

## **Anxiety among Adolescents: The Role of Internet Addiction and Gender**

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### **Abstract**

Internet addiction among adolescents has been found to propagate several mental health problems, one major being anxiety. The study investigated the anxiety levels of adolescents who are addicted to the internet and sought to observe a gender difference as well. The study adopted a 2 x 2 factorial design. Through purposive sampling, 240 out of 400 adolescents attending high school qualified as having internet addiction (adolescents with high level of internet addiction = 164, and adolescents with low level of internet addiction = 124). ANOVA was used to compare gender with their level of anxiety for high and low level of internet addicts. The results indicated that highly addicted adolescents experienced more anxiety than those who had low addiction to the internet. Adolescent girls were observed with more anxiety.

*Keywords:* anxiety, gender differences, internet addiction, adolescents

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With technological advancement and increasing dependence on it, internet use has also increased manifold in India since the turn of the 21<sup>st</sup> century. Due to the extensive contribution of the internet as a technology in the domains of entertainment, education and commerce, modern life has become very comfortable and its impact is felt in nearly all aspects of our lives. However, overuse of the internet has also led to a new form of addiction known as internet addiction especially prevalent among adolescents. Internet addiction is linked to many harmful consequences on their social, emotional and cognitive development. Internet addiction may be understood as a compulsion to being present online which can disrupt everyday life consequently causing stress to the social environment comprising of family, friends, loved ones; and may adversely impact academic, financial, and occupational status. (Chou & Hsiao, 2000; Griffiths, 2000; Whang, Lee, & Chang, 2003; Widyanto & Griffiths, 2007; Young, 1998). It is a non-substance related addiction, and is referred to as Internet Addiction Disorder (IAD). It may be understood as a type compulsion disorder marked by impulse and that involves over dependence or over use of computer in the online or offline mode (Dell'Osso, Altamura, Allen, Marazziti, & Hollander, 2006). Anxiety is one of the common by products of such excessive use of the internet.

The person addicted remains preoccupied with the internet and feels an increasing need to spend time online to obtain fulfillment. Such persons fail to control or reduce the use of internet and feel sulky, anxious, and dejected (Young, 1996), and use internet more than he or she intends to, which affects them in the field of job, education, career and social relationships. The addicted person also hides his/her overuse of internet from friends, family, and therapist. Such tendencies also point to the escape avoidance strategies of coping and may develop feelings of depression, helplessness, guilt, and anxiety. It is generally observed that presently adolescents are much more inclined towards a virtual world rather than contact communication with friends and family members. As this virtual communication increasingly

becomes an escape for adolescents from their daily routine lives, they discover many new “lives” which lures them towards increased use of the internet along with putting themselves at risk of developing poor psychological health.

Anxiety is an anticipatory state of mind unequipped to cope with adversities (Barlow, 2000). It is an emotion characterized by feelings of tension, intrusive thoughts and physical changes in the form of rapid heart beats and blood pressure. It is an unpleasant feeling of fear and apprehension with an anticipation of danger and may appear in several forms including separation anxiety, social anxiety, generalized anxiety, panic with agoraphobia, obsessive compulsive behavior, and specific phobic disorders causing various problems in the life of adolescents.

The morphological, physiological and hormonal transformations of puberty, the establishment of having physically distant relationships with parents, and the appearance of many lives brings challenges during the period of adolescence resulting in the emergence of anxiety. Unproductive study, last minute study before examinations, inadequate revision of lessons, lack of confidence, and unfounded fears about examinations are some of the triggers of examination-related anxiety. Further, the type of internet use and time spent on the internet affects the severity of anxiety in adolescents. Many research evidences show that internet addiction and anxiety is commonly found among adolescents and are positively correlated (Awasthi & Verma, 2017; Azher et al., 2014; Chaudhari, Menon, Saldanha, Tewari, & Bhattacharya, 2015; Goel, Subramanyam, & Kamath, 2013; Jamwal, Shekhar, & Choudhary, 2016; Juneja & Sethi, 2015; Panicker & Sachdev, 2014; Upadhyay, Jain, & Tripathi, 2017). Depression, loneliness, aggression, substance dependence, and shyness are also associated with internet addiction and anxiety. Unavailability of internet use often shows in manifested withdrawal symptoms such as irritability and anxiety (Orzack, 1998).

