

Research Article

A study on relationship of facebook and game addictive behaviour with personality traits among medical students

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ABSTRACT

Background: Use of social networking sites and playing internet games are more common web activities among adolescents. Students are more prone to internet abuse for several reasons- natural affinity towards internet, free and unlimited access, flexible schedules, and freedom from parental interference and psychological immaturity. The aim was to study on relationship of facebook and game addictive behaviour with personality characteristics among medical students.

Methods: This was a cross sectional observational study, carried out on 140 medical students. All the students were taken randomly. Assessment of sociodemographic details was done with the help of semi-structured performa, bergen facebook addiction scale, game addiction scale and big five inventory were used to see facebook and game addictive behavior and personality traits. Statistical analysis used for comparison of dichotomous variables chi-square test. Correlation and Linear regression was applied to see association. Data analysis was done with the help of statistical software SPSS 23.0.

Results: Mean score of facebook addiction scale among medical students was 39.94 (S.D. 13.133) and mean score of Game addiction scale was 11.19 (S.D. 04.966). It was found that agreeableness ($\beta = -0.275$, $p = 0.000$) and extraversion ($\beta = -0.368$, $p = 0.000$) displayed significant associations with FB Total. While neuroticism ($\beta = 0.277$, $p = 0.001$) and agreeableness ($\beta = -0.177$, $p = 0.029$) displayed significant associations with game addictive behavior.

Conclusions: In our study we conclude that students with high agreeableness, high neuroticism and low extraversion were more related with Facebook and game addictive behavior. Extraversion was the most powerful predictor of Facebook addiction and neuroticism for gaming addiction.

Keywords: Agreeableness, Conscientiousness, Extroversion, Neuroticism, Internet addictions, Five-factor model of personality

INTRODUCTION

The internet use has been increased very much in developing countries from last decades. Internet provides endless sources of information, communication and entertainment. Internet users are increasing day by day.¹ We use it extensively for searching information, communication, shopping and interacting with our environment.²

There has been an explosive growth in the use of internet not only in India, but also worldwide in the last decade. There were about 42 million active internet users in urban India in 2008 when compared to 5 million in 2000. India now has the world's third-largest national digital population, with approximately, 120 million Internet users in 2011.³

Internet gaming disorder has significant public health importance, and additional research may eventually lead

to evidence that internet gaming disorder (also commonly referred to as Internet use disorder, Internet addiction, or gaming addiction) has merit as an independent disorder. Internet gaming disorder is a pattern of excessive and prolonged internet gaming that results in a cluster of cognitive and behavioural symptoms, including progressive loss of control over gaming, tolerance, and withdrawal symptoms, analogous to the symptoms of substance use disorders.⁴

Social networking sites are important part of their life, they use it for social and educational purposes.⁵ With the popularity of high-tech devices playing online or offline games has become a popular activity among young people. They play games for entertainment, excitement, challenge seeking, emotional coping, and escaping from reality to virtuality to fulfil their unsatisfied needs or motivations.⁶

However, both excessive play of games and frequent use of SNSs may lead to certain negative outcomes.⁷ It has been suggested that excessive video gaming is associated with reduced sleep time, limited leisure activities, insomnia, inattention, poor academic performance, anxiety, depressive symptoms, deterioration of interpersonal relationships, family conflicts, youth violence or crimes, lower self-esteem, and lower satisfaction with daily life.⁸⁻¹⁰ Different researches have shown negative effect of heavy SNS use and depression, anxiety, poor performance, histrionic personality, addiction and dependency.¹¹

One of the most influential personality theories is the five-factor model of personality which differentiates between five main dimensions: (1) Neuroticism (e.g., being nervous and anxiety prone), (2) Extroversion (e.g., being talkative and outgoing), (3) Openness to experience (being imaginative and intellectually oriented), (4) Agreeableness (e.g., being sympathetic and warm) and (5) Conscientiousness (e.g., being organized and prompt) (Wiggins). The traits of the five-factor model have been validated across several cultures (McCrae, Costa, del Pilar, Rolland & Parker).¹²

Pathological internet use is not a unidimensional construct previous studies suggest that multiple factors associated with internet addiction, personality characteristics are one of most important factor, but reports are conflicting.¹³ Concerning personality differences, research suggests associations between Internet use and personality.¹⁴ The majority of studies on personality traits associated with facebook use have relied on Costa and McCrae's.¹⁵ However, research on the "Big Five" traits and Facebook use has been equivocal. Some studies have found users high in Extraversion spend more time on facebook and have more facebook friends while others have failed to find an association between Extraversion and these variables.¹⁶⁻¹⁸ Findings for Neuroticism and Openness have been equally mixed.^{16,18}

Only few studies have systematically investigated the relationship between personality and Internet gaming. Associations with heightened loneliness and anxiety have been reported, as well as shyness and increased neuroticism.¹⁹ Conscientiousness was negatively associated with facebook addiction, video game addiction, internet addiction.²⁰

The present study aimed to investigate the associations of personality traits, based on the five-factor model, with addictive behaviours related to internet usage in a sample of medical students. Hope our results can be helpful for a better understanding of etiopathology of web-related addictive behaviours and have implications for psychoeducation and psychotherapy programs.

