Efficacy of Mindfulness Based Intervention in Enhancing the Mental Health of Internet Gaming Addicts School Students

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Abstract

Internet gaming addiction is a psychological condition associated with persistent and recurrent use of the Internet to engage in games, often with other players that lead to adverse effects individual psychological, physical, and social well-being.The present study aimed to examine the efficacy of mindfulness based intervention in enhancing the mental health of Internet gaming addicts school students. The sample of this study consists of Internet gaming addicts40 boy's students of class twelfth. By using random sampling Internet gaming addicts 70 boy's students of class twelfth, were initially selected with the help of various school counselors of Moradabad city. Later they were screened out with Internet gaming addiction criteria of DSM-5 and finally 40 boy's students of class twelfth were randomly selected. Depression Anxiety Stress Scale (DASS-21) was used to measure the mental health of subjects. 8 two hours weekly sessions of the mindfulness-based intervention were administered onInternet gaming addicts students**.** After this phase the post-intervention scores on mental health were obtained from subjects and were compared with the pre-intervention scores. The results indicated that the mindfulness based intervention was significantly effective in decreasing stress, anxiety, and depression in Internet gaming addicts students. The study findings have implications for further research as well for designing mental health promoting interventions for Internet gaming addicts school students.

Key Words: Mindfulness-BasedIntervention,Internet Gaming Addiction,Depression, Anxiety, Stress

1. INTRODUCTION

As technology becomes incorporated more and more into our daily lives, the risk of overexposure grows for people of all ages. The Internet is now a vital, even unavoidable element of most people's daily lives. But recent scientific reports have begun to focus on the preoccupation of some people develop with certain prospects of the internet, particularly online games. These people play impulsively, to the exclusion of other interests, and their relentless and recurring online activity leads to clinically significant impairment or distress.Many times it leads to addictive behavior pattern. Internet gaming addiction can be defined as, a psychological condition associated with persistent and recurrent use of the Internet to engage in games, often with other players that lead to adverse effects individual psychological, physical, and social well-being. These individuals are unable to regulate their playing hours and other compulsive behaviors associated with Internet gaming, and they usually denied having any kind of problem.

These persons, especially adolescent school students with this consideration endanger their academic and other functioning because of the amount of time they spend playing (Kraut et al., 1998, Young, 1998). They experience symptoms of withdrawal when restrained from gaming. They spent less time with family and friends communicate less with members of their household and friends; moreover, their social circles were likely to grow smaller, and they experienced increases in depression and loneliness. India too is caught in this vicious circle of Internet gaming addiction, and the numbers of addicts are increasing day by day. Initial recreational use of Internet games now results in gaming addiction or dependence for many school students.

For gaming disorder to be diagnosed, the behaviour pattern must be of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning and would normally have been evident for at least 12 months. According to the University of New Mexico, recent studies (2014) suggest that 6 to 15 percent of all gamers exhibit signs that could be characterized as addiction.

Although it is not yet recognized by the American Psychiatric Association's as a diagnosable disorder but in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), Internet Gaming Disorder is identified in Section III as a condition warranting more clinical research. Addiction to gaming is defined in DSM-5 as "persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress." The *DSM-5* notes that gaming must cause "significant impairment or distress" in several aspects of a person's life. The criteria of DSM-5 comprise lack of control over the use of Internet games, preoccupation with Internet gaming, psychological withdrawal, developing tolerance for games and need for increase use of games, loss of other significant interests, use of Internet games despite negative consequences, and significant decline in social and occupational domains. Under the proposed criteria, a diagnosis of internet gaming disorder would require experiencing five or more of these symptoms within a year. The *DSM-5* states that Internet gaming addiction is most common in male adolescents 12 to 20 years of age. According to studies, it is thought that Internet Gaming addiction is more prevalent in Asian countries than in North America and Europe (APA, 2013; Petry et al., 2014).It is more common in boys and men than girls and women.

Internet gaming addition is considered to be a specific form of problematic Internet use(PIU) (Davis, 2001, Montag et al., 2014). Internet gaming addiction is most severely expressed with games known as massively multiplayer online games (MMOs) like PUBG (Nagygyorgy et al., 2013). Because these games are played online, there are no spatial or temporal boundaries and they allow players to adopt various virtual roles. These games are based on the principles of operant conditioning by using highly reinforcing random reward patterns. Hence, these games are specially engineered to maximize the amount of time a player stays in the game. Various factors are responsible for the addiction of these games. First, achievement

