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IMPACT OF INTERNET OVERUSE ON PSYCHOLOGICAL WELL-BEING OF ADOLESCENTS DURING COVID 19 SHUTDOWN

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Abstract

Background: Nationwide shutdown of educational institutions due to the COVID 19 pandemic has led adolescents to seek refuge in the internet both for education and entertainment. This has translated into excessive screen time which may have serious psychological implications.

Aim: This study aims to assess the psychological well-being and internet addiction among adolescents in the age range of 16-20 years during COVID19.

Material and Methods: 448 students, 222 males, and 226 females, were chosen by simple random sampling, online. The data was gathered using google forms through various social media platforms after assurance of confidentiality and obtaining informed consent. The participants responded to inquiries on basic information, Ryff's scale of Psychological well-being, and Internet addiction test by Young.

Results: Correlational analysis indicated a negative correlation between all dimensions of psychological well-being and internet addiction. Inferential statistics indicated group differences and significant influence of internet addiction and parental incomes on psychological profiles of adolescents.

Conclusion: Psychological wellbeing among adolescents is found inversely proportional to internet addiction which in turn is inversely proportional to the regularity of parental income during the COVID crisis.

Keywords: Psychological Well-Being, Internet Addiction

Introduction

COVID 19 Pandemic has forced the closure of educational institutions since Mar 2020 to check its spread. Internet has been officially the source of educational information for children and adolescents owing to the commencement of online classes. Additionally, adolescents seem to seek refuge in it for entertainment due to curtailment of their outdoor activities. This is evident from a study that reported a 97% spike in the internet usage between Feb and Mar 2020 (ComScore,2020). Most of the data usage pertained to the sources of entertainment, such as, online games and movies. Internet addiction refers to "an individual's inability to control his Internet use, which includes all the activities done online (Ryding and Kaye, 2018; Tikhonov and Bogoslovskii,2015)". This impulse control affects the person's ability to effectively function daily along with marked anxiety when he is not online (Azher et al., 2014). The adverse psychological effect of isolation on children is well documented as is the adverse effect of internet addiction (Mahadevswamy and D'souza, 2017; Sharma and Sharma,2018). The actual influence of internet overuse on the mental health of adolescents in India during the COVID 19 period has not been correctly assessed because of absence of large scale studies, faulty diagnostic criteria, and biased sampling. Also, the psychological profile and consequences of internet overuse during this pandemic among adolescents is, hitherto, unreported. This study aims to address the above, felt, paucity. A null hypothesis was assumed for the group differences and causal relationship among independent variable and dependent variables.

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Method

Sample

The cohort comprising of Indian students in the age range of 16-20 years was selected based on simple random sampling. Informed consent, with the assurance of confidentiality, was obtained preceding the questionnaire administration based on the measures mentioned below.

Measures

The following information was sought from the participants on a questionnaire: age, gender, number of hours of internet use, level of education (school/college), parents' income (variable/steady), changes in their sleep cycle, and eating habits during COVID-19.

The participants were also assessed based on two validated scales, namely, "Young's scale of internet addiction (Young,1998)" and "Ryff's scale of psychological well-being (PWB) (Ryff,1989)".

The details of the scales are provided as Appendix A for reference.

Procedure

The structured questionnaires, formulated using Google forms, were administered online through online social platforms, such as, Facebook and Instagram. Only the completely filled in forms were recorded to ensure a 100% response rate.

Statistical Analysis

IBM SPSS Statistics version 22.0, "statistical package for social science was used for data analysis (IBM,2013)". Internal consistency (Cronbach's α) of the scales was estimated, and descriptive statistics were analyzed. Pearson's correlation coefficient r was calculated to observe the relation between internet addiction and PWB. A two-tailed $p<.01$ and $p<.05$ were considered statistically significant. Differences between the groups were assessed using t-tests. A linear regression was conducted to study the effect of internet overuse on the PWB of students.

