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RESEARCH ARTICLE

SOCIAL MEDIA ADDICTION: ROLE OF SOCIAL MEDIA USE CHARACTERISTICS AND PERSONALITY FACTORS AMONG MEDICAL UNDERGRADUATES

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ABSTRACT

Background: social media use is increasing at alarming rate among the young adults. Excessive social media use is leading to adverse psychological impact in young adults. **Methods:** This was a cross sectional study of 640 undergraduates over a period of twelve months. Social Media Disorder Scale (SMDS) was used to detect social media addiction and Big Five Inventory (BFI) was used to assess personality factors. Descriptive statistics, Chi square test and student's t-test were used for analysis. **Results:** Prevalence of social media addiction was 9.76 %. More than 80% participants used more than one social media platform. Addiction rates were 33% among users who spent four hours or more daily on social media, 24% among those using social media since more than five years and those who spent more than 300 Rs/month on internet, 14.79% who reported 'fear of missing out' (FoMO), 27 % in those who reported regular substance use and used social media more during sleeping hours, and 20% among those who used social media at every place (home/hostel, college). Users with social media addiction had higher mean score in neuroticism and lower mean score in agreeableness and conscientiousness. There was no significant difference in mean scores of Extraversion and openness to experience among addicts and non addicts. **Conclusion:** Social media addiction is common in health professionals those who spent more time, money, using it since longer duration, reported FoMO and regular substance use. High neuroticism, and less agreeableness and conscientiousness are seen in social media addiction.

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INTRODUCTION

Social media platforms are popular in young adults across the world, although it has quickly become a normal modern phenomenon; concerns have been raised regarding the potential addictive use of social media.ⁱ Social Networking Sites (SNS) are virtual communities where users can create individual public profiles, interact with real-life friends and meet other people based on shared interests.ⁱⁱ Excessive use of social media incorporates the experience of the 'classic' addiction symptoms, namely salience, conflict, mood modification, tolerance, withdrawal symptoms and relapse.ⁱⁱⁱ It is considered a behavioral addiction like workaholism, sex addiction, exercise addiction, gambling addiction etc although

currently only gambling disorder is formally embedded in psychiatric nosology. Due to lack of consensus regarding definition of social media addiction, various synonyms exist in literature like SNS dependence, social media disorder, facebook dependence etc.^{iv} Andreassen defined it as "being overly concerned about social media, driven by an uncontrollable motivation to log on to or use social media, and devoting so much time and effort to social media that it impairs other important life areas".^v Social media addiction is associated with little and poor quality of sleep, excessive mental occupation, recurrent thoughts to control and limit the use, failure to prevent access requests, to spend more time with the internet at any time and desire to use while not being online.^{vi}

Prevalence rates of SNS addiction vary from 1.6 % in a Nigerian study to 34 % in a Chinese study.^{vii,viii} In India, a study among high school students in west Bengal found higher prevalence of 70% while a comparative study in Bangalore reported prevalence of 12.66 % and 24.63 % among public and private school respectively.^{ix,x} Researchers have linked problematic social media use to specific individual characteristics. Studies have shown that personality factors like Extraversion, Neuroticism, and Openness to experience and Conscientiousness play a role in SNS addiction.^{xi} The aim of this study is to find the role of social media use characteristics and personality factors in social media addiction among health professional undergraduates.

MATERIAL AND METHODS

Study Design: This was a cross-sectional and observational study of 640 college students of government medical, dental and physiotherapy colleges of Jamnagar. Participants were selected through purposive sampling from July 2018 to June 2019. Students were explained the study objectives and written informed consent was taken. Participants who refused to participate were excluded from the study. Ethical approval for this study was taken from the Institutional Ethics Committee with a Ref.: IEC/Certi/13/01/2019. Considering possibility of outliers and incomplete responses, 640 students of the medicine, dentistry and physiotherapy colleges were included in the study. Stratified random sampling was done and participants were selected proportionally from each branch.

Tools

Semi structured Proforma: It included age, gender, weight, height, accommodation, relationship status, socio economic status, regular sports or exercise, and substance use. It also contained questions about social media usage patterns like type of social media use, time spent on social media, place and hours of usage, money spent on internet per month, checking social media notifications, and duration of social media use in years.

