Original Research Article

"I am, How I (use) Facebook": Relationship between personality traits, life satisfaction, and Facebook use

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Abstract

Background: Social networking sites like Facebook have become indispensable components in our life. Though associated with many positive aspects, some especially young people use them excessively and compulsively, driven by inner and outer forces that need to be investigated. This study aimed to deepen the understanding of the relationship between personality traits, life satisfaction, and Facebook addiction among medical students. **Method:** Out of 150 medical students contacted, 131 (mean age 24.8years; 61.8% female) participated in the study. They were given an online questionnaire containing demographics, details of Facebook use, Bergen Facebook Addiction Scale, Big Five Inventory, and Satisfaction with Life Scale. Spearman's rank correlation, and linear regression analysis were performed to assess the predictors of Facebook addiction. **Results:** About 83% were using FB many times to once in a day. 10.6% were using it multiple times, spending more than 30 minutes a day with greater than 300 FB friends. 6% had FB addiction. Neuroticism (β=0.193, p=0.037) positively predicted, while conscientiousness (β=0.226, p=0.024) and life satisfaction (β=0.298, p=0.001) negatively predicted Facebook addiction. **Conclusions**: Facebook addiction among medical students could be associated with high neuroticism, low conscientiousness, and life satisfaction. Thus, it is essential that the relevant authorities should identify those with Facebook addiction and refer them for psychological intervention.
Index Words: Facebook addiction, Medical students, Personality traits, Life satisfaction

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INTRODUCTION

Facebook (FB) use is becoming increasingly widespread in a way that the word "Facebook" has become a verb for its use in contemporary English.[1] Worldwide, there are over 2.38 billion monthly active users and 1.56 billion daily active users of FB as of April 2019, with an 8% increase year over year.[2] Medical students are the predominant population among them with the prevalence of internet addiction in them, almost five times higher than that of the general population [3]. FB may be useful for medical students in the social and academic aspects as it facilitates interactive learning. However, it may gradually become a coping strategy for them as they immerse themselves into the virtual reality of Facebook to escape from academic stress [3, 4]. This may result in excessive and compulsive use leading to FB addiction. And the addiction leads to difficulties with time perception and time management capabilities, as well as with studies, work, and friendship. Although not included in DSM-5, FB addiction is thought to share some key traits with substance use disorder, and has six basic components: Salience, Mood modification, Tolerance, Withdrawal, Conflict, and Relapse.[5,6]

Majority of previous studies determined the prevalence of FB addiction among medical students and its effect on their social life, health, behavior, and academic performance. Very few studies in India studied the

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relationship of Facebook use with personality traits, life satisfaction among medical students. A recent meta-analysis pointed out that all the Big Five personality traits are significantly associated with Internet addiction [7]. However, research on the "Big Five" traits and FB use has been equivocal. Some studies have found users high in extraversion, narcissism and neuroticism spend more time on FB and have more FB friends while others have failed to find an association [5, 8]. With regards to the impact of FB on life satisfaction, there are some inconsistent results. FB addiction was negatively related to life satisfaction. Individuals with lower levels of life satisfaction log in to FB to increase their well-being [9]. On the other hand, an Australian study showed that FB connectedness is related to lower depression and anxiety and thus, higher life satisfaction. It might be that FB helps young people to enhance social capital [10].

AIM AND OBJECTIVES

To deepen the understanding of the relationship between personality traits, life satisfaction, and Facebook addiction among medical students. Further, to understand FB addiction in relation to socio-demographic data.

METHOD

Participants:

This cross-sectional observational study was conducted between October 1st and 15th, 2018 at the ASR Academy of medical sciences, Eluru, a South-Indian city. 150 medical students were invited to participate. The authors explained the study objectives and protocol to the medical students. Those having chronic psychiatric or medical illness were excluded. 131 students consented and were provided an Internet questionnaire built with Google Forms, a survey-generating tool [11].

