

## **Impact of Delayed Gratification Exercise on the level of Impulsivity of Adolescent Students.**

*\*Surajita Bora \*\*Dr. Pranjal Buragohain*

### **Abstract**

*Impulsivity is a tendency to react quickly and unpredictably to internal and external stimuli without regard to the negative consequences to the individual or to others. Impulsivity has been linked to a number of socially deviant behaviors. Impulsivity is a risk factor associated with reactive aggression and antisocial behavior during adolescence. On the other hand, the ability to delay gratification is useful to reduce such impulsive behaviors. Hence variables like ability of delayed gratification and impulsivity should be studied carefully to verify the usefulness of the delayed gratification exercises and to study what extent they can modify behavior. The main objective of this study was to study the impact of delayed gratification exercise on the level of impulsivity of the adolescent students. This present study included 10 adolescent participants who were found to have little control over mobile gaming and aggression. The impulsivity level of the students was assessed using Barratt Impulsiveness Scale-11 and after that they were given a delayed gratification exercise for 20 days. The study has shown that there is a significant decline in the impulsivity level of the adolescent's students after the delayed gratification exercise.*

***Key Words:** Impulsivity, Delayed gratification, Adolescent.*

### **1.0 Introduction:**

Impulsive behavior is one of the predictors of a variety of health and financial issues such as drug addiction (Jentsch et al., 2014), eating disorder (Lavender & Mitchell, 2015), financial crisis and compulsive buying (Flight et al., 2012). Impulsivity, an action without foresight, may contribute to a wide range of psychopathology, including bipolar disorder, attention deficit hyperactivity disorder (Winstanle et al., 2006), borderline personality disorder (Bornovalova et al, 2005), pathological behaviors associated with Parkinson's disease (Housden, et al., 2010), and substance addictions (Rogers et al., 2010), MWD, self-harm in adolescence (Lockwood et al., 2017). Impulsiveness "is a predisposition toward rapid, unplanned reactions to internal and external stimuli without regard to the negative

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*\* M.Phil Student, Department of Education, Dibrugarh University*

*\*\*Assistant Professor, Department of Education, Dibrugarh University*

consequences of these reactions to the impulsive individuals or to others.” (Moeller et al., 2001).

Studies have been conducted regarding the ability to exert control over impulsive drives. The most common paradigm for studying this type of control is delay of gratification. (Mischel, 1989). A fundamental component of success in many life tasks is the ability to either resist immediate temptation or persist in a distasteful activity in order to achieve a later goal. Delayed gratification means resisting the temptation of an immediate reward, in anticipation that there will be a greater reward later (Robbins, T, 2004).

### **1.02 Delayed Gratification as a key component of self- regulation:**

Delay of gratification involves postponing immediate available rewards to gain more desirable future rewards, maintaining the choice to delay, and tolerating the frustration of this self-inflicted delay (Mischel, Shoda, &Rodriguez, 1989). Delayed gratification is a key component of self- regulation, along with impulse control, patience, self- discipline and will power. Delayed gratification means resisting the temptation of an immediate reward, in anticipation that there will be a greater reward later. It’s a powerful tool for learning to live life with purpose. It is linked to impulse control. Those with high impulse control typically excel at delayed gratification. However, delayed gratification is also a skill that one can develop.

#### **Statement of the Problem:**

The problem under study is formally entitled as “Impact of Delayed Gratification Exercise on the level of Impulsivity of Adolescents Students.”