includes advancing in the game, namely progressing via leveling up, acquiring status and power in the game challenging and dominating others (Kuss, 2013). Reputation and admiration from the gaming community for gaming achievements are further key factors motivating players to keep playing (Yee,2006). Second, the social factor is composed of socializing, including chatting and making new friends in the game, forming new relationships, and working in a team (Yee, 2006). Third, playing in order to avoid real life i.e. escapism. It is an aspect of mood modification whereby individuals suffering from addictions induce a subjective shift in their mood by way of engaging in an addictive behavior, making the latter a coping strategy to deal with everyday problems (Griffiths, 2005). One of the other main reasons that video games can become so addictive, however, is they are designed to be that way. Video game designers, like anyone else trying to make a profit, are always looking for ways to get more people playing their games. They accomplish this by making a game just challenging enough to keep you coming back for more but not so hard that the player eventually gives up. In other words, success for a gamer often feels just out of reach.In this respect, video game addiction is very similar to another more widely recognized problem; gambling addiction.

Ferguson, C. J. (2014) studied Internet gaming addiction , and compare it with gambling addiction and problem gaming, and estimate its impact on physical, social and mental health. They found that those who met the criteria for internet gaming addiction had poorer emotional, physical and mental health than those who did not meet the criteria. The research involved several studies of adults in the U.S., United Kingdom, Canada and Germany. They found more than 86 percent of young adults ages 18 to 24 and more than 65 percent of all adults had recently played online games. The observed that 0.3 to 1.0 percent of the general population might qualify for a potential diagnosis of internet gaming disorder. They suggest there is an important distinction between passionate engagement and pathology. Whether the person is distressed with his gaming may be the key factor distinguishing the two.

Though precise prevalence estimates are lacking, 4% to 12% of adolescents and adults who play video games were estimated to have problematic gaming behaviors (Kuss& Griffiths, 2012). Youth and adults with gaming addiction may experience a range of adverse consequences and comorbidities, including , impaired physical health, such as being overweight or obese due to lack of physical activity, sleep disorders, and heightened risk for seizures(Smyth,2007); psychiatric comorbidity, including depressive and somatic symptoms, social anxiety, and attention-deficit-hyperactivity-disorder (ADHD)(Dong, Lu, Zhou, & Zhao, 2011; Lo,Wang, & Fang, 2005; Romer, Bagdasarov, & More, 2009); behavioral problems, including substance misuse(Yen, Ko, Yen, Chen, & Chen, 2009), driving while playing video games(li, O, Brien, Snyder, & Howard, 2014), suicidal ideation and hostility and violence(Kim, Namkoong, Ku, & Kim, 2008); loss of relationships and employment(Chappell, Eatough, Davies, & Griffiths, 2006; Jackson, von Eye, Witt, Zhao, & Fitzgerald, 2011) and financial debt

(Beranuy, Carbonell, & Griffiths, 2013). It may include aggression and resentment, stress, and high loneliness (Kuss, 2013; Shapira et al., 2000).

Sariyska et al. (2014) in three studies looked at the link between implicit learning abilities, problematic internet use and risk-taking. They found a link between internet gaming addiction and a deficiency in implicit learning – the ability to learn complex information incidentally, like riding a bike or swimming. The results showed that men with Internet gaming disorder had deficient implicit learning abilities. What's more, higher the participants scored on the Online Gaming Addiction Scale (OGAS), the more impulsive they were.

Like any other compulsive disorder, Internet gaming addiction can have severe long negative consequences. The gaming addicts might find themselves without any friends at all. Other long-term effects of video game addiction to consider are the financial, academic and occupational consequences involved. Video games and video game equipment can be very expensive, especially when factoring in recurring costs such as the high-speed Internet connection required for online multiplayer games. These games can also be very time-consuming, leaving addicted gamers with less time to focus on their education or career.

Some form of psychotherapy is usually considered as a treatment option for persons seeking treatment for Internet gaming addiction. Prior studies evaluating interventions for Internet gaming addiction indicate that cognitive-behavioral treatment (CBT) (Han, Kim, Lee, &Renshaw, 2012), and family therapy(Kim, Han, Lee, &Renshaw, 2012) may be effective in treating it. Further research with exhaustive design is needed to confirm the effectiveness of psychotherapeutic treatment for Internet gaming addiction. Mindfulness interventions are effective in treating substance use and gambling disorders (Chiesa&Serretti, 2014; Li, Howard, Garland; Toneatto, Pillai, &Courtice, 2014). However, mindfulness interventions have merely assessed with regard to their efficacy in treating Internet gaming addiction.