Study questionnaire

The questionnaire was designed based on the study objectives and contain (i) study population demographics; (ii) Facebook Use; (iii) Bergen Facebook Addiction Scale (BFAS); (iv) Big Five Inventory (BFI-10); (v) Satisfaction with Life Scale (SWLS).

(A) Facebook Use: The section consisted of closed, self-reported questions that investigated the frequency of access, the daily time spent, and the number of friends on the FB. In detail, the questions were:

(1) "How frequently do you log into Facebook?"

1. Many times per day;
2. At least once a day;
3. At least once a month;
4. Very infrequently;

(2) "On average, in one day, how much time do you spend on Facebook?"

1. Less than 15 min;
2. From 15 min to 30 min;
3. From 30 min to 1 h daily;
4. 1–2 h;
5. 2–4 h;
6. Over 4 h;

(3) "How many friends do you have on Facebook?"

1. Fewer than 100 people;
2. From 100 to 300;
3. From 301 to 500;
4. From 501 to 1000;
5. From 1001 to 2000;
6. Over 2000 people.

B) Bergen Facebook Addiction Scale (BFAS): It has an18-item questionnaire with a 5-point scale ranging from "very rarely" to "very often." The composite score ranges from 18 to 90. The cut-score is set to >3 on all features of at least four of the six core elements (polythetic scoring). The six core elements of addiction are salience, mood modification, tolerance, withdrawal, conflict, and relapse. The scale is unidimensional with Cronbach alpha of 0.91 [12]. C) Big Five Inventory (BFI-10): It is the short version of the Big Five Inventory (BFI-44) and consists of 10 items, with two items per domain. The five domains are Conscientiousness, Openness, Extraversion, Agreeableness, and Neuroticism. The scale uses a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) [13].D) Satisfaction with Life Scale (SWLS): It has 5 items designed to assess an individual's general sense of life satisfaction. The scale uses a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). It has Cronbach's α of 0.89 [14].

Statistical analysis

Participant demographics were analyzed using descriptive statistics with means and standard deviations for continuous variables and frequencies and percentages for categorical variables. Mann-Whitney U test was used to find the differences in FB addiction among socio-demographic variables. Spearman's rank correlation was performed to describe the relationships between the variables investigated. Linear regression analysis was performed to access the predictors of FB addiction. The value of $P < 0.05$ was considered statistically significant. All analyses were performed using the IMS SPSS Statistics version 25 (IBM, Chicago, IL, USA).

RESULTS

Participants were more commonly female (61.8%, n=81), aged between 19 and 34 (mean=24.84, SD= ±3.358) years. Both undergraduates (UG; 45%, n=59) and post-graduates (PG; 55%, n=72) participated. Unmarried accounted for 79.4% of sample (n=104).

Table 1: Participant demographics

Variable	Frequency (%) or Mean (±SD)
Age	24.4±3.358 years
Sex	
Female	81 (61.8%)
Male	50 (38.2%)
Education	
Undergraduates (UG)	59 (45%)
Postgraduates (PG)	72 (55%)
Marriage	
Unmarried	104 (79.4%)
Married	27 (20.6%)

About half (49%) of the participants use FB many times a day, while one third (33.6%) use once a day and remaining used infrequently. Similarly, nearly half (51.4%) spend for more than 30 minutes, and 52.3% had more than 300 friends on FB. On compiling these findings, 14 (10.6%) participants were using FB many times for more than 30 minutes a day with greater than 300 friends.