Aims and Objectives

To study on relationship of internet related addictive behaviour with personality characteristics among medical students.

METHODS

This cross-sectional study was conducted in October 2015. Participants were recruited from medical college of Bikaner using random cluster sampling. In total, 140 students participated in the survey. All students in the selected classes of different semesters, were invited to participate in the survey. The purposes of the study were fully introduced and consents were obtained before data collection. Ethical approval was obtained from the ethical committee of the college.

Measures

Sociodemographic information questionnaire

It includes participant's background characteristics include age, gender, self-rated academic performance, family type and locality. It also includes information regarding internet usage such as internet use in a day, internet experience and preferable time for internet access.

Bergen facebook addiction scale

The Bergen facebook addiction scale (BFAS) (Andreassen, Torsheim, Brunborg, and Pallesen, 2012) was used to evaluate facebook addictive behaviour. It had 18 items, scored on 5-point Likert scale ranging from 1 to 5 (1-very rarely, 2-rarely, 3-sometimes, 4-often, 5-very often). This scale covers six centre element of facebook addiction i.e. notability, mind-set alteration, resilience, withdrawal, struggle, and backslide over the previous year.

Game addiction scale

A short type of the gaming addiction scale (GAS) (Lemmens, Valkenburg, and Dwindle, 2009) was used to survey gaming compulsion. It had 7 items, scored on 5-point Likert scale ranging from 1 to 5 (1-never, 2-rarely, 3-sometime, 4-often, 5-very often). The scale incorporates seven key side effects i.e. distraction, withdrawal indications, resilience, issues, struggle, loss of interest, and state of mind alteration.

Big five personality inventory

Personality traits were evaluated utilizing the 10 items brief version of the Big Five Inventory (Rammstedt and John, 2007). The scale measures five measurements of personality (extraversion, neuroticism, agreeableness, conscientiousness and openness) The reaction is a five-point Likert scale (1-disagree strongly, 2-disagree a little, 3 -neither agree nor disagree, 4-agree a little, 5-agree strongly). Extraversion: 1R, 6, Agreeableness: 2, 7R, Conscientiousness: 3R, 8, Neuroticism: 4R, 9 Openness to Experience: 5R, 10 (R= item is reversed scored)

All the ethical aspects of the study were taken care of. Study was approved by research review board and ethical

committee of the institution. An informed consent was obtained from the subject prior to participation in the study.

RESULTS

The sample consisted of 89 males (63.4%) and 51 females (36.6%). Mean age of male and female was 21.23 years (S.D. 2.560) and 20.35 years (S.D. 2.137) respectively. Most of them belong to nuclear or nuclear extended families (54.3%), self-rated academic performance was good (53.6%) and residence of urban areas (60%). Most of the students use internet less than 2 hours (49.3%), preferable accessible time for use was after 9 pm (65%), at least logged once a day (48.57%) and played multiplayer online (48.57%) (Table 1).

After applying correlation between addictive behaviour i.e. total facebook score (FB Total) and total game addiction test score (GAT total) and big five inventory, it was found that FB Total was significantly correlated with extroversion ($r = -0.362$, $p = 0.000$), agreeableness ($r = -0.243$, $p = 0.004$) and neuroticism ($r = 0.184$, $p = 0.029$). GAT total was significantly correlated with extroversion ($r = -0.176$, $p = 0.038$) agreeableness ($r = -0.166$, $p = 0.049$) and neuroticism ($r = 0.303$, $p = 0.000$) (Table 2).

Table 1: Distribution of sociodemographic variables and use of internet.

Variable	Frequency N=140 (n=%)	Chi square	P Value
Sex	Male 89 (63.4) Female 51 (36.6)	20.829 (1)	0.000
Family type	Nuclear/Ext. 84 (54.3) Joint 76 (45.7)	65.200(2)	0.000
Locality	Urban 84 (60) Rural 56 (56)	6.522 (1)	0.011
Internet use/day	<2 hours 69 (49.3) 2-4 hours 43 (30.7) 4-6 hours 23 (16.4) >6 hours 5 (3.6)	64.686 (3)	0.000
Preferable time	7 am-12 pm 13 (9.3) 12pm-4 pm 16 (11.4) 4 pm-9 pm 20 (14.3) After 9 pm 91 (65)	120.17 (1)	0.000
Social Networking	At least logged once a day 68 (48.57) More than once a day 59 (42.14) Once a week 13 (9.28)	48.016 (1)	0.000
Type of game	Multiplayer online 21 (53.84) Single player Online 7(17.94) Offline 11(28.20)	6.276 (2)	0.000

In linear regression analysis it was found that extraversion ($\beta = -0.368$, $p = 0.000$) and agreeableness ($\beta = -0.275$, $p = 0.000$) displayed significant associations with

FB Total. While neuroticism ($\beta = 0.277$, $p = 0.001$) and agreeableness ($\beta = -0.177$, $p = 0.029$) displayed significant associations with GAT Total. The amount of variance explained by identity traits for facebook addiction was

22.2% for agreeableness, neuroticism and extroversion, as indicated by sr2 values. Similarly amount of variance explained by identity traits for game addiction was 13.9%

for agreeableness, neuroticism and extroversion, as indicated by sr2 values (Table 3).

