

Risk of addiction to Facebook among Medical University students in Białystok, Poland

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ABSTRACT

Introduction: Facebook is the most popular social-networking website in the world. It is estimated that it currently has more than 350 million users worldwide.

Purpose; To assess the risk of addiction to Facebook the risk of addiction to Facebook among students of the Faculty of Health Sciences at the Medical University of Białystok in Poland.

Materials and methods: This study included 440 student Facebook users. The original survey, the Satisfaction with Life Scale (SWLS) as well as a Self-Assessment Test were used (FAT).

Results: Twenty-seven percent of the sample have had Facebook accounts for one to two years. Forty-five percent of the respondents had 91 to 300 Facebook friends. Ninety-four percent of the respondents reported that they do not think about Facebook when they are disconnected from it. A

similar number of students reported that it is possible for people to become addicted to Facebook. Forty-seven percent of the respondents were convinced that they would be able to recognize a Facebook addict. The average number of points scored on the FAT test was 16.2 ± 21.1 points; the average on the self-assessment was 44.7 ± 20.1 points; the average on SWLS scale was 15.3 ± 5.24 points. Five percent of students demonstrated features of Facebook addiction as well as low self-esteem and life satisfaction.

Conclusions: Problematic use of Facebook affected a small percentage of respondents who had low self-esteem and self were dissatisfied with their lives.

Keywords: Facebook, self-esteem, life satisfaction, students

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INTRODUCTION

Through new tools and technologies, such as computers, the Internet, and social networking websites, the development of civilization and technological progress affect the way people view the world. Facebook is the most popular social-networking website in the world. It is estimated that it currently has more than 350 million users worldwide. Everyday countless eyes are on the pages of Facebook for more than 10 billion minutes: contacting friends, exchanging information, viewing photo albums, or using various applications, tests, and games [1,2].

Currently, the most Facebook users come from the United States (almost 95 million people), followed by the United Kingdom (more than 22 million accounts), the next-Turkey, France, Canada, and Italy. Facebook is growing fast in Poland. In January 2012 alone, it was found 300 thousand new users of Facebook.

Facebook has had an enormous impact on the virtual life of its users, and through this some people have developed an addiction to Facebook.

In 1996, Young [3] was the first to define Internet dependence in clinical terms, and adapted several criteria derived from the diagnosis of pathological gambling.

In Polish scientific literature, there are several terms for Internet addiction: netaholics, netaddiction, cyberaddiction, computer addiction, information addiction, or syndrome of Internet addiction [4]. Currently, there are no terms for Facebook addiction in Polish scientific literature, and yet this problem has not only been perceived by scientists.

Recently, researchers have linked Facebook use to specific individual characteristics. People scoring high on narcissism tests tend to be more active on social networking sites, as social network sites provide an opportunity to present oneself in a favorable way in line with one's ideal self [5,6].

In addition to social media, addictive tendencies have been reported to be positively related to extroverts and negatively related to introverts [7]. It has been suggested that extroverts use social media for social enhancement, whereas introverts use it for social compensation, each of which appears to be associated with elevated use. In relation to assessing Facebook addiction, Wilson et al. [8] developed the Addictive Tendencies Scale, which has three items reflecting salience, loss of control, and withdrawal.

Furthermore, it has been shown that social networking site use can lead to a variety of negative consequences, such as decreased participation in real-life communities, negative academic performance, and relationship problems [8].

An addiction to Facebook is a specific form of Internet addiction, and as the use of Facebook is

increasing very rapidly, there is a need for a psychometrically sound procedure for assessing possible addiction [9].

The aim of this study is to assess the risk of addiction to Facebook among students of the Faculty of Health Sciences at the Medical University of Białystok in Poland.

MATERIALS AND METHODS

In 2012, 440 randomly selected students of the Faculty of Health Prevention at the Medical University of Białystok participated in a study assessing *Facebook* addiction. The mean age of the whole sample was 21.3 years (SD =2.4; range = 19-23 years), and there was a gender difference (chi-square test $p=0.023$). All students were selected as respondents after providing verbal consent.

