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Research Paper

Does Internet Addiction Affects Sleep Quality of Pre-University Students?

Deeksha, S[1], Lancy D'Souza[2]*

ABSTRACT

The purpose of the study was to find out the relationship between internet usages and sleep quality among Pre-University (PU) students in the city of Mysuru. The sample consisted of 200 PU students pursuing various courses, aged between 15-17 years. Internet addiction was assessed using Young's 20-item Internet Addiction Test (IAT-1998) and sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI-1989). The Internet addiction scale measured addiction in 7 dimensions – salience, excessive use, neglect work, anticipation, lack of control, and neglect social life. PSQI measures sleep quality of the students. To find out the relationship between internet addictions and sleep quality, Pearson's product moment method was employed. Stepwise multiple regressions were employed to find out the major predictors of sleep quality by dimensions of internet addiction. Analysis revealed that as the internet addiction increased, sleep quality of the female students decreased linearly and significantly in salience, excessive use, and neglect work and in total internet addiction scores. 'Salience' and 'neglect social life' domains of the Internet addiction test were found to be the major predictors of sleep quality.

Keywords:*Internet Addiction, Sleep quality, Pre university students*

The internet is a network of global exchanges – including private, public, business, academic and government networks – connected by guided, wireless and fibre-optic technologies. Though there are a lot of advantages to the internet, there are several disadvantages too which cannot be neglected. One such disadvantage is Internet addiction. There were about 500 million active internet users in India in 2018 as compared to 5 million in 2000 (Internet and Mobile Association of India, 2018).

Internet addiction disorder (IAD) also known as problematic internet use or pathological internet use refers to excessive internet use that interferes with daily life. The notion of "internet addictive disorder" was initially devised by Goldberg (1995). In his first narration, internet addiction disorder was described as having the symptoms of "important social or occupational activities that are given up or reduced because of the internet use," "fantasies or dreams about the internet," and "voluntary or involuntary typing movements of the fingers."

[1](Student, II B.A. JEPsy, Maharaja's College, University of Mysore, Mysore-570 005, India)
[2](Associate Professor of Psychology, Maharaja's College, University of Mysore, Mysore-570 005, India)
*Responding Author

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Internet addiction is a psychological dependence on the internet, regardless of the type of activity once logged on (Kandell, 1998). It is a type of broader technology addiction, and also is a subtype of behavioural addictions (Griffiths, 1998). An individual is addicted when an individual's psychological state, which includes both mental and emotional states, as well as their scholastic, occupational and social interaction, is impaired by the overuse of the internet (Beard, 2005).

The utilization of interactive screen media is widespread and for some users leads to pathological symptoms that are phenomenologically similar to signs of addictive disorders. Other symptoms include anger, tension, anxiety (Goldberg, 1995) and increased social maladjustment (Chandrashekara& D'Souza, 2013). Internet addiction disorders (IAD) are rapidly becoming a prevalent mental health concern around the world. Mahadevaswamy and D'Souza (2017a) in a recent study reported that internet addiction adversely affects psychological well-being of adolescents. However, internet addiction did not affect the subjective well-being of the adolescents (Mahadevaswamy & D'Souza, 2017b). Studies have revealed that the peer stress factor of academic stress was found to be the major predictor of internet addiction (D'Souza, Manish & Raj, 2018). Sometimes even the personality of an individual may also make them prone to Facebook and Internet addiction (D'Souza, Ravi, Lakshmeesh & Singh, 2018; D'Souza, 2018).

The pervasiveness of media use in our society has raised concerns about its potential impact on important lifestyle behaviours, including sleep. The day begins with a screen and ends on a screen, and this is having a great impact on the physical and psychological wellbeing of people. Approximately 20% of youth have been reported to have internet addiction (Ko et al., 2005), and approximately 45% of elementary and junior high students were reported by their parents to have had at least one kind of sleep problem (Shur-fen &Gau, 2006). Addiction-related sleep problems and addiction are prevalent, and contribute to a notable fraction of the disease burden in mental and neurological disorders in established market economies (Fineberg et al., 2013). Chen and Gau (2016), in their study indicated that internet addict students have higher chance of experiencing sleep problems.