Mindfulness involves awareness of, attention to, and acceptance of all phenomena occurring in the present moment (Kabat-Zinn, 1982). Mindfulness involves the ability to experience and tolerate current emotions, thoughts, sensations, and urges without becoming overwhelmed and without feeling compelled to engage in behaviors meant to "turn off" those experiences or act on those urges. Mindfulness has been characterized by Kabat-Zinn (2003) as ". . . the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment". "Present moment awareness" is central in this definition.

Mindfulness skills were first used formally in medicine in 1979, when Jon Kabat- Zinn implemented mindfulness-based stress reduction (MBSR) at the University of Massachusetts Medical School (Kabat-Zinn, 1982). Mindfulness-based stress reduction combines mindfulness meditation, yoga, and informal mindfulness practices to help patients cope with stress, pain, and illness (Kabat-Zinn, 1982). The foundation of mindfulness-based stress reduction based on the

simple but profound idea that much of our distress and suffering results from incessantly wanting things to be different from how they actually are.

Mindfulness is therefore distinct from forms of meditation in which practitioners focus on a sensation, phrase, or point in space (Levin &Dakwar, 2009). The role of mindfulness in medical care and training continues to evolve as a promising preventive and treatment-oriented intervention in medicine (Ludwig &Kabat-Zinn, 2008), psychotherapy (Baer, 2006; Germer, Siegel, & Fulton, 2005; Roemer &Orsillo, 2008; Shapiro & Carlson, 2009) and recently the health/fitness area (Dutton, 2008; La Forge, 2005). Its influence extends to models of autonomy and self-regulation, including self-determination theory (Ryan &Deci, 2004). Mindfulness skills were first used formally in medicine in 1979, when Jon Kabat- Zinn implemented mindfulness-based stress reduction (MBSR) at the University of Massachusetts Medical School (Kabat-Zinn, 1982). Mindfulness-based stress reduction combines mindfulness meditation, yoga, and informal mindfulness practices to help patients cope with stress, pain, and illness (Kabat-Zinn, 1982). The foundation of mindfulness-based stress reduction based on the simple but profound idea that much of our distress and suffering results from incessantly wanting things to be different from how they actually are. Mindfulness-based stress reduction combined with Hayes and colleagues' relational frame theory (Hayes, Barnes-Holmes, & Roche, 2001), the conceptual framework of acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999), and Linehan's (1993) mindfulness-centered dialectic behavior therapy (DBT) in to initiate a powerful movement into the domain of cognitive behavior therapy (CBT). At present, mindfulness- and acceptance-based interventions significantly influence cognitive behavior therapy (Hayes, Follette, &Linehan, 2004), especially evident in the work of Segal, Williams, and Teasdale (2002) with mindfulness-based cognitive therapy (MBCT).Garland et al. (2010; 2014).

Garland et al. (2010; 2014) adapted Mindfulness-Oriented Recovery Enhancement (MORE), treatment protocol for Internet Gaming Disorder in adults, and found that participants demonstrates significantly greater decreases in their signs and symptoms of Internet gaming disorder, and significantly greater improvements in craving for video gaming, maladaptive cognitions associated with video gaming, psychological distress, adaptive cognitive coping, and mindfulness.

The detrimental consequences of Internet gaming addiction may range from a mild socio-personal distress to a gross disorganization in behavior and self-care of the individual. The school student's of our nation will eventually determine the country's moral, political, and social opinions. Apart from affecting the academics, Internet gaming addiction increases untold emotional pain for every member of the family.As an emerging psychosocial problem, the understanding of Internet gaming addiction is still in initial stages in Indian subcontinent. Few reported studies on Internet gaming addiction are available from India and the studies with intervention strategies for Internet gaming addiction are rare.Therefore, there is a relevant need

to study the efficacy of mindfulness based interventionin enhancing the mental health of Internet gaming addicts school students.

1.1 Hypotheses:

The hypotheses were as follows:

1. Level of depression ininternet gaming addicts school students will be significantly different after mindfulness based intervention.
2. Level of anxiety ininternet gaming addicts school students will be significantly different after mindfulnessbased intervention.
3. Level of stress ininternet gaming addicts school students will be significantly different after mindfulness based intervention.

2. METHOD

2.1 Sample: The within subject design was used for the present study. By using random sampling internet gaming addicts 70boy's students of class twelfth, were initially selected with the help of various school counselors of Moradabad city. Later they were screened out with Internet gaming addiction criteria of DSM-5 and finally 40boy's students of class twelfth were randomly selected. Besides considering all ethical conditions, the inclusion criteria of the current study include:

1) Having informed consent to participate in the research;
2) Being on e-fasting during the last week;
3) Being boy, being at least 17 years old and at most 18 years old;
4) Not participating in any other medical sessions;
5) Not suffering from mental retardation or severe disabilities.