Despite the paucity of literature on anxiety disorders among adolescents in India, many studies have revealed a significant difference between boys and girls in anxiety with girls evidencing more anxiety symptoms than boys (Bakhla et al., 2013; Kukreja & Jyotsana, 2015; Sharma & Kirmani, 2013; Thakor, 2016). Girls have been found to have more separation anxiety and their predisposition to generalized anxiety disorder is over six times higher (Bowen, Offord, & Boyle, 1990). It is generally observed that in the Indian culture, adolescent girls are more dependent and seek more support from others, as opposed to using their own coping resources. This reduces their sense of self-esteem and self-efficacy which leads to an increase in the symptoms of anxiety. Girls are also reported to have higher negative affectivity than their counterparts (McCrae et al., 2002). Adolescent girls are more exposed to interpersonal stressors than boys and their coping strategies also seem to be inadequate compared to adolescent boys. Research has also indicated that adolescent girls report more worry and rumination towards a threatening situation which results in more anxiety in them (Robichaud, Dugas, & Conway, 2003).

Although there is increased focus by researchers in studying anxiety among adolescents having internet addiction, such studies are limited in the Indian setup with an ever increasing exposure to internet and technology. The present study attempted to find if there is a difference in gender and the level of anxiety among adolescents overusing internet, if any. It was also the objective to examine the role of internet addiction and gender on anxiety level of adolescents.

### **Method**

The objective of the study was to find out the role of gender and internet addiction on the level of anxiety of adolescents. The study involved a 2 x 2 factorial design (highly addicted to internet vs. low addiction to internet x adolescent boys vs. adolescent girls).

Internet addiction and gender were the independent variables and anxiety was the dependent variable.

### **Participants**

The total sample comprised of 240 internet addicts out of 400 adolescents who were recruited using purposive sampling technique. There were 116 adolescents with high internet addiction and 124 adolescents with low internet addiction. Data was collected from different high schools and inter colleges of Cuttack and Khurdha districts of Odisha, India. Moderate internet users were excluded from the study on the basis of their scores obtained from the scoring manual of the Internet Addiction Test (IAT). A total of 116 adolescents had high internet addiction out of which 56 participants were boys and 60 participants were girls. A total of 124 adolescents had low internet addiction out of which 64 participants were boys and 60 participants were girls. Care was taken to sample groups equated with respect to education and age-range. The participants included in the study fell in the age-group of 14-19 years and the mean age was 16.50 years ( $SD=1.71$ ). All the participants belonged to middle socio-economic status. They were administered the Internet Addiction Test (IAT) developed by Young (1996). The participants were placed in four groups: boys with high internet addiction, boys with low internet addiction, girls with high internet addiction, and girls with low internet addiction). These groups were assessed for their anxiety using Sinha's Comprehensive Anxiety Scale.

### **Measures**

The study involved the Internet Addiction Test (IAT) and Sinha's Comprehensive Anxiety Scale (SCAT) for collecting data from adolescents.

**Internet Addiction Test (IAT).** IAT constructed by Young (1996) to measure internet addiction. It measures adolescents' online involvement and categorizes addiction levels in terms of mild, moderate and severe. It takes into account how excessive uses of the

internet leads to problems in daily life, social sphere, sleep habits, and emotionality of adolescents. The test consists of 20 statements containing six response options ranging from “does not apply”, “rarely”, “occasionally”, “frequently”, “often” and “always”. The scores ranged between 0 (does not apply), to 6 (always) for each item. The total score was obtained by cumulatively totaling the response scores. Higher scores indicate higher internet addiction. A score between 20-49 points would indicate someone who uses internet moderately and has full control over oneself in terms of using. An online user with an onset of addiction symptoms would score between 50-79; and a score of 80-100 indicated a user who has significant problems due to internet addiction. The test-retest reliability for this study was 0.82 and the content validity was 0.88.