Table 2: Features of Facebook Use

"How frequently do you log into Facebook?"		"On average, in one day, how much time do you spend on Facebook?"		"How many friends do you have on Facebook?"	
Many times per day	64(49%)	<15 min	36(28%)	< 100 people	14(10.7%)
At least once a day	44(33.6%)	15 - 30 min	27(20.6%)	100 – 300	48(37%)
At least once a month	6 (4.6%)	30 min to 1 h	32(24.4%)	301 – 500	42(32.1%)
Very infrequently	17(13%)	1–2 h	20(15.3%)	501 – 1000	22(16.8%)
		2–4 h	9(6.9%)	1001 – 2000	4(3.1%)
		Over 4 h	7(5.3%)	> 2000 people	1(0.8%)

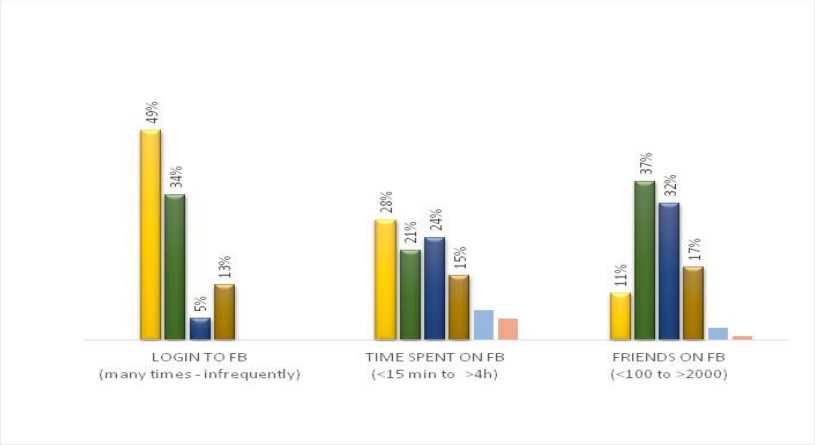

Figure 1

8 of 131 students (6.11%) had developed FB addiction with greater than 3 on all features of at least four of the six core features on BFA scale. Among them, 4 were females, all were unmarried, and 6 were doing post-graduation. The mean score of BFA scale was 26.86±9.49. Females got a higher mean score than males, though not significant (26.88±8.63 vs. 26.82±10.83; p=0.262). Married students got lower mean score than single students (23.30±4.71 vs. 27.78±10.19; p=0.053). Undergraduates scored significantly higher than postgraduates (28.68±9.85 vs. 25.36±8.98; p=0.017). Among the criteria of BFA scale, participants got the highest score (5.2±2.5) on mood modification. Among personality traits, medical students got the highest score on agreeableness (7.2± 1.3) and least scores on conscientiousness (5.9±1.6) and neuroticism (5.8±1.7). They scored 23±6.5 on the scale that assesses general sense of satisfaction with life (SWLS).

Table 3: Facebook Addiction, Personality, and Life Satisfaction scores

SCALE	DIMENSION	RANGE	TOTAL
BFA scale	Salience (3-15)	3-11	4.6±1.8
(Bergen Facebook Addiction Scale)	Tolerance (3-15)	3-12	4.6±1.9
	Mood Modification (3-15)	3-12	5.2±2.5
	Relapse (3-15)	3-10	4.2±1.9
	Withdrawal (3-15)	3-10	3.8±1.5
	Conflict (3-15)	3-10	4.2±1.7
	Total (18-90)	18-61	26.86±9.49
Personality Traits	Extraversion (2-10)	2-10	6.2±1.6
	Agreeableness (2-10)	3-10	7.2± 1.3
	Conscientiousness (2-10)	2-10	5.9±1.6
	Neuroticism (2-10)	2-10	5.8±1.7
	Openness (2-10)	4-10	6.4±1.1
SWLS (Satisfaction With Life Scale) (5-35)		7-35	23±6.5

Table IV: Socio-demographic differences of FB addiction

SOCIO-DEMOGRAPHIC VARIABLE		BFAS SCORE	P value
Gender	Female	26.88±8.63	0.262
	Male	26.82±10.83	
Marital Status	Single	27.78±10.19	0.053
	Married	23.30±4.71	
Education	Undergraduates	28.68±9.85	0.017
	Postgraduates	25.36±8.98	

Correlation was applied between FB addiction i.e. BFAS score and age, personality traits and life satisfaction. FB addiction was negatively correlated with age (r = -0.22, p=0.009), conscientiousness (r = -0.3, p=0.00) and life satisfaction (r = -0.33, p=0.00) and positively correlated with neuroticism (r = +0.27, p=0.00) in a significant manner.

