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Internet Use, Impulsivity and Loneliness among School Going Adolescents

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Abstract

The growth of technology and internet use among adolescents has been rapid and transformative, significantly shaping their social, educational, and personal lives. The online connectivity provides opportunities for creativity, access to information, and global communication. It also poses risks such as cyberbullying, addiction, mental health issues, and a decline in face-to-face social interactions. The present article is an attempt to examine the correlates of internet use among tribal and non-tribal boys and girls of Tripura. It also tries to examine gender and community differences in the level of internet use, impulsivity and loneliness among the school going adolescents of Tripura. The sample consisted of 1200 adolescents belonging to the age group of 15- 18 years. For data collection Internet Addiction Test (Young, 1998), Barratt Impulsiveness Scale-11 (Patton et al., 1995) and R-UCLA Loneliness Scale (Russell et al., 1980) were used. Results indicated that boys and girls differ significantly with respect to their internet use, impulsivity and loneliness. Further tribal and non-tribal adolescents differ in the level of internet use and impulsivity. The results also depicted that internet use of adolescents significantly correlates with their impulsivity and loneliness.

Key Words: *Internet use, Impulsivity, Loneliness, Adolescents*

Mental health in adolescents encompasses emotional, psychological, and social well-being, significantly influenced by developmental tasks such as identity formation, autonomy, managing thoughts and emotions, maintaining peer relationships and engaging with their communities (Kessler et al., 2007; Patel et al., 2007). Mental health issues are higher among the urban adolescents than that of rural ones, with a prevalence rate of 7.3% in both boys and girls (National Mental Health survey, 2016). Mental health is a condition where an individual realizes his/her own abilities, can perform regular activities effectively, is able to deal with stresses of life, and serve the community whenever possible (World Health Organization, 2014).

Studies in India revealed that children, adolescents and adults have been going through various mental health illnesses, including depression, anxiety, schizophrenia, bipolar disorder, autism spectrum disorder (ASD), attention deficit hyperactive disorder (ADHD), and conduct disorder (Grover et al., 2019, Gururaj et al., 2016; Sagar et al., 2020; Shafi et al., 2023). Other conditions like, substance abuse, internet or mobile addiction, sleep disorders, and eating disorders are also present among the individuals, resulting to self-harm behavior (Babic et al., 2017; Malhotra & Patra, 2014; Romer et al., 2013; Twenge & Campbell, 2018). During the new era of technology, internet addiction (IA) is a major challenge for adolescents and young adults. Excessive internet usage (EIU) is an inability to control the use of internet, resulting in distress in daily activities and has symptoms of obsessive thoughts; neglecting work-life, avoiding interaction with people around or having poor social life (Beard & Wolf, 2001; Young, 1998). A study conducted in Vietnam on students showed that 21% of them had IA, and they were facing difficulty in doing their regular activities, having problem with self-care and hygiene, and were also having symptoms of depression and anxiety (Tran et al., 2017). Another study by Cernja, et al., (2019) on the Croatian adolescents revealed that, 3.4% of the study subjects had severe IA, while 32% of them had moderate level of IA. Similarly, a cross-sectional study on 603 students of Ethiopia reported that 55.6% had mild IA, while, 27.9% had moderate and 1.5% had severe IA (Zenebe, et al., 2021). Eldeeb, et al., (2020) also indicated that 36.3% and 2.3% of their sample (students) had moderate and severe level of IA respectively. Various studies in India also indicated severe internet addiction among adolescents (Jhala & Sharma, 2016; Kaur & Cheema, 2018; Vig & Gill, 2015).