#### **Significance of the Study:**

The capacity for self- regulation must be counted as one of the most precious endowments of the human self (Baumeister, 1998; Higgins, 1996). Self-regulation is very important for adolescents’ academic decision making (Miller & Byrnes, 2001) and predicts career aspiration and expectation consistency (Napolitano et al., 2020). On the other hand, delayed gratification is often seen as a central part of self-control. (Cherry, 2020). The delay of gratification paradigm (Mitchel, 1974) is useful for assessing individual differences in young children’s self-regulatory abilities. It has been found that the inability to delay gratification leads to obesity and is associated with various types of impulsive behavior like aggression

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(Houston et. al, 2003), substance abuse (Swann et al.,2004), gambling (Auger et al., 2010), game addiction (Choi & Han, 2006), internet addiction (Lee et al., 2012), self- harm in adolescence (Lockwood et al.) etc. Impulsive behavior such as frequent gamers has been shown to exhibit core symptoms of addiction, along with significant impairment (Barger et al., 2017). This present study included 10 adolescent participants who were found to have little control over mobile gaming and aggression. Hence, in this study delayed gratification exercise was given to the participants. This present study will add to the literature of how impulsivity, a predictor of self- control can be reduced by delayed gratification exercise and to what extent.

### **Objectives:**

The objectives of the study were:

1. To study the impact of delayed gratification exercise on the impulsivity of adolescent students.
2. To study the behavioral changes during various stages of delayed gratification exercise.

### **Hypothesis:**

H<sub>1</sub>- There is a significant decline in the level of impulsivity of adolescent students after the delayed gratification exercise.

### **Operational Definitions:**

#### **Adolescents:**

The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19. Adolescents experience rapid physical, cognitive and psychosocial growth. Here adolescents refer to the students of class IX and X.

#### **Impulsivity:**

Here, impulsivity refers to the behavioral construct which is assessed by the Barratt Impulsiveness Scale-11. High score means high level of impulsivity and low score obtained means low level of impulsivity. Here impulsivity involves three dimensions: (i) Attentional, (ii) Motor, (iii) non-Planning.

### **Delayed Gratification Exercise:**

Here, delayed gratification exercise refers to the tasks that were given as treatment to the participants. The exercise involved five steps. These were: Avoidance Plan, Reward Replacement, Abstraction, Self-directed Talk and If-Then exercise respectively.

### **Methodology:**

#### **Design:**

Both the qualitative and quantitative approach has been used to meet the objective of the study. The study was a quasi- experimental and the investigator adopted single group pretest-posttest design. The impulsivity level of the adolescent students was assessed before introducing the delayed gratification exercise by using BIS-11. After assessing the level of impulsivity, the delayed gratification exercise was given to the participant for 20 days. The exercise consisted of five steps and in each of the steps; the tasks of the participants were recorded. Worksheets for each step of the delayed gratification exercise were collected for this purpose. The investigator interviewed the participants about their experiences in each phase and recorded the changes in their behavior. After the completion of the exercise, the BIS-11 was re-administered to assess the impulsivity of the each of the students.

To follow the behavioral changes of the participants, qualitative data was collected during the delayed gratification exercises. For this, interview technique and observation method were employed. The opinions of the students were collected during the five phases of the delayed gratification exercises. The activities and responses of the participants were recorded by the investigator using separate record sheet for each of the participants.

#### **Participants**

The participants of the study were selected purposively. They were found to have some impulsive tendencies (like excessive use of mobile phones, decreased attention in the classroom) by their parents as well as by their teachers. They were 10 adolescent students of class VIII and IX of Assam. Their mean age was 14.

#### **Tool:**

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To assess the level of impulsiveness of the adolescents the BIS-11(Barratt Impulsiveness Scale, 11th edition) was used.

**Interview:** In this present study, interview technique was used to meet the objective no. (ii) of the study, i.e., to follow the behavioral changes of the participants. Individual interviews were conducted with each of the participants and it was unstructured.

**Worksheet:** Five delayed gratification worksheets were used during the treatment. These were: Avoidance Plan worksheet, Reward Replacement Worksheet, Abstraction Worksheet, Self-Directed Speech, If-Then Worksheet.

**Record sheet:** During the delayed gratification exercises, the responses and activities of the participants were recorded to track the delayed gratification exercises as well as to follow the behavioral changes of the participants during the five delayed gratification exercises.

**Statistical Technique used:**

The investigator used ‘t’ test to estimate the significance of difference between means.