Table V: Relationships among Age, Personality Traits, Life Satisfaction, and Facebook Addiction (BFAS score)

Dimensions		Correlation coefficient (P value)
	Age	-0.22(0.009)*
Personality Traits	Extraversion	-0.03(0.72)
	Agreeableness	-0.15(0.08)
	Conscientiousness	-0.30(0.00)*
	Neuroticism	+0.27(0.00)*
	Openness	+0.06(0.45)
Life satisfaction (SWLS)		-0.33(0.00)*

*significant

Multiple linear regression analysis was performed to determine prominent predictors of FB addiction. The dependent variable was the BFAS score, whereas the independent variables were personality traits and life satisfaction. Age has been included as the control. It showed that neuroticism (β=0.487, p=0.037) positively predicted, while age (β=-0.163, p=0.043), conscientiousness (β=0.226, p=0.024) and life satisfaction (β=0.298, p=0.001) negatively predicted Facebook addiction.

Table VI: Linear regression analysis to assess predictors of FB addiction

Independent Variable	Standardized Coefficients (Beta)	t-value	Significance
Age	-0.163	-2.046	0.043
Extraversion	0.062	0.740	0.461
Agreeableness	0.139	1.309	0.193
Conscientiousness	-0.226	-2.279	0.024*
Neuroticism	0.487	2.105	0.037*
Openness	-0.064	-0.774	0.440
SWLS	-0.298	-3.428	0.001*

Dependent Variable: BFAS score; * significant

DISCUSSION

The study demonstrated the widespread use of FB among medical students, with about 83% using it many times to once in a day. This finding is similar in comparison, to studies conducted in different countries.[15-17] Nearly half of the students (51.4%) spend more than 30 minutes, with 27.5% using for more than an hour. In a similar study in Nepal, conducted among health science students with 60% belonging to medical science, 45% are using FB for more than an hour. In a study of Malaysian medical students, the total FB surfing hours ranged from one to eight hours per day with a mean of 2.5±1.7 hours.[18] The increasing availability of Wi-Fi (Wireless Fidelity), portable devices, and ease of getting news updates in a variety of different categories (sports, politics, education, health, etc.) through Facebook encourages its users to spend more of their leisure time on FB. The ease of connecting with friends or family would be the reason for more than half (52.3%) having greater than 300 FB friends in our study[15] 6.11% of our sample had developed FB addiction with greater than 3 on all features of at least four of the six core elements on BFA scale. Among them, all were unmarried and three-fourths were postgraduates. The prevalence of Facebook addiction in the previous works have ranged between 2 and 13% [19, 20]. 9 out of 250 MBBS students (3.6%) had FB addiction assessed on a scale similar to BFAS in a study in Bangalore.[21] In a similar study among the students of a health university in Eastern India, 7.2% of MBBS students are addicted, and 13.7% are at high risk of using FB.[22] The mean score of BFA scale in our study was 26.86±9.49. It is lesser compared to a similar study done in a medical college in Bikaner (39.94± 13.133) [8]. Female students scored higher than males in our study (though not significant) similar to previous reports that FB addiction tends to have female preponderance [5, 21]. Females are more at risk of developing Facebook addiction, probably due to the social nature of Facebook [12]. Married students got lower scores than unmarried. The finding is consistent with the other studies [23, 24]. Undergraduates scored higher than postgraduates, similar to a study in Iran [25]. Among the criteria of BFA scale, participants got the highest score (5.2±2.5) on mood modification i.e., engaging time on FB leads to a favorable change in emotional states. This signifies the use of FB as a coping strategy for medical students to escape from academic stress.