The following instruments were used to conduct the study: the original questionnaire about Internet using and Facebook; the Facebook Addiction Test (FAT) [10], which is a 20-item questionnaire; a self-assessment test [11]; the Satisfaction with Life Scale (SWLS) [12].

Students were asked several questions about their Facebook usage (e.g., experience, duration, friends, time spending at the Facebook, other websites and so on) in the original questionnaire.

In FAT test respondents were asked to answer the questions below using a scale: 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Often, 5 = Always, and 0 = Does Not Apply.

After the respondent answered the questions, the numbers for each response were totaled to obtain a final score. Generally, the higher the score, the greater the *Facebook* usage problem. Following is an interpretation of the scale:

- 20-49 points = You are an average *Facebook* user. You may surf *Facebook* a bit too long at times, but you have control over your usage.
- 50-79 points = You are experiencing occasional or frequent problems because of *Facebook*, and should consider the full impact of *Facebook* usage problems on your life.
- 80-100 points = Your *Facebook* usage is causing significant problems in your life. You should evaluate the impact of *Facebook* on your life and address the problems directly caused by your *Facebook* usage.

The self-assessment test [11] consists of 32 questions, with answers recorded according to a 5-point scale: 4 = Very Common, 3 = Often, 2 = Sometimes, 1 = Rarely, and 0 = Never. The results are summed and the overall result is the level of self-esteem, ranging between 0 and 128 points. Generally, the lower the self-esteem level: 0-25; 26-45 = Adequate, 46-128 = Normal.

The SWLS, which is a global measure of life satisfaction, Polish version [12] was used.

Cronbach α was .81. The SWLS consists of five items that the respondent indicates his/her agreement with by using a 7-point scale: 7 = Strongly Agree, 6 = Agree, 5 = Slightly Agree, 4 = Neither Agree nor Disagree, 3 = Slightly Disagree, 2 = Disagree, and 1 = Strongly Disagree. Scoring should be kept continuous (sum up scores on each item), with the following benchmarks: 31-35 = Extremely Satisfied, 26-30 = Satisfied, 21-25 = Slightly Satisfied, 20 = Neutral, 15-19 = Slightly Dissatisfied, 10-14 = Dissatisfied, and 5-9 = Extremely Dissatisfied.

Statistics were calculated using Statistica 10 PL (StatSoft, Tulsa, OK). The differences between the groups were determined by the parametric *t*-test and chi-square test, where appropriate. Differences were considered statistically significant when $p < 0.05$.

RESULTS

A total of 255 women (58 percent) and 185 men (42 percent) participated in this study by responding to the questionnaire. 25 percent of respondents have had Facebook accounts for less than one year; 27 percent have had Facebook accounts for one to two years; 38 percent have had Facebook accounts for two to five years; and five percent have had Facebook accounts for more than five years. 53 percent of respondents have also had accounts at other websites. Most respondents lived in the city (288 [65.5 percent]) and (152 [34.5 percent]) in the village. 80 percent of respondents

have used the Internet for more than five years, while 7.3 percent have used the Internet from two to five years. Respondents reported that they had initially created Facebook accounts because they wanted to quickly access information about friends (81.8 percent), quickly access the source of that information, such as an exchange of questions, lectures, and reviews of lecturers (41.8 percent), or use Facebook because it offered the best way to relay information about events and meetings (38.2 percent). Only 3.6 percent of respondents could not provide a reason why they had created a Facebook account. 45 percent of respondents had 91 to 300 Facebook friends. Some respondents (4.5 percent) were not able to specify how many Facebook friends they had. Only seven percent of respondents had no Facebook friends and 21.8 percent of whom respondents had never met in person.

42 percent of respondents used Facebook for less than one hour per day; 22 percent used Facebook from two to five hours daily; 20 percent used Facebook from one to two hours daily; seven percent used Facebook for more than five hours daily; and nine percent could not specify for how long they used Facebook daily. Almost half of the respondents (43 percent) reported that using Facebook extends the total time they spend online (Table 1).

