A Comparative Study On Social Media Addiction Between Public And Private High School Students Of Urban Bengaluru, India
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ORIGINAL ARTICLE

A COMPARATIVE STUDY ON SOCIAL MEDIA ADDICTION BETWEEN PUBLIC AND PRIVATE HIGH SCHOOL STUDENTS OF URBAN BENGALURU, INDIA

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Abstract

Objective: **Social media usage is a global consumer phenomenon that has risen exponentially in the last few years. Published Indian studies on social media addiction are scarce and social media associated health issues are an emerging health problem in India. Objectives: To assess and compare social media addiction between private and public high-school students and to assess health problems related to social media usage across these groups.** ***Methods:*** **This cross-sectional study was completed in 2016. It was conducted in five private and five public high schools across wards of Bengaluru city that were selected by simple random sampling. The subjects were students studying in grades 8, 9 and 10 (aged between 12 and 16 years). A total of 760 subjects were recruited, 380 from public and 380 from private high schools. They were administered a pretested, semi-structured, self-administrated questionnaire in either the local language or English. Univariate and multivariate logistic regression were employed to establish any associations between social media addiction and various other factors.** ***Results*****: In our samples, 60.95% of social media users studied in private schools and 39.05% in public schools ($z = 10.31$, $p<0.001$). The most commonly used social media applications were, Internet gaming (69.23%) in Public schools and WhatsApp (61.15%) in Private schools. The overall prevalence of social media addiction was 19.96% among users with significantly higher rates of self-reported addiction in private schools ($z = 3.47$, $p < 0.001$). A total of 70.67% of the subjects had one or more physical symptoms, i.e. neck pain, tension, strain on eyes and fatigue of which 67.42% and 72.75% were from public and private schools, respectively. Psychological changes, i.e. anger, lonely and frustration; and behavioural changes, i.e. sleep disturbance and neglect personal hygiene were observed in 67.42% and 51.01% of public and private school pupils, ($z = 3.85$, $p < 0.001$), respectively.** ***Conclusion*****: Private school students were more prone for social media addiction. Majority had mild addiction. Addiction was associated with behavioural changes. A multitude of physical, psychological and behavioural problems were observed among social media users.** ***ASEAN Journal of Psychiatry, Vol. 18 (2): July – December 2017: XX XX.***

Keywords: Social Media, Addiction, Physical Symptoms, Psychological Changes, Behavioural Changes

Introduction

The new millennium has arrived with the rapid spread of modern technology, especially the electronic communication revolution, bridging the gap between the developed and developing countries; the rich and poor. The most significant advance has been the advent of the Internet and mobile phones which has improved communication and access to

information for all. Globally, about 3.5 billion people were using Internet in 2016 through modern gadgets like smart phones and computers with 82% of the population in the developed world and 35% of population in the developing world[1]. The commonest use of Internet is to share and learn new information through work, Google, g-mail, apps, online payments, social media, etc.. Today, social media is close to becoming an integral part of the day to day lives of most people on the planet.

Social media usage is a 'global consumer phenomenon' with an exponential rise in its usage in the last few years [2]. Research into frequent, excessive, and compulsive social network activity has increased over the years, in which terms such as "social network site addiction" and "Facebook addiction" have been used interchangeably [3]. One can get addicted to social media like alcohol, tobacco, injectable and non-injectable substances because of proffered reward [4]. Addiction may have deleterious effect on the health of users in their formative years. Physical effects involve the brain, hearing, vision and heart; psychological effects as anxiety, disturbed sleep pattern, fatigue, loneliness, depression, and social problems such as academic decline, relationship problems, and social isolation [5,6]. Overall, the research into this topic is in its infancy, and as such the social media addiction constructs need further exploration [3].

Contemporary scientific literature addressing social media usage, addiction and health problems among adolescents is scarce in India. Nowadays, children irrespective of their socio economic background had greater exposure to electronic gadgets like smart phones at a much younger age and more prone to social media overuse or addiction. Hence, the present study was conducted with the objective to assess and compare social media addiction between private and public high-school students. To describe the socio-demographic profile of the study subjects, and to assess physical, psychological and behavioural problems related to social media usage.