**Procedure/ Treatment:**

The participants of this study were selected purposively based on some impulsive behaviors as stated by their teachers and parents. After that the investigator assessed the level of impulsivity by using the Barratt Impulsiveness Scale-11. Exercise on delayed gratification was given to the students. The exercise consisted of five steps and worksheets were used in each of the steps. The first step was Avoidance Plan.

**1. Avoidance Plan:**

First, each of the participants was asked to name specifically a behavior that they wanted to change/modify. Then they were told not to feel hesitated and instructed to point out the negative effects of that behavior on their study, their relationship with parents, thoughts, diet and sleep. After a few minutes the investigator asked them, ‘If you want to change it what will be the alternative activity that you’ll like to do? /What would you like to do instead of this?’ The participants thought out their alternative behavior and then they were instructed to name their victories, i.e., how they will celebrate if they are able to modify their behavior.

## **2. Reward Replacement:**

In the second step of the delayed gratification exercise, the participants were instructed to write down their behavior modification goal. They were then asked to write down the current behaviors rewards that they were receiving as a result of that habit. In the next phase, each of the participants was instructed to find out the rewards of the new behavior chosen i. e. what they will get from the new behavior.

## **3. Abstraction Plan of the participants**

In the next step of the treatment, the participants were instructed to describe or draw the goal from this behavior change. They were told, “In vivid detail, describe or draw the goal from this behavior change.” Then each of them was asked to write down the steps to attain that goal. After that the investigator asked them to describe their future self in detail.

## **4. Self-Directed talk:**

Self- directed speech is a metacognitive ability involved in self- motivation and task-oriented behavior. The participants were asked to perform the new behavior instead of the behavior the wanted to change. They were told, “Start with small step. As you cannot change the old habit within a day, so start with a small step.” A week later another step was followed. The activities were as follows: Name your inner voice. List words that motivate you. When Things Get Rough Sentences (Create sentences your inner voice will say to reassure you when things get rough.)

## **“If-Then” Exercise:**

After a week the participants the participants were met and told “You will face challenges when you are attempting to change your behavior. A proper “If-Then” plan gives you a framework for alternative responses when impulses present themselves.” The participants were given the worksheet and asked to fill up the blanks. They were instructed as to fill in the blanks and keep the sheet ready when they face challenges in change they want to make. Example: If I want another snack, then I will first do 10 push-ups and drink a glass of water.

## **Analysis and Interpretation:**

**Significance of decline in the level of impulsivity of the adolescent students after the delayed gratification exercise:**

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First, the existing level of impulsivity of the participants was calculated by administering BIS-11. After completing the delayed gratification exercises the BIS-11 was administered to re- test the level of impulsivity of the adolescent students. To meet the first objective of the study, a directional hypothesis was formed as, “There is a significant decline in the level of impulsivity of the adolescent students after the delayed gratification exercise.” To test it, it was converted into a null hypothesis as follows

“There is no significant decline in the level of impulsivity of the adolescent students after the delayed gratification exercise.” After testing the null hypothesis, the following result was obtained:

**Table1: Significance of change in the level of impulsivity of the adolescent student after the delayed gratification exercises.**

Group	N	Mean	SD	SE	df	Inference
Pre-Test	10	82	6.99	2.21	3.39	Significant at 0.01 level
Post-Test	10	74.5				

Table-1 shows that calculated ‘t’ value is 3.39 which is greater than the table value (2.82) at 0.01 level of significance. Thus, the null hypothesis is rejected and it is concluded that there is a significant decline in the level of impulsivity of the adolescent students after the delayed gratification exercise

### **Behavioral Changes:**

During the five phases of the delayed gratification exercise, the following data were collected:

### **Avoidance Plan of the Participants:**

First of all, the participants were asked to name a behavior that they wanted to change. From their responses it was observed that 7 out of 10 participants were addicted to mobile games and three of them were prone to anger. They reported wanted to change that behavior. In this regard one of the participants pointed out, “During my studies, I consider mobile games. My

performance is slipping away. For this, my parents often scold me. Sometimes I miss my meals in order to play video games.” Participant B stated, “I become easily angry and I can’t tolerate myself. Seriously I want to get rid of it.”