Social Media Disorder Scale (SMDS): It is a nine item structured questionnaire covering the domains of addiction like preoccupation, tolerance, withdrawal, persistence, displacement, problem, deception, escape, and conflict during the past year. SMDS is scored with a rating of Yes/No. This scale showed adequate reliability with a Cronbach's alpha internal consistency reliability coefficient of 0.637 in our sample.^{xii}

Big Five Personality Inventory (BFI): This is 44 item likert type scales which measures an individual on five dimensions of personality: Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness. Each item is scored from 1-5 where 1 is disagree strongly and 5 is agree strongly. Items in the scale belong to any one of the five domains and a score for each domain is calculated adding the responses to items of particular domain. Several of the items in the scale are reverse scored. Higher score in a particular domain, higher that trait in the individual. Cronbach's alpha for each domain was – neuroticism-0.683, extraversion-0.545, agreeableness-0.517, conscientiousness--0.527, openness-0.454.^{xiii, xiv}

Procedure: A brief lecture was taken about social media addiction and its impact on the college students with the permission from the Dean and Head of the Department of the respective department. After explaining the study objectives students were requested to fill a semi-structured proforma which included the demographic details and social media usage pattern. SMDS was used to diagnose social media addiction and BFI was used to assess personality traits.

Statistical analysis: All the collected data was tabulated in Microsoft Excel and analyzed using Statistical Package for Social Science Version 20.0. Frequencies and percentages were computed for the socio-demographic and social media use variables, mean and standard deviation for the continuous variable were calculated. Chi square test was used for qualitative data. Student's t-test was used for quantitative data. P value < 0.05 was considered as statistically significant.

RESULTS

Out of 640 participants, those with incomplete responses were excluded and only 615 participants were included in final analysis. Among participants 48.94 % were males and 51.06 % females, mean age was 19.84± 1.803 years. Participants belonged to Upper class (74.31%) followed by Upper middle class (16.10%), Middle class (6.02 %), Lower middle class (1.63 %) and Lower class (1.94 %). 534 participants (86.83 %) reported being single and 81(13.17 %) reported being in a committed relationship. Distribution of relationship status and social media addiction is statistically significant (Table no.1) As evident from table 1, only relationship status was significantly associated with social media addiction, percentage of addicted being higher among participants in a committed relationship. According to the Dichotomous scoring of Social media disorder scale, 9.76 % (n=60) of 615 participants were found having social media addiction. There was no statistical difference in social media addiction rates between males (10.30 %) and females (09.24%).

Social Media Usage pattern and social media addiction: More than 80% of participants were using more than one type of social media. Most commonly used social media was Whatsapp (n= 522) followed by Youtube (n= 438). Least used social media platforms were Snapchat, tik-tok, Telegram and hike (n<20). Males were using facebook and twitter more commonly than females. Twitter (24.44 %) and facebook (13.82 %) users had higher rate of social media addiction compared with other social media platforms. Social media addiction rates were not significantly different between those using only one platform (6.25 %) Vs those using more than one social media platform (10.54 %) (Table 2). Social media addiction was found to be higher among those who spent more hours on social media. Addiction rates were 33% in those with daily use of >4hours compared to only 6% in users with <2 hours use. Social media addiction was also higher among participants using social media at every place (home/hostel, college) and those using social media during sleeping hours. Social media addiction was also found to be higher in those using social media since more than five years (24%) as compared to those using since less than one year (4.5%). Among participants who spent more than 300 Rs/month on internet social media addiction was almost 24%, compared to only 6% in those spending less than 100 Rs on internet. Social media addiction was also higher among participants who

Table 1. Demographic factors and Social Media Addiction

		Non-addicted n=555 (%)	Addicted n=60 (%)	Chi square value	p value
Gender	Female (n= 314)	285 (90.76 %)	29 (9.24 %)	0.197	0.657
	Male (n= 301)	270 (89.70 %)	31 (10.30 %)		
Accommodation	Hostel (n= 499)	452 (90.58 %)	47 (9.42 %)	1.322	0.516
	Paying guest (n= 32)	27 (84.37 %)	5 (15.63 %)		
	with family (n= 84)	76 (90.48 %)	8 (9.52 %)		
Relationship status	Single (n= 534)	490 (91.76 %)	44 (8.24 %)	10.589	0.001*
	Committed (n= 81)	65 (80.25 %)	16 (19.75 %)		

