Relationship between Facebook Addiction and Sleep Quality among College Students

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The current study is aimed at finding out the relationship between Facebook addiction and sleep quality among the graduate students in Mysuru. The sample consisted of 166 students pursuing various courses aged between 17- 25 years, selected through simple random sampling. The students completed The Bergen Facebook Addiction Scale (2012) and Pittsburg Sleep Quality Index (PSQI 1989). Facebook addiction scale measured addiction in six elements –salience, mood modification, tolerance, withdrawal, conflict and relapse) and PSQI measured global sleep quality. Pearson's product moment correlation was employed to find out the relationship between the dimensions of Facebook addiction and sleep quality. Stepwise multiple regressions were used to find the major predictors of sleep quality by the dimensions of Facebook addiction. Results revealed that all the elements of Facebook addiction correlated with sleep quality, higher the addiction poorer was the sleep quality. Further, stepwise multiple regressions revealed that only two elements of Facebook addiction were found to be the best predictors of sleep quality. Students pursuing commerce and management had poorer sleep quality and higher Facebook addiction compared to students pursuing arts, science and other courses. Gender did not have significant influence over sleep quality and Facebook addiction.

Keywords: Facebook, Addiction, sleep quality, college students.

Internet, a usually known as a double ended sword has helped and has negatively affected people in many ways. After the smart phones with internet connectivity have come, the addiction and addiction related problems also have become common. Internet addiction is an explanation for uncontrollable, damaging use of this technology and it is a warning sign that a person is having difficulty controlling his or her internet use (Beard & Wolf, 2001). Mahadevaswamy and D'Souza (2017a) in a recent study reported that internet addiction adversely affects psychological wellbeing of adolescents, increased shyness (Mahadevaswamy & D'Souza, 2018) reduced sleep quality (D'Souza, Samyukta & Tejaswini, 2018), increased social maladjustment (Chandrasekhar & D'Souza, 2013). However, internet addiction did not affect subjective wellbeing of the adolescents (Mahadevaswamy & D'Souza, 2017b).

One of the common social networking applications using internet today is Facebook. It has been used world over and number of users increasing day by day. According to statistics provided by Facebook by itself (https://zephoria.com/top-15-valuable-facebook-statistics/), worldwide there are more than 2.13 billion individuals are very actively using the Facebook, most common age being 25-34 years. In Indian the Facebook users are more than 195 million. According to Ryan, Chester and Reece et al (2014), "Facebook addiction" refers to individuals who engage in excessive, compulsive Facebook use for the purposes of mood alteration, with negative personal outcomes. Further, Andreessen and Palliser (2014) opined that individuals affected by Facebook addiction may subjectively experience a loss of control, while continuing to use Facebook excessively despite its detrimental effects. This does not mean that excessive user will be an addict unless it is very compulsive. Review has suggested that Facebook addiction has affected academic performance negatively (Kirschner & Karpinski, 2010). Facebook addictions lead to vulnerability to depression (Tandoc et al, 2015)

and relationship dissatisfaction in romantic relationships (Elphinston et al, 2011).

In public health domain, quality of sleep acquires a major position. Though enough knowledge on sleep and sleep quality is wide spread, today we are finding many sleep related disorders especially in young adults and aged. Having low sleep quality is becoming global public health problem (Araújo et al, 2013). Excessive Facebook usage can affect life and sleep quality too. Long, Zhu, Sharma and Zhao (2015) in their study on undergraduate students in China reported more than half of undergraduates who used social networking service websites (66.25%), Fiction (82.68%) microblogs (66.43%), QQ (66.38%), WeChat (63.56%), post bars (62.89%), forums (58.70%), SNS website (37.30) and blogs (27.00%) reported poor sleep quality. Andreassen, Cecilie, Torsheim, Torbjørn, Brunborg, Geir & Pallesen, Ståle. (2012) in their study found that those who scored high on Facebook addiction reported delayed bedtime and rise time during week days and weekends, indicating poor sleep quality.

The present study is aimed to find out the relationship between Facebook addictions and sleep quality among college students in South India. In India there is influx of multiple mobile service providers and applications which are available either for free or minimal cost, there is a possibility abundant usage of mobile/computer applications by college students specially Facebook.This could be one of the major reasons for poor sleep quality. Hence the present study is conceptualized and it is hypothesized that Facebook addiction does affect sleep quality negatively.