Results

The sample comprising of 448 students had almost equal sex ratio i.e. 222(49.6%) males:226(50.4%) females. Students from school and college were 172 (38.4%) and 276 (61.6 %), respectively. During the pandemic, the parental income of 174(38.8%) students was unsteady whilst the other 274(61.2%) had steady family income. The PWB of students was observed to vary as per the bell curve. The majority (48.9%) had an average level of well-being while a minority had low (23.9%) and high (27.2%) sense of well-being, M=175.73 (SD=58.72). Further, Table 1 depicts the internet addiction of students during the pandemic. 115 (25.7%) students did not show signs of addiction, while the segments of students with mild, moderate internet addiction were 29.9%, 44.4% respectively, M=44.76 (SD=18.76)). None of them showed signs of high internet addiction.

Table 1. Descriptive statistics for psychological well-being and internet addiction along with other demographic variables.

Variables		N	%	M	SD
Gender	Male	222	49.6	1.50	.501
	Female	226	50.4		
Education	School	172	38.4	1.62	.487
	College	276	61.6		
Parent Income	Steady	274	61.2	1.39	.488
	Variable	174	38.8		
PWB	Low PWB	107	23.9	175.73	58.72
	Avg PWB	219	48.9		
	High PWB	122	27.2		

IAT	normal	115	25.7	44.76	18.76
	mild addiction	134	29.9		
	moderate addiction	199	44.4		
	total	488	100		

Association between psychological well-being and internet addiction.

It is shown in Table 2, [$r = -0.901$, $p < 0.01$] that with the increase of internet use and addiction, overall PWB decreases significantly. This phenomenon was observed in all the dimensions of PWB, autonomy ($r = -0.849$, $p < 0.01$), environmental mastery ($r = -0.573$, $p < 0.01$), personal growth ($r = -0.721$, $p < 0.01$), positive relations ($r = -0.896$, $p < 0.01$), purpose in life ($r = -0.854$, $p < 0.01$), and self-acceptance ($r = -0.869$, $p < 0.01$). A strong positive correlation was observed between all dimensions of PWB. No correlation existed between gender, PWB, and internet addiction. While significant correlation exists between parental income, PWB and internet addiction (r =0.144, $p<0.01$; r =-0.147, $p<0.01$). Interestingly, parent income has a significant relationship with autonomy, personal growth, purpose in life, and self-acceptance dimensions of the PWB scale.

TABLE 2: Correlation between psychological well-being and internet addiction along with other demographic variables of students (N= 448)

		1	2	3	4	5	6	7	8	9
1	Autonomy	1								
2	Environmental Mastery	.641**	1							
3	Personal Growth	.785**	.829**	1						
4	Positive Relations	.772**	.499**	.678**	1					
5	Purpose in Life	.807**	.614**	.691**	.824**	1				
6	Self Acceptance	.796**	.460**	.657**	.873**	.808**	1			
7	PWB	.833**	.570**	.710**	.881**	.848**	.856**	1		
8	Internet addiction	-.849**	-.573**	-.721**	-.896**	-.854**	-.869**	-.901**	1	
9	Parent Income	.137**	.076	.107*	.086	.123**	.106*	.144**	-.147**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

To analyze the differences within the group between gender, parent income, and education with regard to PWB and Internet addiction, t-tests were conducted for each variable. The results revealed no significant difference in scores between the genders (males M= 158.77, SD=38.88, N=222 and females M=152.47 (SD=39.09), N= 226, $t(446)= 1.711$, $p> .05$, two-tailed); between the levels of education (school M= 154.85, SD=37.962, N=191 and college students M= 156.14, SD=39.945, N=257,($t(446)= -0.345$, $p> .05$, two-tailed). However, a significant difference was observed between students whose parents had steady income M=194.66,SD=33.19, N=274 and those with unsteady income M=114.51, SD=25.71, N=174 ,($t(446)=28.66$, $p< .01$, two-tailed) during the COVID 19 outbreak.