The subjects first completed the Depression Anxiety Stress Scale (DASS-21). Afterwards, mindfulness-based stress management training was administered for 8two hour weekly sessions (One session per week). In the last session, the subjects again completed again the Depression Anxiety Stress Scale (DASS-21).

2.2 Tool: The short-form of the Depression Anxiety Stress Scale (DASS-21): This is a self-report scale developed by S. H. Lovibond and P. F. Lovinond. It has 21 items and three scales for each indicator under study and is designed to measure the negative emotional states of depression, anxiety and stress. The depression scale assesses depression, feelings of restlessness and blame, despair, devaluing life, self-dissatisfaction, lack of interest/involvement, and immobility. The anxiety scale measures automatic arousal, situational anxiety, and subjective experience of

anxiety. The stress scale is sensitive to the levels of chronic arousal which cause difficulty in achieving peace and evaluates nerve impulses and being easily confused, irritability and impatience. Respondents use a 4-point Likert type scale ranges from 0 to 3 (0 = never, 1 = low, 2 = moderate, and 3 = high) to assess experiencing these states in the previous week. The scores on depression, anxiety, and stress are calculated by the sum of the scores on related items. Test-retest significant coefficients($p < 0.001$)for depression, anxiety, and stress were 0.84, 0.89, and 0.90, respectively. The validity of the scale was based on intra-class correlation (0.74).

2.3 Structure of Mindfulness Training Sessions

Mindfulness-based stress management program is based on a curriculum that approaches stress management by helping participants cultivate present-moment–focused attention in the face of challenging circumstances. The program employs a range of practices, the body scan, gentle movement and stretching, and sitting meditation. These three comprise core mindfulness practices progressively incorporated into a daily home practice of between 45–60 minutes duration. Each encourages mindful exploration of specific facets of experience such as, somatosensory, kinesthetic, and cognitive. The program also emphasizes informal mindfulness practice, directed toward everyday real-world experiences such as eating, driving, talking, and working. The program emphasized on ways to integrate mindfulness into everyday life. Mindfulness-based stress management program was administered in 8two hour weekly (One session per week)sessions. These 8 intervention sessions were based on mindfulness-based stress reduction (MBSR) program. The summary and structure of the sessions are as follows:

Session 1: Welcome and guidelines, brief personal introductions, the implementation of the pre-test, meditation training to train the presence of mind, body-scan meditation, and determining the dates of the sessions, homework assignments (body scan, and mindfulness of a shared activity).
Session 2: Eating a raisin with awareness, self-awareness, training how to deal with challenges with which an individual encounters and three- minute breathing meditation homework.
Session 3: Body meditation, training and gaining the ability to delay judgment, identify stress symptoms, and gain knowledge of mind and body.
Session 4: Body meditations, acquiring the ability to practice sitting meditation and listening to the environmental sounds.
Session 5: Body meditation, expanding their knowledge to other areas including physical sensations, sounds, and thoughts or feelings or undetermined purposes.
Session 6: Body meditation, reviewing the exercises and experiences of the participants.
Session 7: Body meditation, combing sitting meditation, bodily check, and yoga exercises.
Session 8: Group discussion reviews of the program, focusing on the lessons learned by the end, becoming ready for doing the exercises alone and the implementation of the post-test.

3. RESULTS AND DISCUSSION

The present study was undertaken to examine the efficacy of mindfulness based intervention inenhancing the mental health ofInternet gaming addict's school students.From the results given in Table 3.1, it appeared that there is extensive difference in post test depression level of internet gaming addict's school students. The mean of pre test and post test depression scores were 18.60 and 16.65 respectively for internet gaming addict's school students. The results indicate that mindfulness based intervention enhances mental health of Internet gaming addict's school students, as the difference between the pre and post test scores of Internet gaming addict's school studentswas also found statistically significant (*p<0.05). Thus, hypothesis presuming significant difference in level of depression in Internet gaming addict's school studentsafter mindfulness basedintervention was confirmed.

Table -3.1: Mean, SD and t-value of Pre and Post Depression level Scores of Internet Gaming Addicts Students

Students	N	Mean	SD	t-value
Pre Test	**40**	**18.60**	**2.81**	**2.90***
Post Test	**40**	**16.65**	**3.17**	

* p<0.05

It was apparent from the results presented in the Table- 3.2 that level of anxiety score was lower after mindfulness based intervention as the mean pre and post test scores were found to be 16.95 and 11.40 respectively for Internet gaming addict's school students. The difference between pre and post test scores with regard to level of anxiety of Internet gaming addict's school studentswas found statistically significant (** p<0.01). It seems that the mindfulness based intervention increases the mental health of Internet gaming addict's school studentsand it decreases there level of anxiety. Hence hypothesis presuming significant difference in level of anxiety in Internet gaming addict's school students after mindfulness based intervention was accepted.