Methods

Sample

Students pursuing undergraduate courses and ages between 17 & 25 were selected for the study. A total of 166 students (76 female and 90 male) pursuing arts, science and commerce were selected randomly from the few colleges in Mysuru.

Tools employed

The Bergen Facebook addiction scale (BFAS) 2012

The Bergen Facebook Addiction Scale (Cecilie Schou Andreassen, Torbjørn Torsheim, Geir Scott Brunborg and Ståle Pallesen, 2012) was used to assess level of Facebook addiction among the selected sample. This scale consists of 18 self reporting items. Each item is scored using a 5 point Likert's scale, a graded response can be selected (1= rarely or none of the time to 5= all of the time). The minimum score is 18 while the maximum score is 100, higher the core higher the level of addiction. A total score of 18-36 indicates low addiction, 37-54 indicates medium level of addiction and scores from 54-90 indicates high levels of addiction. The items measure six elements of addiction (salience, mood modification, tolerance withdrawal, conflict and relapse). The reliability for this questionnaire is 0.82 in Coefficient alpha.

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 sample selected. This scale contains 18-items self-reporting 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 provide 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) too.

Procedure

The authors personally visited few colleges in Mysuru and administered the tool to 166 students after taking the permission from the respective heads of the institution. The students/respondents were assured of confidentiality and were asked to answer all the questions. The respondents were given proper instructions and explained the questions in case of difficulty in understanding the items in order to get right responses. 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 gives the results of Pearson's product moment correlation between domains of sleep quality and Facebook addiction and table 2 shows results of stepwise multiple regression for prediction of sleep quality from Facebook addiction. Table 3 presents mean sleep quality and Facebook addiction scores of male and female students pursuing various courses and results of 2-way ANOVA

Results

Table 1- Results of product moment correlations between domains of sleep quality and Facebook addiction

Variable 1 Domains of FA	Variable 2	Pearson Correlation	Signif-icance
Salience	Sleep quality	.294**	.001
Tolerance	Sleep quality	.485**	.001
Mood medication	Sleep quality	.224**	.003
Relapse	Sleep quality	.371**	.001
Withdrawal	Sleep quality	.228**	.003
Conflict	Sleep quality	.380**	.001
Total	Sleep quality	.460**	.001

Note: df=288; ** = sig at .01 level

From the above table it is clear that all the domains of Facebook addiction and total Facebook addiction scores were significantly and positively related to sleep quality. Since high score in sleep quality indicates poor sleep quality, it is clear that higher the Facebook addiction, more poor will be the sleep quality. The correlation coefficients obtained between sleep quality and salience (r = .294; p = .001), tolerance (r = .485; p = .001), mood medication (r = .224; p = .003), relapse (r = .371; p = .001), withdrawal (r =.228; p =.003), conflict (r =.380; p = 001) and lastly with total Facebook addiction scores (r = .460; p = .001) were all found to be positive and significant.

Regression Analysis: When all the scores of 6 domains of Facebook addiction were regressed on the sleep quality scores, stepwise multiple regressions revealed that only two domains Facebook addiction were found to be the best predictors of sleep quality. The first domain entered into the equation was tolerance with correlation coefficient value of .485, squared R value of .236 and variance of .231. The second domain to enter into the equation was conflict along with tolerance, with combined correlation coefficient value of .505, squared R value of .255 and variance of .246. In other words, both tolerance and conflict domains of Facebook addiction contributed to 24.6 of the sleep quality among the present sample. The beta values for the first predicted model were found to be .485 and .395 at step I and II respectively. The beta value obtained for the second predicted model was .167 at step II.

Influence of Gender and course on Sleep quality and Facebook addiction

Gender as such did not have significant influence over both sleep quality scores and Facebook addiction scores as the observed F

Table 2- Summary results of stepwise multiple regression or prediction of sleep quality from Facebook addiction

Model	Variables Entered	Variables Removed	R	R Square	Adjusted R Square
1	Tolerance	-	.485	.236	.231
2	Conflict	-	.505	.255	.246
Beta coefficients					
		Step 1		Step II	
1		.485		.395	
2		-		.167	

Table 3 - Mean sleep quality and Facebook addiction scores of male and female students pursuing various courses and results of 2-way ANOVA