Most of the respondents (78 percent) declared that they did not try to hide how long they were on Facebook, and the use of Facebook had no effect on lowering their ratings, and number of hours of sleep. Details are shown in Table 1.

Table 1. Problems of Facebook use

Problem	Answer/ Number of respondents		
	Often	Rarely	Never
How often do you stay on <i>Facebook</i> longer than you intend to?	188	164	88
How often do others in your life complain about the amount of time you spend on <i>Facebook</i> ?	24	48	368
Do you try to reduce the amount of time spent on Facebook?	24	88	328
Do you try to hide how long you've been on Facebook?	24	72	344
How often do you neglect household tasks to spend more time on <i>Facebook</i> ?	24	140	276
How often do your grades or schoolwork suffer because of the amount of time you spend on <i>Facebook</i> ?	32	56	352
How often do you neglect sleep because login to <i>Facebook</i> at night	16	8	416
How often do you prefer to contacts with other people using <i>Facebook</i> than face to face meetings with them?	8	80	352
Do you prefer to spend more time on <i>Facebook</i> than on meeting with other people?	16	48	376
How often do you make new friends with the participants of <i>Facebook</i> ?	8	112	320
How often do I check e-mails before you do anything else?	144	240	56
How often bother you questions about what you do on <i>Facebook</i> ?	24	48	368
How often do you have a conviction that life without <i>Facebook</i> would be boring, empty and joyless?	24	32	384

20 respondents reported that they had experienced occasional problems because of Facebook (51.8 ± 1.5 scores) reported also self-esteem (47.95 ± 18.02). 55 percent of respondents

reported that it is possible for people to become addicted to Facebook. 16 percent of respondents had the opposite opinion, and 28 percent had no opinion on this matter.

Table 2. Results of Sum Scores of the Self-Assessment Test Among Students (n=440)

No	Problem	Answer/ Number of respondents					Total
		Very often	Often	Sometimes	Rarely	Never	
1	I would like to my friends still supported me.	144	108	156	32		440
2	I still get upset easily if my actions done properly	32	104	136	124	44	440
3	I am concerned about their future	56	96	232	44	12	440
4	Most my colleagues hates me.		8	44	164	224	440
5	I have more initiative than others		8	144	192	96	440
6	I get nervous my mental state	8	20	96	172	144	440
7	I am afraid to go out for a fool	16	44	192	116	72	440
8	Exterior view of others is much better than mine	16	72	176	104	72	440
9	I am afraid to appear in public, when I have something to say	48	64	144	108	76	440
10	I often make mistakes	16	28	204	148	44	440
11	I cannot speak nicely and properly	24	36	144	192	44	440
12	I do not trust in themselves	12	28	116	224	60	440
13	I do not want my actions to be better than the actions of others		32	100	112	196	440
14	I am too modest	24	72	132	108	104	440
15	I do not have purpose in my life	20	16	120	152	132	440
16	Many people have a wrong opinion about me	28	20	76	232	84	440
17	I do not have anyone whom I could share my thoughts.		16	60	104	260	440
18	People expect too much from me	24	40	96	156	124	440
19	People generally are not interested in my work	28	36	128	176	72	440
20	I easily confuse	36	68	108	164	64	440
21	I feel that many people do not understand me.	16	44	136	124	120	440
22	I feel threatened.	44	48	112	144	92	440
23	I often get nervous unnecessarily	36	68	124	140	72	440
24	I feel bad when I walk into a room full of people.	20	12	116	100	192	440
25	I feel embarrassed	24	28	112	144	132	440
26	I feel that people talk about me behind my back	16	16	140	140	128	440
27	I am convinced that to others goes better	16	60	124	132	108	440
28	I feel guilty that I bring bad luck to others	12	28	92	116	192	440
29	I get nervous when I think about attitude other people to me	12	20	140	112	156	440
30	I am not sociable	16	24	108	120	172	440
31	In disputes sounds only when I know I am right.	68	44	160	72	96	440
32	I keep thinking about what others expect me	20	60	240	40	80	440

47 percent of respondents were convinced that they would be able to recognize a Facebook addict. Ten percent of respondents reported that they would not be able to recognize a Facebook addict, and 43 percent had no opinion on this matter.