In the present study, an attempt is made to find out the influence of Internet addiction on sleep quality in students studying at the pre-university level. Not many studies were available in this regard. It is hypothesized that their internet usage has a considerable influence over sleep quality of students and there will be definite predictors for sleep quality by the dimensions of Internet addiction.

METHODOLOGY

Sample

Students pursuing pre-university courses were selected for the purpose of the study. A total of 200 students were randomly selected from a few colleges in the city of Mysuru. Their age varied from 15 to 18 years. Of the 200 sample selected, there were 93 boys and the remaining 107 were girls.

Tools employed

1. Internet addiction scale: The Internet Addiction Test (IAT) was developed by Dr. Kimberly Young in 1998, and it consists of 20 questions adopted to evaluate the respondents' level of internet addiction. The Internet addiction scale measures addiction in 7 dimensions – salience, excessive use, neglect work, anticipation, lack of control, neglect social life. Each item is scored using a five-point Likert's scale: a graded response can be selected (0 = "does

not apply" to 5 = "always"). It covers the degree to which internet use affects daily routine, social life, productivity, sleeping pattern, and feelings. The minimum score is 0, while the maximum is 100. The higher the score, the greater the level of internet addiction. The types of Internet-user groups were identified in accordance with the original scheme of Young, and a score of< 20 indicates normal use. Scores ranging from 20 to 49 indicate minimal use, scores from 50 to 79 indicate moderate use, and scores from 80 to 100 indicate excessive use. The minimal users were classified as problematic internet users, while moderate and excessive users were categorized as internet addicts. The instrument has exhibited good psychometric properties in previous researches. The reliability for this questionnaire is 0.899 in Cronbach's Alpha.

2. The Pittsburgh Sleep Quality Index (1989): The Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, and Berman PSQI-1989) was used to assess the extent of sleep quality among the selected samples. This scale contains 18-items self-reported by the respondents. The items measure seven components: sleep quality, score ranging from 0 (no difficulty) to 3 (severe difficulty) for sleep duration, sleep disturbance, sleep latency, daytime disturbance, habitual sleep efficiency, sleep quality, and use of sleep medications. The total of these provides an index referred to as global sleep quality which ranges from 0 to 21. Reliability measures indicate that the PSQI generally has high internal consistency (α = .80 to .85) and test-retest reliability (r = .85 to .87). It also has acceptable concurrent validity; scores on the PSQI are highly correlated with scores on other subjective measures of sleep quality (r > .69) as well.

Procedure

The first author personally visited various Pre-university colleges in Mysuru, received permission from the respective heads of the institutions and administered the tool to 200 students. Before administering the questionnaire, the students were assured of confidentiality. They were asked to answer all the questions. The instructions were read out and each item in the questionnaire was explained, in case of difficulty in understanding the item/s, so as to get good response. Once the data were collected, they were scored and fed to the computer. The data were analyzed using Pearson's product moment correlation and stepwise multiple regression analysis. Table 1 present's results of Pearson's product moment correlations between dimensions of internet addiction and sleep quality and Table 2 shows results of stepwise multiple regressions for sleep quality scores by various dimensions of Internet addiction.

Table 1

Results of product moment correlations between sleep quality and dimensions of internet addiction

Variable 1 Dimensions of IA	Variable 2	Correlation coefficient	Significance
Salience	Sleep quality	0.224	.001
Excessive use	Sleep quality	0.212	.003
Neglect work	Sleep quality	0.179	.011
Anticipation	Sleep quality	0.104	.143
Lack of control	Sleep quality	0.088	.213
Neglect social life	Sleep quality	-0.056	.428
Total Internet addiction	Sleep quality	0.204	.004

From the above table it is clear that sleep quality scores were significantly and positively related to few dimensions of internet addiction test. Sleep quality was found to be significantly and positively related to salience (r=0.224; p=.001), excessive use (r=0.212; p=.003), neglect work (r=0.179; p=.011), and total addiction scores (r=0.204; p=.004). In other words, as the internet addiction in salience, excessive use, neglect work dimensions and total scores increased, sleep quality also decreased linearly and significantly.