Among personality traits, medical students got the highest score on agreeableness (7.2± 1.3), followed by openness (6.4±1.1), extraversion (6.2±1.6), conscientiousness (5.9±1.6) and least scores on neuroticism (5.8±1.7). A study in Saudi Arabia showed half of the medical students have agreeableness, followed by openness (39%), conscientiousness (9%), neuroticism (1.4%) and extraversion (0.7%) [26]. Medical students need the personality trait of agreeableness as they will be cooperative, trusting, pleasant and sympathetic. Those with extraversion tend to be enthusiastic and action-oriented and will be able to deliver the highest standard of patient care to the society. Openness people are intellectually curious and love to play with ideas, open-minded to new ideas, and help to acquire medical knowledge continuously through their professional's life. Medical students with high conscientiousness avoid creating troubles and attain success through purposeful and consistent planning. The low score on neuroticism makes them emotionally stable and calm under pressure with less frequent disruptive feelings.[26-29] Our sample scored 23±6.5 on the scale that assesses general sense of satisfaction with life (SWLS). Medical students scored a median of 23 in a study to determine the relationship between psychological distress and life satisfaction among university students done at Karachi, Pakistan.[30] Certain personality traits such as extraversion, narcissism, neuroticism, and lower levels of self-esteem correlate highly with compulsive Facebook use [5]. In our study, conscientiousness and neuroticism predicted FB addiction. FB addiction was negatively correlated with conscientiousness and positively correlated with neuroticism. Conscientiousness in medical students helps in purposeful planning through their studies and may reduce unnecessary use of FB by them.[26-29] Those with higher neuroticism experience negative and disruptive feelings and may distract themselves by spending more time on FB. Extraversion hasn't correlated with FB use or addiction in our study. However, in the study at Bikaner, agreeableness, and extraversion displayed significant associations with FB use, different from our study [8]. Thus, students with low Conscientiousness, high Extraversion, and high Neuroticism who suffer from emotional and social loneliness are prone to becoming Facebook-addicted. In general, the results appear to support Caplan's social skills model of generalized problematic Internet use, according to which individuals probably use the FB to find social support or pain relief [19, 31]. FB addiction was negatively correlated with age in our study. This is similar to another study which showed the mean age of medical students without FB addiction is significantly greater than those with FB addiction [32]. FB use was significantly and negatively correlated with the score on SWLS. This finding is consistent with the study of Blachnio *et al*., where addicted FB users have lower life satisfaction.[10] A study of FB addiction among Bangladesh students showed FB addiction was negatively correlated to life satisfaction but not significant, showing that life satisfaction may play a mediating or moderating role and may not a precursor of FB addiction.[19,33] A study

in Italy and the USA showed that the relations between the Internet and Facebook use and life satisfaction are not universal. Cultural differences of using a particular social medium rather than another may explain these differences [34]. This research is one of the few studies in India which studied the relationship of Facebook use with personality traits, life satisfaction among medical students. It highlights the importance of personality factors in the P-component of the Interaction of Person-Affect-Cognition-Execution (I-PACE) model of specific Internet-use disorders [35]. The study has some limitations to be kept in mind for future research. It is a cross-sectional study, though the results suggest statistical predictive effects. The hypothesis should be more properly tested in a longitudinal model. Also, the data was collected by self-report methods rather than direct observation of FB activity. The recruitment procedure also had limitations. Sampling and imbalance in age, gender, and marital status might have disrupted the representativeness of the sample. Future research should also focus on cognitive, affective, and execution processes along with the predisposing factors and their interactions that act as mediators in the development of FB addiction

CONCLUSION

FB use has become widespread among medical students with a few developing addiction to it. The findings are in accordance with the previously published studies of other authors in the field of social networking usage. The study stresses the importance of personality factors that mediate FB addiction. Thus, there is a need to increase the awareness of risks of FB addiction among medical students, emphasizing safe and healthy practices of its use.

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