The average number of points scored on the self-assessment was 44.7 ± 20.1 (respondents had low self-esteem). The minimum number of points was 10, and the maximum was 105.14

percent of respondents scored between 0 and 25 points; 42 percent of respondents scored between 26 and 45 points; and 44 percent scored between 46 and 128 points. Details are shown in Table 2.

The average number of points scored on the SWLS was 15.3 ± 5.24 , which indicates that belong to the category of people rather dissatisfied with their lives (4 sten - low score). Details are shown in Table 3.

Table 3. Results of Sum Scores of the Satisfaction with Life Scale Among Students (n=440)

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
Ideal life	8	20	52	120	121	96	23
Life conditions	12	28	96	44	160	70	30
Life satisfaction	16	44	10	70	66	120	114
Got things I want	24	28	84	82	72	30	120
Would change nothing	10	44	58	55	17	96	160

DISCUSSION

The main findings showed that about 5 percent of the students at the Medical University of Bialystok were classified as having Facebook addictions. Our findings are in accordance with previous reports from the US, Turkey, and Finland. The FAT was validated in a survey with 1,492 participants and collected data on usage of social-networking sites such as Facebook [10]. Factor analysis of the FAT revealed two factors: psychological attachment and excessive use. These factors showed good internal consistency and concurrent validity (Cronbach's alpha = 0.90), with psychological attachment being the more important.

The popularity of Facebook and other online social-networking sites has led to research on the potential risks of use, including Internet addiction. Kittinger *et al.* [13] assessed a range of variables related to Facebook use in undergraduate participants (N=281) and sought to determine how the use of Facebook relates to problematic Internet use. The results of this study suggest that a sizable minority of students experience problems related to Internet use and that the use of Facebook may contribute to the severity of symptoms associated with Internet addiction.

In contrast, Mango *et al.* [14] emphasize the psychological importance of audience in the Facebook environment. The social-networking sites help youth to satisfy enduring human psychosocial needs for permanent relations in a geographically mobile world; college students with higher proportions of maintained contacts from the past

(primarily high school friends) perceived Facebook as a more useful tool for procuring social support.

In a Turkish study [15], 447 college students reported their personal information and Facebook usage and completed the Facebook Addiction Scale and General Health Questionnaire. The results revealed that weekly time commitment, social motives, severe depression, and anxiety and insomnia positively predicted Facebook addiction. Neither demographic variables nor differences in usage characteristics by gender were found to be significant predictors.

Lemieux *et al.* [16] explored the relationships between use of the social-networking site Facebook by 313 college students and scores on affinity-seeking, social loneliness, and social avoidance. Social loneliness and social avoidance were positively related to time spent using Facebook. The number of close Facebook friends was significantly related, both negatively and statistically, to social loneliness and social avoidance. Women perceived Facebook as a more integral part of daily interactions than did men. Of the 283 Facebook members, 38 percent indicated their accounts contained information and/or a picture that could embarrass them, with men having significantly more embarrassing content than women. In the present study, we did not explore social loneliness.

Recently, Andreassen *et al.* [17] constructed Facebook Addiction Scale FAT and administered to 423 students, together with several other standardized self-report scales (Addictive Tendencies Scale, Online Sociability Scale, Facebook Attitude Scale, NEO-FFI, BIS/BAS

scales, and sleep questions). The item within each of the six addiction elements with the highest corrected item-total correlation was retained in the final scale. The factor structure of the scale was good (RMSEA = 0.046, CFI = 0.99), and coefficient alpha was 0.83. The three-week, test-retest reliability coefficient was 0.82. The scores converged with scores for other scales of Facebook activity. In addition, they were positively related to neuroticism and extraversion, and negatively related to conscientiousness.