* p value <0.05 is statistically significant

Table 2. Social media usage patterns and social media addiction

	S.M Non-addicted (n=555)	S.M addicted (n=60)	Chi square value	p value
Number of social media platform usage				
Using one type of social media (n= 112)	105 (93.75 %)	7 (6.25 %)	1.912	0.167
Using more than one type of social media (n= 503)	450 (89.46 %)	53 (10.54 %)		
Time spent on social media/day				
< 2 hours (n=268)	252 (94.03 %)	16 (5.97 %)	56.480	0.0001*
2 – 4 hours (n= 269)	251 (93.31 %)	18 (6.69 %)		
>4 hours (n=78)	52 (66.67 %)	26 (33.33 %)		
Social media usage place				
Home/Hostel (n=466)	435 (93.35 %)	31 (6.65 %)	21.940	0.0001*
College (n= 33)	28 (84.85 %)	5 (15.15 %)		
Almost everywhere (n= 116)	92 (79.31 %)	24(20.69 %)		
Social media usage during				
Leisure hours (n=396)	371(93.69 %)	25 (6.31 %)	29.371	0.0001*
Study hours (n= 154)	137(88.96 %)	17 (11.04 %)		
Sleeping hours (n= 65)	47 (72.31 %)	18 (27.69 %)		
Duration of Social media use in years				
< 1 year (n= 166)	158(95.18 %)	8 (4.82 %)	26.280	0.0001*
1 – 5 years (n= 357)	327 (91.60 %)	30 (8.40 %)		
> 5 years (n= 92)	70 (76.09 %)	22 (23.91 %)		
Money spent on internet/ month				
Less than 100 Rs. (n= 154)	145 (94.16 %)	9 (5.84 %)	21.967	0.0001*
100-300 Rs. (n= 376)	345 (91.76 %)	31 (8.24 %)		
More than 300 Rs. (n= 85)	65 (76.47 %)	20 (23.53 %)		
FoMO (Fear of Missing Out)				
Absent (n= 358)	336 (93.85 %)	22 (6.15 %)	12.687	0.0001*
Present (n=257)	219 (85.21 %)	38 (14.79 %)		
Substance use				
Absent (n=570)	522 (91.58 %)	48 (8.42 %)	15.770	0.0001*
Present (n= 45)	33 (73.33 %)	12 (26.67 %)		
Checking SNS Before Sleep				
No (n= 178)	167 (93.82 %)	11 (6.18 %)	3.639	0.056
Yes (n=437)	388 (88.79 %)	49 (11.21 %)		
Checking SNS as soon as waking up				
No (n= 301)	288 (95.68 %)	13 (4.32 %)	19.795	0.0001*
Yes (n=314)	267 (85.03 %)	47 (14.97 %)		

Table 3. Personality factors and social media addiction

Personality Factors	SM. Addiction	n = 615	Mean score	Std. deviation	T value	p value	Confidence interval
Neuroticism	Non addicted	555	22.95	5.883	-3.098	0.002*	-4.037 to -0.905
	Addicted	60	25.42	5.717			
Extraversion	Non addicted	555	26.35	5.310	-0.348	0.728	-1.687 to 1.179
	Addicted	60	26.60	5.889			
Agreeableness	Non addicted	555	32.51	5.451	3.086	0.002*	0.829 to 3.731
	Addicted	60	30.23	5.299			
Conscientiousness	Non addicted	555	30.72	5.3989	2.926	0.004*	0.7041 to 3.5786
	Addicted	60	28.58	5.2539			
Openness to experience	Non addicted	555	34.90	5.838	0.674	0.501	-1.023 to 2.091
	Addicted	60	34.37	5.790			

reported (FoMo) 'fear of missing out' (14.79% Vs 6%) and those who reported substance use (26.67 % Vs 8.5%). Family history of substance use and regular sports/exercise were not significantly associated with social media addiction.

Participants who checked social media platform immediately before sleep and after waking up also had slightly higher social media addiction rates (11% and 15% respectively) as compared to those who did not check (6% and 4%) (Table-2).

Personality Factors and social media addiction: Big Five Inventory was used to assess personality traits of participants, which gives five individual scores of each of the five domains, the higher the score in a particular domain, higher the trait in a person. Among social media addicts, the mean neuroticism score was 25.42 compared to 22.95 among non addicts, which indicates neuroticism is positively associated with social media addiction. Mean extraversion score of social media addicts was 26.60 while among non addicts it was 26.35, which shows that extraversion is not statistically associated with social media addiction in our study ($p= 0.728$). Similarly openness to experience was also not related to social media addiction ($p= 0.501$), mean scores among addicts and non addicts being 34.37 and 34.90 respectively. Mean score of Agreeableness among addicts was 30.23 while among non addicts it was 32.51, showing that Agreeableness is negatively associated with social media addiction ($p= 0.002$). Conscientiousness was also negatively associated with social media addiction ($p= 0.004$), the mean Conscientiousness score among addicts was 28.58, compared to 30.72 among non-addicts.