Methods

This cross-sectional study was conducted in Private and Public high schools, situated in selected ward in Bengaluru city, Karnataka, India between June and November 2016. The subjects were high school students studying in grades 8,9 and 10 (aged between 12 and 16 years). A total of 20 schools gave consent to conduct study. 10 schools (5 public & 5 private) were selected by simple random sampling. In each school classes were selected by simple random sampling by chit method and in each class all students were included. The absentees on the day of study were excluded. A total of 760 subjects were recruited from both Public and Private high schools.. They were administered a pre- tested, self-administrated questionnaire in the local language/English. The subjects were instructed to read each question carefully and answer honestly.

The investigators explained the details of the questionnaire before the students were made to answer. The questionnaire is in three parts, A, B and C. Part A asks about the students' socio-demographic profile, their social media usage and any associated health problems. Part B consisted of a 9-question novel social media addiction scale. This scale was field tested and validated with sensitivity of 98.1% specificity of 80.8% and cronbach's alpha of 0.76. Each question was given a score ranging from 1 to 5 (1: Never; 2: Seldom; 3: Occasionally; 4: Often; and 5: Always) giving a minimum score of 9 and a maximum of 45. They were then classified based on the scores as normal (<14), mild addiction (15-22), moderate addiction (23-36) and severe addiction (37-45). Part C consisted of a 6-question Internet Gaming scale. Each question was scored from 1 to 5 (1: Never; 2: Seldom; 3: Occasionally; 4: Often; and 5: Always) giving a minimum score of 6 maximum of 30. Those who scored ≤ 13 were grouped as normal, and those > 13 as excessive usage.

Operational definitions

Social Media: Websites/Applications that enable users to create and share content, or to

participate in social networking; Social Media User: Student who had used social media for at least 2 months in the past; Social Media Non-User: Student who had not used social media even once in the past.

Statistical Analysis: The data was collected in epiinfo and analyze during a statistical package Stata 12.1 (Stata Corp, Texas, USA). Descriptive statistic such as mean, median, standard deviation, frequencies and proportions was computed for. A Chi-square test and Z-test for proportions was used for comparison of groups. Univariate and Multivariate logistic regression were applied to know the association between addiction and various factors.

Ethics approval and consent to participate

The ethical clearance was obtained for the study from Kempegowda Institute of Medical Sciences (KIMS), ethical committee, Bengaluru, Karnataka, India. (Ethical committee clearance letter will be provided when required for submission). Confidentiality of the school and study participants was ensured.

Results

Seven hundred and sixty students (male: female = 280: 286) were recruited. Three hundred and eighty students participated from public and private high schools, with a total of 159 (20.92%) subjects were from 8th grade, 232 (30.52%) from 9th grade and 369 (48.56%) from 10th grade, respectively. Five hundred and sixty six (74.5%) study subjects were social media users and 194 (25.5%) were non users. The average family size was found to be 4.7 ± 1.67. 673(88.55%) of the subjects stayed at home, 60(7.89%) in the hostel, and 27(3.56%) in paying guests. Among users, 60.95%studied in private schools and 39.05% in public schools, and this difference were found to be statistically significant (z= 10.31, p < 0.001). 53.92% males from public schools used social media compared to 46.08% from private schools (z = 7.18, p < 0.001). A total of 75.53% females from private schools were social media users compared to 24.47% from public schools (z = -7.1812, p < 0.001). A total of 63.95% of subjects used mobile phones; 34.27% subjects used computers, and 15.37% used tablets to access social media. 14.24% of the users' parents were unemployed, 2.65% resided in different cities, and 1.23% was separated.

A total of 51.94% public and private schools used social media daily, 27.03% weekly, 17.13% monthly and 3.88% yearly. Overall, 77.41%% of the subjects used social media at home, 4.59% while walking along the road, 2.65% in hostel and 2.47% while driving. Majority of users operated Whatsapp (51.41%), followed by Internet gaming (50.35%), Facebook (36.57%), YouTube (32.86%), Twitter (9.01%), and others (0.76%) like hike, instagram and skype. The most commonly used applications were, Internet gaming (69.23%) in public schools and Whatsapp (61.15%) in private schools.