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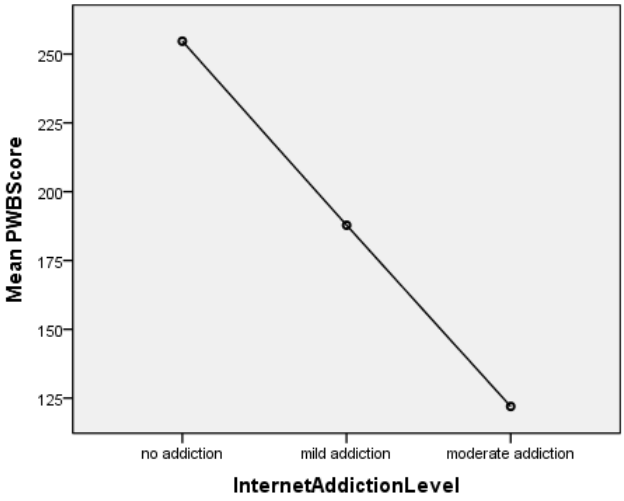
Similar pattern was observed regarding internet addiction. No significant differences existed in scores based on gender (males, *M= 35.73* (*SD*= 16.299), N=222 and females *M*= 36.62 (*SD*=16.24), N=226, t(446)=-0.583,p>.05,two-tailed)or educational levels; levels of education *(M= 36.18* (*SD= 17.124*), N=191 for schools and *M*= 36.18 (*SD*=15.553), N=257, t(446)=-0.003,*p*>.05,two-tailed) for colleges). Internet addiction was significantly lesser among students whose parental income was steady (*M=33.06* (*SD=13.59*), N=274 as compared to those without *M*= 63.18 (*SD*=7.72), N=174, t(446)=-29.86 ,*p*<.01,two-tailed). This is an interesting finding which can be probed further. Analysis of variance indicated that the effect of level of internet use on PWB was significant, F (3, 444) =1269.54, *p*=.000. Post hoc comparisons using Tukey HSD test suggested that mean scores of no addiction (M=254.68, SD=17.74) was significantly different than mild addiction (M=187.84, SD=14.36), moderate addiction (M=121.96, SD=29.00) to the internet (See Figure 1).

Figure1. Difference in mean scores of psychological well-being with varying levels of internet addiction



A simple linear regression analysis was done to assess whether internet addiction predicts the psychological well-being of participants. Also a regression analysis was conducted to observe whether parental income predicts psychological well-being of adolescents. A significant regression equation was found (F (1,446) =168.804, *p*<.000), with an R^2 of .275. The psychological well-being of participants decreases by -1.262 with increase in each score of Internet Addiction. The results show that internet addiction was a negative predictor of different dimensions PWB, namely (1) autonomy, R^2 = 0.255, *F* (1, 446) =152.72, *P* < .000; (2) environmental mastery, R^2 = 0.056, *F* (1,446) =26.604, *P* <.000; (3) personal growth, R^2 = 0.129, *F* (1, 446) = 66.142, P<.000; (4) positive relations, R^2 = 0.358, *F* (1, 446) = 249.133, *P* < .000; (5) purpose in life, R^2 = 0.296, *F* (1, 446) = 187.323, *P* < .000; and (6) self-acceptance, R^2 = 0.274, *F* (1, 446) =168.853, *P* <.000. The PWB and its different dimensions decreases significantly as internet addiction increases.

Similarly, the results of parental income where steady parental income is coded as 1 and varied parental income is coded as 2, (F(1,446)= 829.06,*p*=.000), with an R^2 of .650 was found to predict PWB of adolescents which means adolescents with steady parental income experience higher PWB as compared to varied parental income.