REGRESSION ANALYSIS

Table 2

Summary results of stepwise multiple regression or prediction of sleep quality from internet addiction

Model	Variables Entered	Variables Removed	R	R Square	Adjusted R Square
1	Salience	-	.224	.050	.045
2	Neglect social life	-	.262	.069	.059
Beta coefficients					
		Step 1		Step II	
1	Salience	.224		.270	
2	Neglect social life	-		-.143	

Regression analysis: When the scores of all 6 dimensions of the Internet addiction scale were regressed on the sleep quality scores, stepwise multiple regressions revealed that only two dimensions of IA were found to be the best predictors of sleep quality. The first dimension entered into the equation was salience with correlation coefficient of .224, R-squared value of .050 and variance of .045. The second dimension to enter the equation was neglect of social life along with salience, with the combined correlation coefficient of .262, R-squared value of .069 and variance of .059. In other words, both salience and neglect social life of internet addiction contributed to 5.9% of the sleep quality among the present sample. The beta values for the first predicted models neglected work at steps I and II with the beta coefficients of .224 and .270 respectively. The beta coefficient for the second predicted model-excessive use was found to be -.143 at step II.

DISCUSSION

Major findings of the study

- As internet addiction increased, sleep quality of the female students decreased linearly and significantly in domains of 'salience', 'excessive use', 'neglect work' and in total internet addiction scores.
- 'Salience' and 'neglect social life' of Internet addiction were found to be the major predictors of sleep quality.

From the above findings it is clear that there is a significant association between internet addiction and sleep quality. According to the results of this study, salience and neglect of social life were found to be major predictors. The period of pre-university education can be a stressful time in life where one has to balance college, tuition, passion etc. This will need good amount of sleep to go about the day. Many studies have shown that getting enough sleep is important to our health. A recent study by D'Souza, Samyukta and Tejaswini (2018) revealed that 'Neglect work' and 'excessive use' of Internet were found to be the best predictors of sleep quality. Samyukta and D'Souza (2018) in their study on college girls found that more than 70% of the girls displayed poor sleep quality, and addiction to the

internet could be one of the reasons. The study conducted by Garg, Dasgupta, Pal and Maharana (2017), found several cardiovascular risk factors and sociodemographic factors.Laptop use, among others, predicted a poor sleep pattern in the form of poor sleep quality and inadequate sleep duration. Kaur, Sharma and Singh (2015), found that 3 out of 10 college students were suffering from poor sleep quality and the study also said that poor sleep quality is associated with health-related quality of life, perceived health and well-being in college students.

According to the results of this study, Salience and neglect of social life were found to be major predictors. With the invention of smartphones, it is as though the entire world is just a touch away. Studies have revealed that sleep problems and internet addiction are common among children and adolescents, and are a main concern of parents. Ko*et al*. (2005) reported that approximately 20% of youth are internet addicts, parental observation on elementary and junior high students revealed that about 45% of them have some kind of sleep problems (Shur-Fen &Gau, 2006). Fineberg et al (2013), opined that "Addiction-related sleep problems and addiction are prevalent, and contribute to a notable fraction of the disease burden in mental and neurological disorders in established market economies". Hence, verifying the long term associations between sleep problems and internet addiction may lead to form prevention and treatment strategies for improving sleep quality and reduction of internet addiction. In Nepal, Bhandari et al, (2017) found that Internet addiction mediated 16.5% of the indirect effect of sleep quality on depressive symptoms among undergraduate students. Chen and Gau (2016), after a longitudinal study on sleep problems and internet addiction concluded that dyssomnias sequentially predicted internet addiction, and internet addiction sequentially predicted disturbed circadian rhythm. Young people with dyssomnias may fill the time where they struggle to sleep with internet use, but this in turn can lead to circadian rhythm disturbances, possibly through the effects of light at adverse times. During the study, it was also found that some of the students even took medication in order to fall asleep.

In India, there is easy availability of multiple mobile applications for free or minimal cost. The usage of these apps is quite abundant among young students. This is also one of the major reasons for poor sleep quality. It is quite a serious issue, and psychologists, educationists and policy makers have to plan suitable strategies to reduce the ill effects of Internet addiction, which has a direct negative influence over the academic performance of students.

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Conflict of Interest

There is no conflict of interest.

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