Internet use or excessive screen time causes disturbances in sleep patterns, which leads to mental health issues like, anxiety, depression, self-harming behavior, low self-esteem and low well-being (Babic et al., 2017; Romer et al., 2013; Twenge & Campbell, 2018; Twenge et al., 2018; Twenge et al., 2018). IA or problematic internet usage also increases the exposure to online harassment or cyber bullying (Kowalski et al., 2014; Li, 2006). EIU is often found to correlate with impulsivity. Impulsivity is depicted as a predictor of IA (Unsalver & Aktepe, 2017). Study by Terroso et al., (2022) showed association between IA and impulsivity among adolescents, depicting boys to have higher prevalence of impulsivity and IA. Haddad et al., (2021) also reported significant association between problematic internet use and higher level of impulsivity. Impulsivity is unwanted reactions to any situation without thinking about the negative circumstances of those impulsive reactions to an individual or any people around (Barratt, 1985; Moeller et al., 2001). According to DSM-V, (2013) impulsivity is defined as lack of inhibition, and entails immediate

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and unplanned reactions to stimuli, disregarding the potential consequences. During periods of emotional disturbances, an impulsive individual may struggle with maintaining consistency or discipline while doing a task and may show a sense of urgency or engaging in self-harm behaviors.

Like impulsivity, loneliness is also found to be correlated with internet addiction (Hassanzadeh, et al., 2018; Karapetsas et al., 2015; Mozafari et al., 2018). Loneliness is defined as an unpleasant occurrence or situation where an individual's connection is deprived with the people in the society (Weiss, 1973). It is the subjective response or negative feeling that arises in an individual when there is an inequality between what the individual desires or urges and what he/she actually faces in a social relationship (Perlman & Peplau, 1981). During adolescence, individuals undergo major social and personal transformations as they redefine their social network, which can make them vulnerable to feel lonely (Qualter et al., 2013) and increase their susceptibility to various mental health issues (Van Rode et al., 2015). Studies showed association between higher level of loneliness and excessive internet usage among adolescents (Erdogan, 2008; Gill, 2019). Loneliness is a risk factor for suicide, stress, depression, substance abuse as well as Alzheimer disease (Daniel, 2013; Kim, 1999; Raina et al., 2013; Wilson et al., 2007).

In spite of the fact that addiction to internet or problematic internet use has become a global issue particularly after Covid-19 pandemic (Aqeel & Misra, 2020; Awasthi et al., 2020; Ghosh & Bhattacharjee, 2021; Kumar et al., 2022; Nathawat & Gawas, 2020); there is scarcity of researches in this domain in North-East India. So, amid insufficient literatures, the present study is an endeavor to add more information on IA in the context of North-East India. In this backdrop, the present study is conducted at Tripura, a North-eastern state of India with the aim to examine gender and community difference in internet usage (IU), impulsivity and loneliness among adolescents. The study also tried to explore the relationship between IU, impulsivity and loneliness among tribal and non-tribal boys and girls of Tripura. To fulfill the objectives, the following hypotheses were formulated:

1. There exists significant difference between boys and girls with respect to their IU, impulsivity and loneliness.
2. There exists significant difference between the tribal and non-tribal adolescents with respect to their IU, impulsivity and loneliness.
3. Internet usage among adolescents is significantly correlated with their impulsivity and loneliness irrespective of gender and community difference.
4. Internet usage among tribal boys will significantly correlate with their impulsivity and loneliness.
5. Internet usage among tribal girls will significantly correlate with their impulsivity and loneliness.
6. Internet usage among non-tribal boys will significantly correlate with their impulsivity and loneliness.
7. Internet usage among non-tribal girls will significantly correlate with their impulsivity and loneliness

Method

Participants

The sample comprised of 1200 adolescents belonging to the age group of 15 to 18 years. It was consisted of 53% boys (n=636) and 47% girls (n=564), among which 38.66% (n=464) were tribal adolescents while 61.33% (n=736) were non-tribal adolescents. All of them were the residual of Tripura and they were selected from various schools of Tripura following multi-stage random sampling technique.