Table 3: Linear Regression analysis of internet addiction and parental income (n=448)

Independent Variable	**Dependent Variable**	**R^2**	**B**	**SEB**	**t**	**Sig**	**F**	**Sig**
Parental Income	PWB	0.650	-80.38	2.792	-28.79	.000	829.06	.000
IAT	PWB	0.275	-1.262	0.097	-12.992	.000	168.804	.000
	Autonomy	0.255	-0.219	0.018	-12.35	.000	152.72	.000
	Environmental Mastery	0.056	-0.125	0.024	-5.158	.000	26.604	.000
	Personal Growth	0.129	-0.158	0.019	-8.133	.000	66.142	.000
	Positive Relation	0.358	-0.277	0.018	-15.784	.000	249.133	.000
	Purpose in Life	0.296	-0.247	0.018	-13.687	.000	187.323	.000
	Self-Acceptance	0.274	-0.237	0.018	-12.994	.000	168.853	.000

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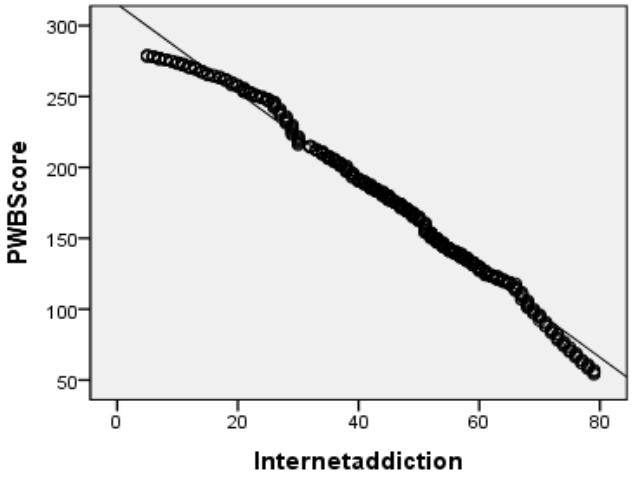
Predicting Variable: IAT; B: Unstandardized coefficient; SEB: Standard error of B; PWB: Psychological Well-being; IAT: Internet addiction test

Figure 2: Regression line of Fit for Internet addiction and psychological well-being



Discussion

Adversities are known to negatively impact humans psychologically. The impact is most pronounced among the adolescents and manifest as anxiety and fear of the future. COVID 19 pandemic constitutes such an adversity.

Studies have examined the impact of pandemic on psychological profile of adolescents, however, the effect of internet abuse has not been evaluated (Pfefferbaum and North, 2020). It is well established that online gaming leads to higher flow escalating the risk of internet addiction yet, it is uncertain whether the psychological distress translates into flow (Buzzi et al (2020); Yang and Wu (2019). In a recent study during this pandemic, Sundaray and Galimotu (2020) found online gaming disorder to be associated with panic disorder and perceived loneliness. However, the emphasis was on a singular activity on the internet. No study has, hitherto, assessed the impact of internet addiction on the overall psychological well-being of adolescents during this adverse of COVID pandemic. This study fulfills the above paucity.

This study shows that a small but significant chunk of adolescents experience low sense of well-being (11.6%) and exhibit moderate internet addiction (26.3%) (Krishnamurthy and Chetapalli,2015) due to increased permitted use of the internet during the pandemic lockdown (Andrande, 2020). Adolescents are negatively impacted by excessive use of the internet leading to aggravated levels of. Internet addiction impairs cognitive functions and identity formation in adolescents (Park et al.,2011; Goel et al.,2013), disturbs academic performance, eating, and sleeping schedules, aggravates depression, anxiety, stress, risk-taking behavior and aggression (Li et al.,2019; Saikia et al.,2019; Kumar et al., 2018; Cheung & Wong, 2011; Durkee et al.,2016; Jamil et al., 2016). Just as many studies have established internet addiction to be a contributing factor for increased risk of mental illness, anxiety, loneliness and lowered psychological well-being (Nalwa and Anand,2003; Huang,2010; Senol-Durak & Durak,2011; Rehman et al.,2016; Zhou and Leung, 2019; Garcia-Priego,2020; Twenge and Campbell, 2018), this study reinforces the negative effect of internet use on the overall psychological well-being of adolescents during a health emergency.