DISCUSSION

The present study examined Social media usage pattern, personality traits, and Social media addiction among the undergraduate health professionals. Prevalence rate of social media addiction was 9.76 % in this study. This is consistent with findings of other researchers like Wu et al. (12%), Hormes et al. (9.7%) and Wolniczak et al.(8.6%)^{xv, xvi, xvii}. Folaranmi et al. reported 1.6% facebook addiction among 1000 under graduates of Nigerian universities in 2013, while a higher prevalence of 34.3% and 29.5% was reported by Wan et al. and Tang et al. respectively.^[7,8,xviii] A much higher prevalence of 70.7% was reported by Raj et al. in 2018, among 388 students of 9th to 12th class of an English medium school in Siliguri, West Bengal, India. This might be due to higher Socio-economic class of English medium school students and smart phones and data services getting cheaper in past few years.^[9] Prevalence of social media addiction in female and male college students was 09.24 % and 10.30 % respectively. Most of the studies did not show any gender difference for social media addiction, while Masthi et al. found 25% males were found social media addicted as compared to 15.03% females among 760 high school students of Bengaluru, India in 2016.^[10] About 82% college students were using more than one type of social media platform. This is consistent with result of Pew Research Centre-United states, in which approximately 71% of the adolescents were using more than one online social networking site out of 1060 social media users in 2015.^{xix} Most commonly used social media was Whatsapp (84.88 %), Raj et al also found Whatsapp to be most commonly used platform(82%) in 388 school students of Siliguri, India.^[9]

In this study, FoMO was associated with higher social media addiction (14.79% Vs 6.15%), which is consistent with study by Fuster et.al among 5280 Spanish speaking social media users in Latin America, in which higher level of FoMO is associated with social networking site addiction and use of more types of social media.^{xx} About 26 % substance users were found to be social media addicted as compared to 8.42% participants without any substance use. This finding suggests that substance use is associated with social media addiction and this is consistent with Hormes et al. finding disordered social media use among participants being associated with

hazardous alcohol drinking and higher level of craving for alcohol in 253 under graduate university students in United States.^[16] The present study showed statistically significant relation between neuroticism score and social media addiction, with higher mean score of neuroticism among participants with social media addiction. Wolfradt et al. reported that those with neuroticism trait are strongly interested in using internet for communication, although personality traits alone were not important predictors of internet use.^{xxi} Blackwell et al. found that neuroticism when considered alone was a predictor of social media addiction but not when attachment styles were also considered in regression. Thus, the effects of neuroticism on social media addiction may be mediated through insecure attachment styles.^{xxii} Extraversion was not significantly associated with social media addiction, in this study, which is contrary to most of the previous research. Studies by Wang et al., Wilson et al. and Correa et al. found extraversion to be positively correlated with SNS addiction.^{xxiii, xxiv, [11]} However, results of Marino et al. showed negative correlation between extraversion and problematic facebook use.^{xxv} This might be explained by 'social compensation' hypothesis; less extraverted adolescents may be more likely to use SNS in order to compensate for their lack of interpersonal and social skills. Conversely, the 'rich-get-richer' hypothesis posits that extraverts gain more from SNS usage as their offline sociability is transferred to SNS platforms.^[xxvi] In the present study, agreeableness was negatively associated with social media addiction. Previous researchers have shown that low agreeableness is associated with internet addiction and other behavioral addictions.^[xxvii] This might be because people with behavioral addictions often come into conflict with others due to their behavior which would directly conflict with some of the basic features of agreeableness, such as being likeable, pleasant and emphasizing harmony in relations with others.^[xxviii] Conscientiousness was found to be negatively and significantly associated with social media addiction in this study, which is consistent with Andreassen's, findings of conscientiousness having the strongest relationship with all seven behavioural addictions.^[28] The strong negative association between SNS addiction and conscientiousness maybe due to low priority of duties and obligations, lack of planning ability, low self-control, weakness for temptations and procrastination that typically characterize people with low scores on conscientiousness.^[xxix] In the present study, openness to experience was not found to be related to SNS addiction. In a study by Andreassen et al. openness was negatively related to facebook addiction and mobile phone addiction, which might be because facebook and mobile phones are no longer solely regarded as novel products for young adults.^[28]

Strength of the Study: Assessment of social media addiction and personality factors were done using validated scales.

Limitation of the Study: This was a cross-sectional study so cause and effect relationship between personality factors and social media addiction cannot be established.

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Key points

-) Social media use is increasing among college students and about 10% are addicted to social media.

- J) Students with addiction spent more time and money on social media, were using social media even during study hours.
- J) Addicted students also started social media use early in adolescent age, checked social media soon after waking up and reported FoMO and substance use.
- J) High neuroticism, low agreeableness, and low conscientiousness are common among students with social media addiction.

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