Instruments

1. *Internet Addiction Test (IAT):* It was originated by Kimberly Young (1998) that measures and identifies the severity of unwanted use of internet for adults and adolescents. It is a 5-point Likert scale and contains 20 items, which assesses the severity of behavior associated with irresistible use of internet like compulsivity and dependency. High score represents high IA. The score 0-19 signifies no IA, 20-39 signifies mild IA, 40-69 signifies moderate IA and 70-100 signifies severe IA. The Cronbach's alpha for IAT ranges between 0.80 and 0.90.
2. *Barratt Impulsiveness Scale (BIS):* This scale was developed by Patton, Stanford & Barratt (1995) to measure the urge or tendency to act immediately or impulsively without considering any consequences. It employs a 3-factor model which includes cognitive, attention and motor impulsivity as subscales. The scale has 30 items based on 4-point Likert scale. The total score ranges from 30 to 180, in which higher score indicates high impulsiveness and lower score indicates low impulsiveness. This scale indicates Cronbach's Alpha coefficient value ranging between 0.79 and 0.83, and it indicates good reliability and validity across various populations.
3. *Revised UCLA Loneliness Scale (UCLA-LS):* It was developed by Russell, Peplau, & Cutrona, (1980) to measure the experiences and behaviors theoretically related to loneliness. It has 20 items based on 4-point Likert scale. The score ranges from 20 to 80 and higher score reports higher level of loneliness. This scale indicates Cronbach's Alpha coefficient value which ranges between 0.73 and 0.94, and it also indicates good reliability and validity with correlation coefficient value of 0.70 to 0.92 across various populations.

Procedure

The research was conducted on 1200 school going adolescents (15 to 18 years) of Tripura. Before starting collecting data, permission from school authorities and consent of the participants was availed and only those subjects who were willing to participate were selected for this study. After proper rapport establishment all the questionnaires were provided to the participants with detailed instructions. Proper care was taken to monitor whether the subjects were responding to the questionnaires in the appropriate manner or not. The incomplete data sheets were excluded and the rest were tabulated and analyzed statistically. Data collected from the students were analyzed quantitatively by using IBM-SPSS version-26. For interpreting the data, mean, SD, t-test and correlation were done.

Results

Table 1 showed significant difference among boys and girls in internet usage (IU) ($p \leq .05$), impulsivity ($p \leq .01$) and loneliness ($p \leq .05$). Therefore, hypothesis 1 has been accepted. From Table 2 it is evident that tribal and non-tribal adolescents differed significantly in IU ($p \leq .01$) and impulsivity ($p \leq .01$), whereas in loneliness no significant difference was observed. Hence the 2nd hypothesis has been partially accepted.

Table 1. Comparison between boys and girls in IU, impulsivity and loneliness

Parameters	Category	Mean	SD	t	p
IU	Boys	39.53	13.80	2.367	.018*
	Girls	37.66	13.53		
IMP	Boys	68.90	8.34	4.013	.000**
	Girls	66.94	8.53		
LON	**Boys**	**45.31**	**8.55**	**2.212**	**.027***
	Girls	**44.22**	**8.40**		

*Significant at *.05 level & **.01 level*
IU-Internet usage, IMP-Impulsivity, LON-Loneliness

Table 3, 4 and 5 indicated the relationship between IU, impulsivity and loneliness. The results revealed that internet usage of the adolescents (N=1200) had significant correlation with impulsivity ($p \leq .01$) and loneliness ($p \leq .01$). Therefore, hypothesis 3 has been accepted (Table 3). From table 4 it is seen that internet usage of the tribal boys and tribal girls were significantly correlated with their impulsivity. No relation has been observed in their internet usage and feeling of loneliness. Hence hypotheses 4 and 5 are partially accepted. In case of non-tribal boys, internet usage was significantly correlated with their impulsivity only. So, hypothesis 6 has been partially accepted. On

Table 2. Comparison between tribal and non-tribal adolescents in IU, impulsivity and loneliness

Parameters	Category	Mean	SD	t	P
IU	Tribal Adolescents	41.90	13.80	6.644	.000**
	Non-tribal Adolescents	36.60	13.25		
IMP	Tribal Adolescents	69.13	8.35	3.751	.000**
	Non-tribal Adolescents	67.25	8.49		
LON	Tribal Adolescents	44.98	9.01	.599	.549
	Non-tribal Adolescents	44.68	8.16		

*Significant at **.01 level*
IU-Internet usage, IMP-Impulsivity, LON-Loneliness

Table 3. Correlation between IU, impulsivity and loneliness among adolescents (N=1200)