Table - 3.2: Mean, SD and t-value of Pre and Post Anxiety level Scores of Internet Gaming Addicts Students

Students	N	Mean	SD	t-value
Pre Test	**40**	**16.951.92**		
9.15**				
Post Test	**40**	**11.403.31**		

** $p<0.01$

Table -3.3 reveals that the mean post test stress score of Internet gaming addict's school studentsis 24.15 which is lower than the corresponding pre test mean stress score of 11.05. The t value for pre and post test mean stress scores of Internet gaming addict's school studentswas found statistically significant(**$p<0.01$). It seems that the mindfulness based intervention was effective in reducing stress in Internet gaming addict's school students.Hence hypothesis presuming significant difference in level of stress in Internet gaming addict's school students after mindfulness based intervention was confirmed.

Table -3.3 : Mean, SD and t-value of Pre and Post Stress level Scores of Internet Gaming Addicts Students

Students	N	Mean	SD	t-value
Pre Test	**40**	**24.155.82**		
11.53**				
Post Test	**40**	**11.054.20**		

** $p<0.01$

Considering the above result it can be said that the mindfulness intervention plays a vital role in enhancing mental health of Internet gaming addict's school students. This study supports previous research of King, Delfabbro& Griffiths (2010); Yee, (2006); Wood, Griffiths, Chappell, & Davis(2004); that demonstrates that mindfulness based intervention significantly reduced depressive thoughts and loneliness of adults subjects associated with gaming. Lee, &Sujun, (2014) found that mindfulness and wisdom intervention appeared to be effective approach in reducing Internet addiction in College students. It significantly improve students self awareness, self –control, concentration, sleeping quality and duration and helped them to develop a more positive lifestyle.Garland, Boettiger, Gaylord, West, Chanon, & Howard (2012) demonstrated that mindfulness is correlated with controlling attention and emotion regulation. In this regard,

increasing the control over the visual clues of gaming addiction can be effective in treating the disorder.

Adolescent'sschool students are particularly vulnerable to play video games because of the unique and sensitive developmental balance of drive and emotion. Mindfulness based intervention specifically focuses on the capacity to tolerate negative affects and enhance behavioral flexibility; this interventionmay address the difficulties experienced by Internet gaming addicts school students. The theoretical mechanism of action of mindfulness is unique. Change is fostered in an individual's reactions to key addictive processes, such as craving, avoidance, negative affect, and game -related stimuli, not by supporting reactive control or cognitive appraisal, but with a response characterized by nonjudgmental awareness and attention. Through this mechanism, mindfulness-based interventions may support the development of an array of cognitive and emotional skills in the service of enduring and adaptive change. By teaching school students to purposely experience stimuli that contributed to their video gaming in the first place, mindfulness may allow school students to react with flexibility and awareness, thus ultimately replacing their maladaptive behavior patterns with intentional and adaptive behavior. Experiencing pleasure and an increased sense of meaning may serve as protective factors against addictive Internet gaming.

The impulsive and compulsive overuse of video games is associated with poor mindfulness skills. A brief mindfulness exercise can help an individual disengage from automatic thinking by focusing on breath for one minute. In sum, the practice of mindfulness by school students with addiction of Internet gaming use involves the capacity to experience full moment-to-moment contact with the external world and internal responses, which results in greater control over behavior and enhance their mental health.

Although this study shows promising results, some limitations are worth consideration. First, no control group was used to validate the results from the treatment group. Because of this, the significant differences that did occur might be due to some factor other than participating in the treatment intervention. Second, the sample size was small. Third, the subject's participants were selected from one city only. Fourth, the single study site may limit the generalization of findings to other populations. Future research should aim to develop a consistent methodology in measuring Internet gaming addiction. Future studies are needed to replicate findings with larger samples from different settings. Future studies are required to study Internet Gaming addiction in comparable populations and across age groups and cultures.Apart from that further studies are also required get clear data to understand how Internet gaming addiction relates to other disorders.Studies of different forms of mindfulness interventions for Internet gaming addicts school students would be helpful to determine if anyone has advantages over another.

Despite these limitations, the findings of the present study indicated that mindfulness appear to be an effective intervention that can significantlyalleviatesigns and symptoms of Internet gaming addiction in school students and it improves mental health. The findings suggest that interventions should include approaches to develop those mindfulness skills in school students that enhance mental health and protect them against the development of Internet gaming addiction.

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