**Sinha’s Comprehensive Anxiety Scale (SCAT).** SCAT, developed by Sinha & Sinha (1995), measures comprehensive anxiety in an individual. The scale consists of 90 items. There is no fixed time limit. However, one would take 15-20 minutes to complete the scale. Each “Yes” response will be awarded as “1” and each “No” response will be awarded as “0”. The sum of all responses would indicate the anxiety score. The coefficient of reliability was found to be 0.85. Convergent validity of this test was found to be 0.62 when correlated with Taylor’s Manifest Anxiety Scale.

### **Procedure**

Permission was obtained from the administrative management of high schools and colleges. Out of 400 participants selected, 240 participants within the age bracket of 14-19 years were retained in this study. One hundred and twenty-four participants identified as low internet users and 116 participants identified as high internet users were identified on the basis of their scores obtained from the scoring manual of the IAT. The investigator established rapport with the participants, and clearly stated that their participation was entirely voluntary and anonymous, could be withdrawn at any time and would in no way

affect the participants. Participants were given the measures of IAT and SCAT which were individually administered. The questionnaires were explained thoroughly and participants were allowed to clarify their doubts. The participants were requested to provide honest responses. A brief overview of the study was provided by the investigator. It was strictly ensured that confidentiality was maintained and all ethical standards were followed.

### Results

The summary of the analysis of variance (ANOVA) on the anxiety scores of the participants is presented in Table 1. The participant's score of anxiety are represented through mean and standard deviations presented in Table 2.

Table 1

*Analysis of variance (ANOVA) performed on anxiety scores of participants*

Sources	Df	MS	F
Status (HIA vs. LIA)	1	56.33	13.21*
Gender	1	407.22	95.52*
Status x Gender	1	.08	.01
Error	236	4.26	

*Note.* \* $p < 0.01$ . HIA= High Internet Addiction, LIA= Low Internet Addiction

The analysis of variance (ANOVA) performed on anxiety scores of the participants showed significant effect for the level of internet addiction,  $F(1, 236) = 13.21$ ,  $p < 0.01$  (see Table 1). As observed in Table 2, anxiety was high for those who were highly addicted to the internet compared to users with low addiction levels ( $M = 26.25$  and  $25.20$  respectively). Gender was observed for differences with respect to anxiety, and was seen through the interaction effect  $F(1, 236) = 95.52$ ,  $p < 0.01$ . As depicted in Table 2, girls reported higher level of anxiety compared to boys ( $27.03$  and  $24.39$  respectively). It was evident from the

above table that there internet addiction and gender showed no significant interaction effect,  $F(1, 236) = 0.01, ns$ .

Table 2

*Mean Ratings on Anxiety Scores of Participants*

Groups	Boys		Girls		Combined
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>
<b>Adolescents with HIA</b>	24.92	1.74	27.50	2.38	26.25
<b>Adolescents with LIA</b>	23.92	1.68	26.56	2.34	25.20
<b>Combined</b>	24.39		27.03		

*Note.* HIA=High Internet Addiction, LIA=Low Internet Addiction

### Discussion

The present empirical investigation examined the role of internet addiction and gender on the level of anxiety of adolescents. The finding states that adolescents highly addicted to internet had higher anxiety than adolescents with low internet addiction.

Studies have corroborated that type of usage and time spent in using the internet determines the anxiety level. It is generally observed that adolescents who internet addicts have decreased appetite, have sleeping problems such as insomnia, and have less time to do other activities. This, in turn, affects their interpersonal relationships with friends and family members which lead to more anxiety among adolescents. Due to academic irregularities and inconsistencies the course materials and assignments are not completed on time or not followed properly, which also leads to anxiety. Additionally, there is increased anxiety, fear and apprehension at the time of examinations. It is also found that increased symptoms of anxiety are shown by adolescents who have low social support and whose parents do not pay attention to the total time spent by their children in using the internet.

Interestingly, a study by Shepherd and Edelman (2005) revealed how increase in internet use is associated with anxiety among adolescents. Their study showed that it is easier



for adolescents to communicate through the internet rather than contacting people directly because of the anonymity associated with it. Thus, the internet provides a platform which is not judgemental and less intimidating (Stritzke, Nguyen, & Durkin, 2004). Their findings also showed that negative mental states like depression and anxiety were linked to increased internet use.