In contrast, Griffiths [18] provided a brief critique of the Facebook-addiction research field in relation to the Bergen Facebook Addiction Scale developed by Andreessen and colleagues. Just like the term "Internet addiction," the term "Facebook addiction" may already be obsolete because there are many activities that a person can engage in on the Facebook website (e.g., messaging friends, playing games like Farmville, and gambling). What is needed is a new psychometric scale examining potential addiction to a particular online application (i.e., social networking) rather than activity on a particular website (i.e., Facebook).

There is a relationship between Facebook dependence and poor quality of sleep. Wolniczak et al. [19] assessed the potential association between Facebook dependence and poor sleep quality in a cross-sectional study among 418 students. The Internet Addiction Questionnaire was adapted to the Facebook test. Facebook dependence was found in 8.6 percent of the respondents, whereas poor sleep quality was present in 55 percent. A significant association between Facebook dependence and poor sleep quality was found. In the current study, we did not evaluate sleep quality.

The SWLS was developed to assess the respondent's satisfaction with life as a whole. The present findings are in accordance with previous reports on Internet addiction and life satisfaction. Cao et al. [20] investigated the prevalence of problematic Internet use in a large sample of 17,599 Chinese adolescent students and its relation to psychosomatic symptoms and life satisfaction. Adolescents with problematic Internet use had significantly lower scores in total and on all dimensions of life satisfaction.

In another study, Chou and Edge [21] examined the impact of using Facebook on people's perceptions of others' lives among 425 undergraduate students at a state university in Utah. The multivariate analysis indicated that those who have used Facebook longer were more likely to agree that others were happier and less likely to agree that life is fair. In addition, those spending more time on Facebook each week were more likely to agree that others were happier and had better lives.

Recently, a countermovement of users has formed, deciding to leave social networks by

quitting their accounts (i.e., virtual identity suicide). Stieger et al. [22] investigated whether Facebook quitters (n=310) differ from Facebook users (n=321); they examined privacy concerns, Internet addiction scores, and personality. They found Facebook quitters to be significantly more cautious about their privacy, to have higher Internet addiction scores, and to be more conscientious than Facebook users. The main self-stated reason for committing virtual identity suicide was privacy concerns (48 percent). Although the adequacy of privacy in online communication has been questioned, privacy is still an important issue in online social communications.

It could be argued that Facebook addiction is simply one aspect of Internet addiction [10,17,23,24]. The concepts are related, but they are different. When the FAT is applied to identify pathological use of Facebook, the groups identified are very different in attitudes and usage. Overall, the FAT is a valid and reliable instrument that can be used in further research on Facebook addiction and the general use of Facebook.

In the present study, about five percent of the students of the Medical University of Białystok demonstrated features of Facebook addiction, low self-esteem as well as life satisfaction.

CONCLUSIONS

Problematic use of Facebook affected a small percentage of respondents who had low self-esteem and self were dissatisfied with their lives.

Conflicts of interest

None declared.

REFERENCES

1. In Poland, Facebook develops most dynamically in Eastern Europe. <http://tech.wp.pl/kat,1009785,title,Facebook-w-Polsce-rozwija-sie-najlepiej-we-wschodniej-Europie,wid,15729929,wiadomosc.html?ticaid=110f47>. [cited 2015 Dec 7] (Polish)
2. Carlson N. Goldman to clients: Facebook has 600 million users. *Business Insider*, January 5. Retrieved from <http://www.businessinsider.com/>. [cited 2015 Dec 7].
3. Young KS. Internet addiction: the emergence of a new clinical disorder. *Cyberpsychol Behav*. 1998;1(3):237-44.
4. Jakubik A. Internet addiction syndrome. *Stud Psychol UKSW*. 2002;3:133-42. (Polish)
5. Buffardi EL, Campbell W K. Narcissism and social networking web sites. *Personal Soc Psychol Bull*. 2008 Oct;34(10):1303-14.
6. Mehdizadeh S. Self-presentation 2.0: narcissism and self-esteem on Facebook. *Cyberpsychol Behav Soc Netw*. 2010 Aug;13(4):357-64.