The overall prevalence of social media addiction was 19.96%. Between 566 users 15.18% of study subjects from eighth grade, 20.85% from 9th grade and 20.66% from 10th grade were addicted to social media. A total of 25% males were addicted to social media compared to 15.03% females. The median money spent/month ± Inter Quartile Range (IQR) for the use of social media among addicts was Indian National Rupees (INR) 128 ± 211 and Rs. 90 ± 155 among non-addicts. The median duration of usage ± IQR among addicts was 28 ± 42 and 20 ± 20 hours/month among non-addicts. A significantly greater proportion of social media addicts was found in those attending private schools (z = 3.47, p<0.001). There was no statistical difference with regards to excess use of Internet gaming as described in Table 1.

Table 1. Distribution of subjects according to social media usage and addiction

	Public (n=221)	**Private (n=345)**	**Total (n=566)**	**Z-score, p value**
Mild addiction	27(12.21)	64(18.55)	91(16.07)	
Moderate addiction	1(0.45)	21(06.08)	22(03.88)	
Severe addiction	-	-	-	
Total	**28(12.66)**	**85(24.63)**	**113(19.96)**	**3.47, <0.001**
Usage of internet gaming based on Internet Gaming scale				
	Public (n=153)	**Private (n=132)**	**Total (n=285)**	**Z-score, p value**
Excessive use	34(22.23)	54(40.91)	88(30.87)	0.0857, 0.92
Normal	119(77.77)	78(59.09)	197(69.12)	

Figures in parenthesis indicate percentages

Internet gaming excessive use was observed in males compared to females and this difference was found to be statistically significant(z-score 3.006, p-value 0.002).The variables that were statistically significant in the univariate logistic regression were included in the final binary logistic regression model as described in Table 2. A statistically significant association was observed only between addiction to social media and wrist pain (Adjusted OR 1.95[1.07, 3.56], $p< 0.028$).

Table 2. Association of individual factors with social media addiction using Binomial logistic regression model

		Addicts (n=113)	**Non-addicts (n=453)**	**Adjusted OR(CI)**	**p-value**
Sex	Female	43(38.06)	242(53.42)	Reference	
	Male	70(61.94)	211(46.57)	1.79(1.18-2.73)	0.006
Conflict	Friends	50(44.24)	189(41.72)	-0.34(0.21-0.55)	<0.001
	Relatives	15(13.27)	48(10.59)	-0.24(0.08-0.69)	0.008
Place of Usage of social media	Hostel	97(85.84)	354(78.14)	-0.41(0.25-0.65)	<0.001
Application	Facebook	56(49.55)	151(33.33)	1.67(1.00-2.78)	0.049

(Figures in parenthesis indicate percentages; OR = Odds ratio)

The physical activities performed by users were, sports (36.74%), followed by dancing (34.27%), walking (31.80%), exercise (19.78%), yoga (15.90%), jogging (12.72%), gymnastics (10.24%), aerobics (5.30%), and others (21.37%). A total of 4.52% of users from Public schools and 3.47% from Private schools had a history of smoking; 1.80% and 2.02% users respectively consumed alcohol, and 1.80% and 0.86% respectively used tobacco. Non-users did not use any of the above substances. 63.63% of addicts and 36.47% non-addicts had a history of smoking; 76.92% addicts and 23.08% non-addicts consumed alcohol, and 85.71% addicts and 14.29% non-addicts respectively used tobacco.

A total of 45.58% of the subjects gave a history of conflict with friends, 8.48% with parents, 12.72% with relatives. Four hundred (70.67%) subjects had one or more physical symptoms. Physical symptoms observed among social media addicts and non -addicts are given in Table 3, and the differences were not statistically significant.

Table 3. Comparison of physical symptoms observed between social media addicts and non-addicts.