Gender	Course	parameters			
		Sleep quality scores		Facebook addiction scores	
		Mean	S.D	Mean	S.D
Male	Arts	4.87	2.53	33.48	12.24
	Com./Mgt	7.13	3.71	40.78	12.63
	Science	7.47	2.72	32.00	13.63
	Others	4.50	1.91	31.00	14.07
	Total	6.34	3.33	36.60	13.14
Female	Arts	5.81	3.04	28.13	10.45
	Com./Mgt	6.44	3.48	36.44	10.83
	Science	5.50	2.01	30.17	9.78
	Others	4.67	1.53	26.00	9.64
	Total	5.87	2.81	31.80	10.72
Total	Arts	5.19	2.72	31.66	11.83
	Com./Mgt	6.88	3.62	39.15	12.09
	Science	6.16	2.43	30.78	11.09
	Others	4.57	1.62	28.86	11.71
	Total	6.13	3.11	34.47	12.33
F (Gender)$_{1, 596}$		F=0.313; p=.577		F=2.378; p=.125	
F (Course)$_{1, 596}$		F=2.757*; p=.044		F=5.860**; p=.001	
F (Interaction)$_{1, 596}$		F=1.633; p=.184		F=0.170; p=.916	

Note: F=Fishers value; *= Sig at .05 level; ** = Sig at .01 level; Com/mgt=Commerce/Management

values did not show significant mean difference between male and female students.

However, course pursued had a significant influence over both sleep quality and Facebook addiction scores. In the case of sleep quality (F=2.757; p=.044), we find that students pursuing Commerce, management and Science had poor sleep quality compared to students pursuing other and Arts courses. In the case of Facebook addiction again we find a significant difference between students pursuing various courses (F=5.860; p=.001), where we find that students studying commerce had highest scores on Facebook addiction compared to students pursuing arts, science and other courses. Lastly, the interaction effect between gender and course were found to be non-significant for both sleep quality scores and Facebook addiction scores.

Discussion

Major Findings of the study

- Higher the Facebook addiction in various elements, poorer was the sleep quality

- Tolerance and conflict contributed more to the poor sleep quality of the students

- Students pursuing commerce and management had poorer sleep quality and higher Facebook addiction compared to students pursuing arts, science and other courses.

- Gender did not have significant influence over sleep quality and Facebook addiction.

From the above findings it is clear that there is significant relationship between Facebook addiction and sleep quality. It is also seen that

tolerance and conflict were found as the major contributors of poor sleep quality. Quality of sleep is vital in the emotional and physical growth of the adolescents which have further effects in learning, attention, concentration, and the other various cognitive functions (Snell, Adam, & Duncan, 2007).Studies done earlier in this stream have shown that Facebook addiction led to poor sleep quality, jealousy, frustration, loneliness and other psychological and physiological problems.

Wolniczak et al (2013) reported that 8% of the students had Facebook dependence and more than half of them had poor sleep quality. Activities like messaging, uploading, gaming and others can lead to addiction. The late night logins and the lights from the electronic devices have negatively affected the circadian rhythm and this affected the day time dysfunction of the students (Young, 1999). Griffith opines that messaging friends, playing games, and others in Facebook, can engage person in misuse and addiction, Facebook acts like a bridge between gambling activities and sleep disorders. Siddiqui et al (2016) opined that Sleep deprivation effects individual's mood, alertness, cognitive functions, and motor activity. They attributed it to use of the internet and social media along with use of central nervous system stimulants. Sleep fragmentation may occur with individuals who were addicted to online videogames develop feelings of loneliness and isolation (Schmit, Chauchard, Chabrol, &Sejourne, 2011). Barion and Zee, (2007) concluded that exposure to bright light at the wrong time of the day can alter circadian rhythm sleep with insomnia and excessive sleepiness.

Comparing arts and science students, commerce or management students had higher Facebook addiction and poor sleep quality. There are no specific studies available in this regard, however, one can attribute to the curriculum of these commerce or management students may force them to use more Facebook for varied reasons. Gender-wise we could not find any significant difference in the Facebook usage; one can infer that accessibility is same for both genders. Abdulahi, Samadi and Gharleghi (2014) are of the opinion that majority of the students/scholars prefer to stay on the internet for hours, than studying for their exams or doing their assignments.

To conclude, we can definitely say that Facebook addiction does affect sleep quality negatively, which is not a good sign for the students population. More studies in depth can be done on this line and effective strategies can developed to use Facebook in a constructive and creative way to have a sound sleep quality for the highly vulnerable students population.

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