults.

DISCUSSION

In the present study, about 36% (n=49) of the explored young adult population (136) was found to be rating high on impulsive trait as measured by the UPPS-P. High impulsivity may be expressed in addictive or compulsive behaviors like substance dependence, hypersexuality, aggressive acts of violence (physically or verbally abusing others) or even suicidal tendencies as per the explored literature. Early adulthood becomes of extreme importance as it brings in a sense of independence owing to reduced parental influence and authority. Exposure to impulsive company, environments and substances is easy due to the freedom of adult lifestyle. This crucial period is also governed by developing pre-frontal cortex (till the age of 25 years, Arain et al., (2019)) making the young adult brain susceptible to abnormal development in the face of various experiences (Kolb et al., 2012). This further aggravates the chances of high impulsivity traits accompanied with a major lack in self-control. Additionally young people experience a multitude of stressors all by themselves, like, academic, job-related stressors, adulthood and responsibilities, health, changing relationships, marriage etc. This significant percentage of impulsivity in the studied sample may be attributed to the extensive stressors predominating a young adult's life as the sample was mostly comprises of graduate students and new working professionals. Prolonged contact with these stressors, at an increasing intensity, along with the independence of adulthood, stealthily affects well-being and self-control, further permitting indulgence in impulsive activities. The review of literature for the present study have made it evident that a lack of self-control is present in people engaging in impulsive behavior or with an impulse driven personality.

Adults having an impulse driven personality are found having multiple sexual relationships, frequent job shifting, abusing on substances, making sudden decision without considering the consequences. The same characteristics can be reduced with improvement in self-control, that may be developed through self-monitoring.

To enhance self-control in the present impulsive sample, the study utilized a self-monitoring tool which focusses on regulating potent impulses. Results revealed reduced impulsivity after self-implementation of the Impulse regulation Tool, indicating at the efficacy of the original treatment tool. Walton's (2014) depiction of a "wise intervention" state that treatment tools or instruments should be constructed with an established theory and target. Keeping this statement in mind the Impulse Regulation Tool implemented in the study has been designed to target impulse control by developing self-control through self-monitoring of decisions, thoughts, actions and choices. By consciously weighing the positive and negative consequences of powerful impulses, that interfere with a person's holistic efficiency, an awareness is reached. This awareness allows the individual to analyze their desires and urges

and also develop alternative suitable methods that can help them gratify those urges without leaving any negative consequence. Adults dominated by impulsivity, have difficulty in response inhibition as per the existing literature. The treatment method used in this study, leads to gradual deletion of the automated response by replacing them with the new learnt response, to the same impulses. This re-establishment of responses requires effortful control of maladaptive responses in the stimulating situation before expressing the newly learnt behavior. It may therefore be said that the Impulse Regulation Tool functions to initiate effortful control, inhibit maladaptive response, selection of appropriate response which leads to enhanced self-control and finally self-regulating the entire process in the form of a habit. All the mentioned mechanisms are at an inadequate functional level which when deliberately practiced can be modified for better Impulse Control. The tool aims at modifying the impulsive expression at the behavioural level, i.e., it changes the ultimate effect produced by the impulse. The sample's low scores on the UPPS-P scale in the posttest administration confirms the reduced interference of their impulsive nature in their daily lives. Considering the concept of neuroplasticity, this learning of new and alternate behaviors to existing impulses also indicates an alteration of neural structure after regular practice of the behaviors, thereby making the improvements long-term.

Through the tool, self-regulation of the impulses allows a person to optimize their functioning by redirecting and not inhibiting their intrinsic motive.

This quasi-experimental study addresses the research gap of an alternative intervention based on improving self-control to resolve impulsigenic responses.

In conclusion, the present study illustrates the prevalence of impulsivity in young adults and also presents a treatment tool as an alternative/supplementary treatment that has proved efficacious in lowering trait impulsivity of young adults. The present Impulse Regulation Tool may be administered on individuals with impulse control disorders and other psychopathologies with impulse dyscontrol as a core symptom. Through this pilot study, the effectiveness is confirmed with respect to the chosen sample. The tool may also be utilized by any other individual to improve self-control capacity. A few limitations that need to be acknowledged in this research are first, the sample size reduces generalizability. Second, a lack of a control group does not permit justifying the results completely to the treatment tool. Third, researcher bias may have interfered. Considering its effectiveness on healthy young adults, the tool may be employed as a supplementary treatment during psychotherapeutic processes. The current study offers a tool that is inexpensive, adaptable and foolproof for developing adequate impulse control. It is further suggested to use the tool on a larger sample size with a control group and on heterogenous population for comparison and standardization purposes.

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Conflict of Interest
The author declared no conflict of interest.