Variables	IU	IMP	LON
IU	1	.253**	.083**
	-	.000	.000
IMP	-	1	.261**
	-	-	.000
LON	-	-	1
	-	-	-

*Significant at **.01 level*
IU-Internet usage,
IMP-Impulsivity, LON-Loneliness

Table 4. Correlation between IU, impulsivity and loneliness among tribal adolescents (n=464)

Gender	Variables	IU	IMP	LON
Tribal Boys	**IU**	1	.192**	.048
		-	.002	.437
	IMP	-	1	.154*
		-	-	.012
	LON	-	-	1
		-	-	-
Tribal Girls	**IU**	1	.263**	.114
		-	.000	.108
	IMP	-	1	.387**
		-	-	.000
	LON	-	-	1
		-	-	-

*Significant at *.05 level & **.01 level*
IU-Internet usage, IMP-Impulsivity, LON-Loneliness

Table 5. Correlation between IU, impulsivity and loneliness among non-tribal adolescents (n=736)

Gender	Variables	IU	IMP	LON
Non-Tribal Boys	**IU**	1	.230**	.053
		-	.000	.305
	IMP	-	1	.267**
		-	-	.000
	LON	-	-	1
		-	-	-
Non-Tribal Girls	**IU**	1	.253**	.107*
		-	.000	.040
	IMP	-	1	.253**
		-	-	.000
	LON	-	-	1
		-	-	-

*Significant at *.05 level & **.01 level*
IU-Internet usage, IMP-Impulsivity, LON-Loneliness

the contrary, internet usage of non-tribal girls had significant correlation with their impulsivity ($p \leq .01$) and loneliness ($p \leq .01$). Therefore the 7th hypothesis has been **accepted.**

Discussion

The current study is a correlational study that examines the relation between internet usage (IU) with impulsivity and loneliness among school going adolescents. The findings showed gender difference in IU, impulsivity and loneliness. Boys irrespective of their community difference were found to have more IA, impulsivity and loneliness. Various Indian studies also revealed gender difference in IA (Anwar, 2014; Arthanari, et al., 2017; Asokan et al., 2019; Gayathri & Nesan, 2020; Kaur, 2020; Kumari et al., 2022; Mane, et al., 2018; Raina & Bhatt, 2021; Sharma, et al., 2014; Soni et al., 2020; Upadhyay, et al., 2017). A study by Al-Hantoushi and Al-Abdullateef (2014) reported high IA with a prevalence rate of 5.3% among boys in Riyadh, UAE. Another study on Tunisian adolescents also showed high IA (12.8%) among boys (Missaoui, et al., 2015). Further, a study covering 1188 school students of Doha-Qatar reported that boys had higher level of IA than girls (Bener et al., 2016). On the other hand, a study by Kumar et al., (2022) reported that female college students of Bhubaneswar, India had high IA than their male counterparts. In case of impulsivity and loneliness also many studies showed gender difference highlighting more impulsivity and loneliness among males (Borys & Perlman, 1985; Chen et al., 2022; Koenig et al., 1994; Lau et al., 1999; Maes et al., 2017; Terroso et al., 2022). Singh and Rao (2018) reported that tribal males and females differ in case of impulsivity. In contrast, some studies showed no gender difference in impulsivity (Forzano et al., 2021; Silveri et al., 2006; Weafer & de Wit, 2014). Similarly, studies among ethnic groups (Caucasian, Hispanic, African-American, Asian and others) showed no gender difference in impulsivity (Matsuo et al., 2009). A study by Hasmujaj (2016) also reported no gender differences in IA and loneliness among students.