Physical symptoms	Addicts (n=113)	Non-addicts (n=453)	Total (n=566)	χ2 value (df), p-value
Neck pain	28(24.56)	101(22.34)	129	8.2 (8) 0.41
Tension	19(16.66)	58(12.83)	77	
Strain on eyes	27(23.68)	115(25.44)	142	
Fatigue	12(10.52)	29(6.41)	41	
Back pain	25(21.92)	105(23.23)	130	
Watering of eyes	19(16.66)	71(15.70)	90	
Shoulder pain	16(14.03)	37(8.18)	53	
Wrist pain	9(7.89)	49(10.84)	58	
Stiffness of neck	4(6.14)	29(6.41)	33	

Figures in parenthesis indicate percentages, *Multiple responses

Three hundred and twenty five (57.42%) subjects had one or more psychological and/or changes when subjects were interrupted from using social media. The psychological and behavioural changes observed between addicts and non-addicts are shown in Table 4.The difference observed in behavioural changes was statistically significant (χ2=11.92, p = 0.035).

Table 4. Comparison of psychological and behavioural changes between social media addicts and non-addicts

Psychological changes*	Addicts(n=113)	Non-addicts(n=453)	Total(n=566)	χ2 value (df), p-value
Anger	21(18.42)	62(13.71)	81	2.307 (4) 0.6794
Lonely	13(11.40)	51(11.28)	64	
Frustration	10(8.77)	50(11.06)	60	
Anxious	11(9.64)	37(8.18)	48	
Relief	10(8.77)	26(5.75)	36	
Behavioural changes*				
Failure to eat regularly	14(12.28)	52(11.50)	66	**11.92 (5) 0.035**
Sleep disturbance	13(11.40)	49(10.84)	62	
Neglect personal hygiene	11(9.64)	42(9.29)	53	
Felt annoyed	8(7.01)	56(12.38)	64	
Yelled at person	8(7.01)	23(5.08)	31	
Nothing at all	81(71.05)	180(39.82)	261	

Figures in parenthesis indicate percentages, *Multiple responses

A total of 76(35.18%) and 140(64.82) of addicts and non addicts had *ringxiety,* a sensation and false belief that one can hear his/her mobile phone ringing or feel it vibrating when in reality it is not) [7].

Discussion

The meteoric rise of the Internet usage and emergence of various social media platforms has left many young Indians socially isolated and lonely.There is a large growth in the use of mobile phones especially among the youth which is followed by a rapid growth in the use of online social networking sites[8].This growth has been observed irrespective of the subjects economic background. In the present study, a comparative study was made on social media addiction among high school students as they are a vulnerable group and the Information obtained may provide evidence in planning appropriate strategies.

The percentage of social media users among boys was more in public school in contradiction to the popular belief of more usage among private school subjects because of their high socio-economic status and purchasing power. However, when it came to addiction, private school subjects were more addicted among males. Females were seen to use social media more than males in Private schools, contradictory to the findings from another study [9]. Overall, Half of the subjects stayed longer than intended on social media and one third suffered in their grades similar to another study [10, 11, 9]. The most commonly used social media application was Whatsapp among overall users.

In the present study, the overall prevalence of social media addiction was high and may be explained due to the novel scale used, which had high sensitivity. Majority of subjects had mild addiction, which was a good sign as being borderline and may be reversible with appropriate counselling. Even though more female subjects used social media, prevalence of addiction was less in them. This could be due to female being more responsible in their usage. High-school students, who had stayed at the hostel, were presumed to be protected against social media addiction probably due to restricted access to social media. Children are being more exposed to overuse/abuse of social media at such young age is leading to hazardous use of technology. This affects both the physical health and family health. Adolescents, *i.e.* 4.1% boys, 3.6% girls using social networking sites intensely were more often classified with Internet addiction and displayed higher psychosocial distress [12]; 15.6% were classified as social media addicts and 31% Facebook addicts [11,13] similar to the present study. Among all the prevalent social media platforms, Facebook's usage is linked to the highest conversion to an addict [14]. Adolescents overuse, or misuse social media, which can lead to addiction [15].