For adolescents who have feel inhibited in social interactions, the internet provides an opportunity to connect with others thus nourishing their sense of belongingness and need for social intimation. Internet use helps to avoid direct contact especially for those who feel uncomfortable in social settings. Contrastingly, those who are at ease with direct interaction generally browse the internet only for informational content (Papacharissi& Rubin, 2000). Hamburger and Ben-Artzi (2000) found similarly that social contact may be distressful for few adolescent girls who are introverts and self conscious and they tend to find the internet less intimidating. Caplan's (2002) findings corroborate that girls who feel shy or report low self esteem feel benefitted through online communication and enhanced sense of social control through usage of the internet. Another study by Rice and Markey (2009) also stated that personality factors such as introversion and neuroticism was also related to anxiety in direct communication rendering them more relaxed through internet use.

Panicker and Sachdev (2014) in their study of problematic internet use and anxiety level of 84 adolescent participants of Ulhasnagar, India found a positive correlation between anxiety levels and internet addiction of adolescents.

The present study revealed that severity of anxiety in adolescent girls is higher than that of boys. The findings substantiate many other research studies in this area. Several research evidences have revealed that heredity may play a role for high level of anxiety among adolescents. Genetic history hasalso been associated with vulnerability to anxiety and other aspects of personality traits such as, neuroticism. A number of studies have shown that

negative affect or mood state is linked with anxiety disorders (Norton, Sexton, Walker, & Norton, 2005). As girls mature, higher levels of negative mood states are reported, compared with boys whose mood state remains more or less stable (McCrae et al., 2002). This might explain why adolescent girls report more anxiety than boys often scoring higher in trait anxiety as well.

The significant gender difference has another possible explanation that even though anxiety symptoms are experienced by both adolescent girls and boys, expressing them is better received socially than for the boys. In addition, adolescent girls are more exposed to interpersonal stressors than adolescent boys. This leads to more anxiety symptoms in them. They are generally found to be affected by adverse life events and perceive them as more uncontrollable and dangerous (Menzies & Clarke, 1995). Their coping strategies also seem to be inadequate compared to adolescent boys.

From an evolutionary perspective, it can be argued that too much vigilance towards potential threat situations leads to a inclination to evaluate ambiguous events as threatening. Adolescent girls may learn to have less control over events which may lead them to evaluate events as more threatening. Girls tend to take responsibility of their own failures than boys. Furthermore, authoritarianism from the caregivers towards girls may contribute to a heightened vulnerability for anxiety when failure is encountered.

According to Bem's (1981) gender role theory, behaviour and interests are consistent with the social roles of girls and boys. Hence, because often fearful behaviour in boys opposes their definitions of masculinity, expression of anxiety is also less encouraged. Thus, fearful behavior is less encouraged for boys because the expression of anxiety is inconsistent with their male role. Assertiveness among boys and anxiousness among girls is perpetually reinforced by their immediate agents of socialization to encourage gender appropriateness.

In a study by Moscovitch, Hofmann, and Litz, (2005), it was found that anxiety among boys and girls also depended upon their self perception of independence and interdependence. Boys who perceived high levels of interdependence and low independence reported higher social anxiety. This trend was reverse in the case of girls. Thus flexibility in dealing with social situations will feel lesser discomfort and anxiety.

Greif, Alvarez, and Ulman (1981) in their findings reported that mothers freely discuss emotions and its state with their daughters, while only the outcomes of emotions are discussed with boys. Boys are encouraged to be problem solvers and have emotional regulation rather than focusing on the experience of their emotions. Thus, large numbers of studies reveal that girls are more prone to anxiety than boys..

### **Conclusion**

The present empirical investigation examined the role of gender and internet addiction on the level of anxiety of adolescents and substantiated earlier findings in the field. The findings clearly provide evidence that highly addicted adolescents will feel high levels of anxiety. Secondly, although adolescent girl participants showed higher levels of anxiety, the level of internet addiction and gender combined had no effect on the level of anxiety scores of participants.

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