Social isolation and unmonitored increased screen time are the prime causative factors for internet addiction (Gupta et al., 2018, Tateno et al.,2019). This COVID pandemic has generated and promoted both these factors. Legitimate and unhindered access to the internet for online classes and communication among peers for homework gets misused for entertainment and staying up late (Li et al.,2020). The prolonged social isolation and lack of supervision has translated this behavior into a new norm al during this crisis.

Increasing number of COVID patients and suspected cases induce anxiety among individuals. Uncertainty about the future due to the discovery of new COVID cases in the neighborhood could trigger anxiety (Bao et al. (2020) which may subsequently lead to greater use of the Internet for entertainment to escape reality (Biolcati, 2017). This may significantly and negatively impact psychological well-being. However, Agbaria and Bdier (2020) recently re-established the positive effect of social support and high subjective well-being in reducing internet addiction.

In line with previous studies, no significant difference in psychological well-being and addiction to the internet been observed between the genders or students with varying levels of education (Shekhawat and Dube,2018; Soulioti et al.,2018; Seyerk et al.,2017).

Further, it is disturbing to note the correlation between unsteadiness of parental income and low sense of well-being which renders the children to seek refuge in the net for escaping the harsh realities of life. This may perpetuate poverty among the low income group in the long run (Neppl et al., 2016; Bao et al., 2016).

The incidence rate of internet addiction during COVID 19 needs to be investigated with large scale epidemiological studies. It is vital to find long term effects of internet addiction during the pandemic on various aspects of human behavior and mental health. There are not many studies yet conducted to find the protective factors from the addiction nor are interventions planned to fix the damage already done. Despite certain limitations such as the study was conducted in a relatively small sample population of Indian high school students and college students, the results of this study are in line with similar studies in the past. The risk factors of factors such as living in urban areas, family dynamics, and perceived loneliness need to be explored further which can serve as future scope of this research.

Conclusion

There is an increase in screen time use of adolescents during the COVID 19 outbreak due to the shutting down of schools and colleges. Excessive internet use has become a public health issue and has adverse effects on the physical and mental health of users. This study establishes the adverse influence of internet addiction on the psychological well-being of adolescents in India during the COVID pandemic. The study demonstrates that a significant proportion of adolescents are moderately addicted to the internet and experience low psychological well-being during the pandemic. Steady parental income serves as a protective factor against internet addiction and in the maintenance of adolescents' psychological health.

Conflict of Interest Statement

None Declared.

Appendix A

Young's Scale of internet addiction (IAT). Young's scale of internet addiction is widely used for evaluating the level of internet addiction. "It consists of 20 items, where each item is scored using a five-point Likert scale (not applicable =0, rarely=1, occasionally=2, frequently=3, often=4, 5=always). It covers six factors, namely, salience, excessive use, neglect of work, anticipation, lack of control, and neglect of social life. (Young,1998)" In this study, the internal consistency was found to be good, Cronbach Alpha =0.82. Total scores were calculated ranging from 0 to 100. High scores are indicative of high internet addiction.

Ryff's Scale of Psychological Well-Being (PWB). "It is a 42 item questionnaire for the assessment of Psychological Well Being consisting of six dimensions of PWB, namely, autonomy, environmental mastery, personal growth, positive relations with others-, purpose in life, and self-acceptance(Ryff,1989)." For each item, students were asked to indicate the degree to which they agreed or disagreed with the statement, on a 6-point scale ranging from 1 for 'strongly disagree' to 6 for 'strongly agree'. Cronbach's α coefficient for this scale was 0.86, indicating good internal consistency.

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