The comparison between tribal and non-tribal adolescents showed significant difference only in IU and impulsivity. No noteworthy difference was found in loneliness. The findings depicted that the tribal adolescents scored higher in both internet use and impulsivity. Variations in upbringing, social norms, or exposure to situations might have influenced their level of IU and impulsivity. Further, no difference in loneliness suggested that feeling lonely or isolated may be a challenge for both tribal and non-tribal adolescents. Zhang et al., (2008) conducted a study among students of U.S. and China and indicated that Chinese students had high IA than that of U.S. students. In an Indian study Singh and Rao (2018) also showed that tribal and non-tribal people of Arunachal Pradesh differ significantly in impulsivity. Another study conducted among two ethnic groups of children, showed that African American had high impulsivity than that of European American (Pedersen et al., 2012). On the contrary, a study by Chamberlain and Grant (2020) showed no differences among various racial-ethnic groups in impulsivity. In case of loneliness, Byrne et al. (2021) found no difference between Black-African-American and White-Caucasian groups. However, in contrary, Taylor and Nguyen (2020) showed that black Americans and white Americans differ in loneliness. Similarly, Beech et al. (2024) also revealed significant difference in loneliness among the black and white men. An Asian study conducted at the Chittagong district of Bangladesh also showed that tribal and non-tribal students differed with respect to their feeling of loneliness (Sultana et al., 2019).

Internet usage has been found to be correlated with impulsivity. It may be understood that use of internet disrupts the focus and instigates impulsive traits, irritability or aggression among adolescents. In its worst case, impulsivity may also lead to instant gratification or reinforcement through online platforms, checking social media repeatedly, interacting with strangers online, prioritizing or participating in inappropriate online trends for popularity; can be a risk for adolescents in ordinary life. Various studies showed positive correlation between IA and higher level of impulsivity among adolescents (Bisen & Deshpande, 2020; Cao et al., 2007; Kawa & Shafi, 2015). The present study also found significant correlation between IU and impulsivity among adolescents. Finding of the study also revealed significant relationship between IU and loneliness. Studies conducted in India and other parts of the world also showed relationship between IA and loneli-

ness (Mahapatra & Kumar, 2019; Nathawat & Gawas, 2020; Osman & Cirak, 2019; Peighambari et al., 2019; Puri & Sharma, 2016; Rana & Sharma, 2024).

One of the aims of the present study was to examine correlates of internet usage among adolescents across community. It was revealed that IU was found to be significantly correlated with impulsivity among tribal boys and girls. The present findings corroborate with the studies which also showed association between IA and impulsivity among Indian tribal adolescents (Gopal & Ashok, 2012; Singh & Rao, 2018). Like tribal adolescents, in case of non-tribal adolescents also significant correlation was observed between IU and impulsivity. Significant relation was observed in IU and loneliness among the non-tribal girls. Adolescents with lack of knowledge of controlling excessive use of technology and internet may in turn face impulsive online behaviors like excessive gaming, social media use and browsing without a clear purpose. They may also experience psychosocial pressures, such as adjusting to modernizing events, social validation through likes, comments, or interactions with new friends online and need for social acceptance, which led excessive or spontaneous internet usage on a daily basis. Thus, excessive use of technology can amplify impulsivity and loneliness. The study of Salehi et al., (2023) observed association between IA and Impulsivity among male and female students of Iran. Zhang et al., (2015) also showed association amid IA and impulsivity among Chinese college students. Radhamani and Arulsamy (2012) also reported significant relation between IA and loneliness among college students of Coimbatore, India.

Conclusion

Present study indicated that boys and girls differed significantly with respect to their internet usage (IU), impulsivity and loneliness indicating boys had more IU, impulsivity as well as loneliness. Tribal and non-tribal adolescents also differ in their level of IU and impulsivity, indicating that non tribal adolescents were less prone to IU and impulsivity. IU of the overall sample was found to be correlated with both impulsivity and loneliness. In case of tribal adolescents (both boys and girls) IU was found to be significantly correlated with impulsivity where as in case of non-tribal adolescents, IU of girls was significantly correlated with their impulsivity and loneliness. For boys (belonging to both tribal and nontribal community) IU was not associated with loneliness.

Limitations

The study was conducted among 1200 adolescents (aged 15 to 18 years) only, so it could not examine the nature of IU, impulsivity and loneliness among other age groups. Moreover, it was focused only on school going adolescents of Tripura, so the findings may not be comprehensive for those adolescents who are dropouts or never been to any formal education.

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