Table 2: Correlation between game addiction and facebook addiction and personality traits.

		E	A	C	N	O
Game addiction test score	Pearson correlation	-.176*	-.166*	.010	.303**	-.001*
	Sig. (2-tailed)	.038	.049	.910	.000	.988
	N	140	140	140	140	140
Facebook addiction scale score	Pearson correlation	-.362**	-.243**	-.136	.184*	.062
	Sig. (2-tailed)	.000	.004	.109	.029	.468
	N	140	140	140	140	140

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed); E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness to experience.

Table 3: Regression analysis to see effect of personality traits on facebook addiction.

Coefficients						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	64.772	6.788		9.543	.000
	E	-2.584	.542	-.368	-4.771	.000
	N	.933	.595	.120	1.568	.119
	A	-2.022	.558	-.275	-3.623	.000

a. Dependent Variable: FB total

Table 4: Regression analysis to see effect of personality traits on game addiction.

Coefficients						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.283	2.701		4.548	.000
	E	-.387	.216	-.146	-1.796	.075
	A	-.491	.222	-.177	-2.212	.029
	N	.812	.237	.277	3.430	.001

a. Dependent Variable: GAT total

DISCUSSION

In our study it was found that extraversion negatively associated with Facebook addiction score. These results are consistent with previous studies. As extraversion increased, risk of Facebook addiction decreased. As Extravert individuals indulges more in social activities, making friendly easily, cheerful, sociable, have positive emotions, enthusiastic, active, and talkative while introvert individuals fail to cope with emotional and physical stress effectively, have difficulty making friends and establishing social relationships and, thus, are relatively more susceptible to addiction. Internet addicted were lower on extraversion, agreeableness, and openness to experience and conscientiousness.²¹⁻²⁴ Studies indicate that people with low levels of

extraversion use the internet more frequently and may be at a higher risk of internet addiction.²⁵⁻²⁷ Although it is speculated that introverted individuals are more likely to utilize social networking sites (SNSs) for their communication needs.¹⁸

Our results not matched with some of previous studies also. Extraversion and neuroticism were significantly associated with social networking addiction.¹⁰ Extraversion was found to be highly significant to Facebook addiction suggesting that people who are extroverts and outgoing spend a lot of time using and thinking about Facebook.²⁸ Some found no association involving Extraversion and Facebook use extraversion was the strongest predictor of number of Facebook friends for both students and non-students.¹⁷ The

interaction of extraversion and neuroticism was also a predictor of facebook friends for students, and the interaction of extraversion and conscientiousness for non-students²⁹

In our study, agreeableness is negatively associated with both facebook addiction score and game addiction score. In person with higher agreeableness, both score lowered. As such very few studies suggest association between agreeableness and Facebook and game addiction but lots of studies showed association with internet addiction. As Facebook and playing games are very much used entity in internet abuser student so we considered the studies showed association of agreeableness and internet addiction.

Regarding agreeableness, a prior study indicated that daily internet use was more strongly related to problematic internet use in low-agreeable adolescents.²³ It is also found that low agreeableness was correlated with internet addiction.³⁰ Decreased agreeableness may indicate a higher tendency to compete rather than to cooperate as a consequence of impaired social participation in the real world.³¹ Agreeableness was negatively associated with Internet addiction and mobile phone addiction. It is proposed that high scores on Agreeableness may be a protective factor for developing behavioural addictions, due to a motive to avoid interpersonal conflicts.²⁰

In our study, neuroticism was positively associated with game addiction and Facebook addiction. As neurotic individuals tend to experience increased levels of stress and interpersonal conflict because of this personality trait. They are unable to cope with stress enough. This indicates that they have a higher risk of developing addiction. Internet addiction is significantly and positively correlated with neuroticism.^{18,32} Gamers high in neuroticism tend to perceive the real world as more threatening. They display a higher proneness to stress which could lead to retreat into the digital worlds of computer games where things seem to be more controllable and safe.³³ In the tradition of diathesis-stress models, it is assumed that specific personality traits predispose to Internet gaming disorder. Individuals with heightened neuroticism, decreased extraversion and decreased conscientiousness are regarded as being vulnerable to addiction, assuming that they struggle with their social environment and experience repetitive failure in social situations, leading to increased stress levels. Excessive time spent using computer games – that can become addictive – is interpreted as a dysfunctional coping strategy.³⁴

CONCLUSION

Facebook and game addiction were more in low agreeableness individuals as they have higher tendency to compete rather than to cooperate as a consequence of impaired social participation in the real world. Neurotic

individuals tend to experience increased levels of stress and interpersonal conflict because of this personality trait, so they are more indulge in Facebook and online game activity. Facebook addiction were lower on extroversion traits, because they are more in social activities, making friendly easily, cheerful. Extraversion was the most powerful predictor of Facebook addiction and neuroticism was found for gaming addictive behavior.

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