In the next step of the worksheet, the participants were instructed to express the negative effects that affecting their study, relationships, thoughts and day to day activities like taking meal. It was obvious from their opinions that they experienced lots of negative effects, both mental as well as physical. Most of the participants reported their poor performance in the classroom and told that their relationship with parents was suffering for that.

After that they were asked to find out an alternate activity each of them could find one instead of the behavior they wanted to change. For example, participant A stated, “I think I can sketch painting instead of playing mobile game.” B told that he would like to do photography. Thus, D chose photography and reading (story, magazine); F chose outdoor game like cricket. E showed interest in script writing. Participant G and H reported that they would like to draw painting. Participant I stated, “I like travelling and I enjoy clicking photo.” Thus, all of the participants found out some alternative activities. Participant J told that he likes editing videos.

In the last part of the worksheet, each of the participants were instructed to write down their victories and they were asked how they would celebrate if they are able to change or reduce their current behavior. All the participants reported very enthusiastically. One of the participants told that if he is successful in his attempt then he will watch a good movie. Another stated he would gift himself his favorite chocolate.

### **Reward Replacement of the Participants:**

In this regard, the investigator asked the participants, “Name the rewards that you are getting from the current behavior.” Most of the participants, replied that they felt relaxed doing that. While they were asked to write down the current behavior negative side effects, they reported that they were suffering from various health related issues as well as mental disturbances. For example, Participant D stated, “I easily get distracted. ...Sometimes I don’t like to eat.”; “I am losing my eye power” (Participant B).

After that they were asked to point out the new behavior rewards. Each of them pointed out the new behavior rewards (e.g., D: I will get relaxation from my worries as well as my parents will be happy with me, B: My physic will be improved.)

### **Abstraction Plan of the participants:**

With regard to this, the participants described the steps to attain their goals in vivid detail. They prepared a plan and made a time table for their regular activities. In this step they were instructed to describe their future self. It was observed from their opinions that they could imagine a better version of themselves. (e.g., “If I able to do so, I will be able to spend quality time with my parents. I will get more time to pursue my hobbies, Participant D; “My academic performance will improve. ”-Participant A)

### **Self-Directed Speech:**

In this step, the participants were instructed to write their behavior change and then to write down their inner voice. The investigator said, “List words that motivate you...Create sentences your inner voice will say to reassure you when things get rough.” They showed much interest in it and created self-directed speech (“You can’t do that. Otherwise, you’ll have to suffer in the future.” –Participant A, “If you continue video game you will miss your actual goal.”- Participant D ;). Participant G told that when he will be tempted by gaming, he will utter his actual goals of life. “My mom loves me a lot. I can’t make her upset.”-J; “Believe you can and you’re halfway there.”-B

### **If-Then Exercise:**

Participants reported that during the delayed gratification exercises they experienced that they could resist the temptation of playing game gradually. When the participants were asked to practice the if-then exercises, they found out some ways like follows:

“If its 6.00 AM in the morning, then I will go for a walk.”- A; “If it’s Sunday after lunch, then I will read a good book.”- G; “If it’s 6.30 in the evening, then I’ll seat in my study.”;-H; “If I want to use phone, then I will have to finish ten arithmetic problems first (Participant F); “If I want to play video games, I will draw a painting before that.”(C).

One participant (B) added, “During lectures I used to think about other things. I had racing thoughts and now I am concentrating more.” With respect to this, participant D said that

“This if then activity helped me a lot. Before I got distracted a lot ...now I pay more attention to the lessons than before.” Participant F told, “This if then task helped to get more things done.” H reported that if- then exercise helped him in overcoming procrastination.

### **Conclusion:**

Delayed gratification is a crucial component of self-regulation. The study showed that impulsivity can be significantly reduced by delayed gratification exercises. Therefore, due emphasis should be given towards the practice of delayed gratification exercises which will be beneficial for personal as well as social well- being.

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