Internet gaming excessive use was observed in males compared to females. Access to social media for Public school subjects was mainly through Internet cafes, and on-line gaming was most common. The subjects had good liking to on-line gaming as one would expect in this age. The use of online gaming and social applications increased the risk for Internet addiction[16]. Female gender was a protective factor for the Internet and gambling addiction [17]. Parental attitude toward gaming has a negative relationship with the addiction[18, 19]; 80% were addicted to video games[20]. Symptoms of gaming addiction range from mild socio-personal distress to gross disorganization in behaviour and self-care [21].

Young's Internet Addiction Test (IAT) is one of the most commonly used scale to measure problematic Internet use [22]. The IAT is quite lengthy and was difficult for the high-school student. Hence, a novel 9-point scale was developed based on the above-mentioned scale, compared, validated and can be used as a screening tool for social media addiction. The concept of "Internet addiction" has been proposed as an explanation for uncontrollable, damaging use of this technology. Problematic Internet use can be found at any age, social, educational, or economic range. The Internet may provide pathological users with a way to express themselves that is considered more satisfying than previous methods of self-expression. There is no way to account for whether or not excessive Internet use may be the result of an underlying addictive process. Likewise, there is no way to establish whether Internet addiction is a discrete problem in contrast to a manifestation of another disorder (*e.g.*, depression, anxiety, sexual disorders) [23].

There was no association between the physical activities of students and their use of social media or addiction. This indicates the pull of social media on adolescents. We could not assess the duration of physical activities performed between social media users and non-users.

Physical symptoms observed between addicts and non-addicts were similar in both schooling systems. Commonly observed physical problems were strain on eyes, neck pain, back pain, headache, watering of eyes, wrist and shoulder pain which were in concordance with other studies [11,24–29]. Regular smartphone users were found to sleep significantly less than non-users.[30,31]. Behavioural changes observed more among addicts. Evidence suggests that, 'addiction' to social networking may have potential mental health problems for some users.[2]Social Media can easily generate Anxiety, Jealousy, Stress, Pressure, Dislike, Loneliness and Feeling, too much of those emotions can lead to a bout of "Social Media Depression" [32]. For girls, feeling depressed seems to trigger higher social networking site involvement while anxiety is the trigger in boys [33]. Motivation for going online is a factor in relating technology usage to depression and anxiety [34]. Social media addicts were more likely to have of history of smoking, alcohol consumption and use of tobaccocompared to non-addicts. Social media-related 'addictions' share some neural features with substance and gambling addictions[35].

Conflicts were more prevalent in Public school subjects and among friends, parents and relatives among addicts as well as non-addicts. The behavioral changes observed in this study were similar to another study [11]. Excessive viewing of YouTube in children has been shown to lead to cyber-bullying and online abuse [26, 36]. Social interaction using social media could be preventing teens from developing the skills they need to manage healthy relationships later in life [10,37]. Subject having *ringxiety* was less compared to 64% in another study [38]. Recognizing problematic Internet use as a health issue, SHUT (Services for Healthy Use of Technology) clinic was started in 2014 at the government run National Institute of Mental Health and Neuro-Sciences, Bangalore. It offers counseling to internet addicts and helps them replace excessive technology usage with healthy activities [39].

Social media addiction is an emerging health problem in India. The study points towards the need for legislative action concerning the age limit for use of social media just as we have for cigarette smoking and alcohol. The parents must be pro-actively involved in the child's upbringing in preventing the excessive use of social media and consequently, the development of adverse health effects. Limitations: Information on details of social media usage, money spent, symptoms described are based on the history revealed by subjects. Other factors like psycho social, personality traits, past history, family history are beyond the scope of study.

Conclusion

Private school students were more prone for social media addiction. Majority had mild addiction. Addiction was associated with Behavioural changes. A multitude of physical, psychological and behavioural problems were observed among social media users.

Recommendation

Screening of high-school students for social media addiction and counselling regarding healthy use of technology is the need of the hour. A larger comparative study with gold standard scale covering a wide geographical area should be done before the novel scale can be accepted.

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Conflict of interests

The authors declared that they had no competing interests, and there was no funding for the project and was self-financed.

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