7. Wilson K, Fornasier S, White KM. Psychological predictors of young adults' use of social networking sites. *Cyberpsychol Behav Soc Netw.* 2010 Apr;13(2):173-77.
8. Kuss DJ, Griffiths MD. Online social networking and addiction--a review of the psychological literature. *Int J Environ Res Public Health.* 2011 Sep; 8(9):3528-52.
9. Diener E, Emmons RA, Larsen RJ, Griffin S. The Satisfaction with Life Scale. *J Pers Assess.* 1985;49:71-5.
10. Cassidy B. The Facebook Addiction Test: A New Tool to Study Facebook Usage http://www.academia.edu/2460816/DRAFT_The_Facebook_Addiction_Test_A_New_Tool_to_Study_Facebook_Usage. [cited 2015 Dec 7].
11. Bielak B. Jak pomóc uczniom w wyborze zawodu. *WSIP.* Warszawa. 2009,1-88 (Polish)
12. Juczynski Z. Narzędzia pomiaru w promocji i psychologii zdrowia, *Pracowania Testów Psychologicznych PTP.* Warszawa 2001. (Polish)
13. Kittinger R, Correia CJ, Irons JG. Relationship between Facebook use and problematic Internet use among college students. *Cyberpsychol Behav Soc Netw.* 2012 Jun;15(6):324-7.
14. Manago AM, Taylor T, Greenfield PM. Me and my 400 friends: the anatomy of college students' Facebook networks, their communication patterns, and well-being. *Dev Psychol.* 2012 Mar;48(2):369-80.
15. Koc M, Gulyagci S. Facebook addiction among Turkish college students: the role of psychological health, demographic, and usage characteristics. *Cyberpsychol Behav Soc Netw.* 2013 Apr;16(4):279-84.
16. Lemieux R, Lajoie S, Trainor NE. Affinity-seeking, social loneliness, and social avoidance among Facebook users. *Psychol Rep.* 2013 Apr; 112(2):545-52.
17. Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. Development of a Facebook Addiction Scale. *Psychol Rep.* 2012 Apr; 110(2):501-17.
18. Griffiths MD. Facebook addiction: concerns, criticism, and recommendations--a response to Andreassen and colleagues. *Psychol Rep.* 2012 Apr;110(2):518-20.
19. Wolniczak I, Cáceres-DelAguila JA, Palma-Ardiles G, Arroyo KJ, Solís-Visscher R, Paredes-Yauri S, Mego Aquije K, Bernabe-Ortiz A. Association between Facebook dependence and poor sleep quality: a study in a sample of undergraduate students in Peru. *PLoS One.* 2013;8(3):e59087.
20. Aquije K, Bernabe-Ortiz A. Association between Facebook dependence and poor sleep quality: a study in a sample of undergraduate students in Peru. *PLoS One.* 2013;8(3):e59087.
21. Cao H, Sun Y, Wan Y, Hao J, Tao F. Problematic Internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Public Health.* 2011;14: 11:802.
22. Chou HT, Edge N. "They are happier and having better lives than I am": the impact of using Facebook on perceptions of others' lives. *Cyberpsychol Behav Soc Netw.* 2012 Feb; 15(2):117-21.
23. Stieger S, Burger C, Bohn M, Voracek M. Who Commits Virtual Identity Suicide? Differences in Privacy Concerns, Internet Addiction, and Personality Between Facebook Users and Quitters. *Cyberpsychol Behav Soc Netw.* 2013 Sep;16(9):629-34.
24. Krajewska-Kułak E, Kułak W, Marcinkowski JT, Damme-Ostapowicz KV, Lewko J, Lankau A, Lukaszuk C, Rozwadowska E. Internet addiction among students of the Medical University of Białystok. *Comput Inform Nurs.* 2011 Nov;29(11):657-61.