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Association between Facebook addiction, self-esteem and life satisfaction: A cross-sectional study

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ABSTRACT

In recent years, many research efforts have been focused on investigation of potential connection between social networking and mental health issues. Particularly important and controversial remains the association between Facebook use, self-esteem and life satisfaction. In our cross-sectional study, on a sample of 381 Facebook users, we tested the existence and strength of this relationship using Bergen Facebook Addiction Scale (BFAS), Facebook Intensity Scale (FBI), Rosenberg's Self-Esteem Scale (SES), and Satisfaction With Life Scale (SWLS). With k-means cluster analysis, we divided the sample into 3 groups: ordinary, intensive, and addicted Facebook users. The results of our study show that ordinary Facebook users differ statistically in self-esteem and life satisfaction from both addicted and intensive users. Facebook addiction was in relation with lower self-esteem. Facebook addiction was also negatively related to life satisfaction. These results are in accordance with the previously published findings of other authors in the fields of social networking psychology and psychiatry.

1. Introduction

Apart from Twitter, LinkedIn, and MySpace, Facebook is one of the most popular social networking sites. It was launched in 2004 and currently has approximately 800 million users, providing the opportunity to communicate and share information (Facebook, 2014). The increase in the number of users of social networking sites is a global phenomenon (Vasalou, Joinson, & Courvoisier, 2010). The subject of Facebook is often taken up by researchers studying network communities due to its wide range of users and technological possibilities that allow people to maintain relationships from the offline world as well as establish new ones in the online world. Being a kind of platform for the exchange of information and a medium that makes it possible to establish new relationships or maintain existing ones, Facebook has a huge impact on social life (Ellison, Steinfield, & Lampe, 2007). According to Gemius statistics, 75% of Internet users in Poland use Facebook (Gemius, 2014). Additionally, as SocialTimes states, this SNS has about 11 million active Polish users, which is the 11th highest result in the world.

With the increased number of Facebook users, the problems associated with excessive use and addiction have become more and more frequent. Griffiths, Kuss, and Demetrovics (2014) pointed out the urgent need for further examination of Facebook addiction, which is often related to Internet addiction. Facebook addiction (also Facebook intrusion) is defined as excessive involvement in Facebook activities and is a frequent cause of problems in everyday social functioning (Elphinston & Noller, 2011). It is also characterized by some of the features commonly observed in other addiction diseases, such as tolerance, withdrawal, relapse etc. (Andreassen, Torsheim, Brunborg, & Pallesen, 2012).

In recent years, there have been several studies on Internet and Facebook dependence. For example, neuroticism and extraversion were positively associated with Facebook addiction, while, on the other hand, conscientiousness was negatively correlated with it (Andreassen et al., 2012). Additionally, depression turned out to be in a significant positive relationship with Facebook addiction (Błachnio, Przepiórka, & Pantic, 2015). Also, people with a low level of perceived control scored higher on the Facebook Addiction Scale (De Cock et al., 2014). The potential relationship between certain personality traits and compulsive use of social networking sites is still unclear.

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1.1. Facebook addiction and self-esteem

According to numerous studies, there is a positive relationship between self-esteem and Internet addiction (Armstrong, Phillips, & Saling, 2000). Those users who hold a negative view of themselves show a maladaptive use of the Internet. **Self-esteem** and life satisfaction were found to be predictors of **Internet addiction** and together with loneliness they explained 38% of the total variance (Bozoglan, Demirer, & Sahin, 2013). The results obtained by De Cock et al. (2014) indicate that low level of self-esteem is related to Facebook addiction. A longitudinal study showed that self-esteem was a moderator in the relationship between Facebook usage intensity and bridging social capital (Steinfield, Ellison, & Lampe, 2008). Facebook had more beneficial effect for those with lower self-esteem by bridging social capital even better than for those with higher self-esteem. In their pioneering research on users' personality, Internet use, and the satisfaction of needs, Kraut et al. (2002) formulated certain tendencies. According to their hypothesis known in the literature as "social compensation," people with low self-esteem compensate their difficulties in social relations when using the Internet. The second hypothesis — known as "rich get richer" — assumes that persons with a high level of self-esteem also receive strong gratification on the Internet; they are active online and have a large number of friends, which means people who manage well in the real world will also manage well in the virtual world. Zywica and Danowski (2008) tested both hypotheses on a group of American students with reference to Facebook and distinguish two groups of users: the first group were extraverts, with high self-esteem and popular both in real life and online; the second group were introverts, with low self-esteem, seeking to make up for their lack of popularity in real life by being active on Facebook.

1.2. Facebook addiction and satisfaction with life

There are some inconsistent results regarding the impact of Facebook on life satisfaction. On the one hand, a great body of research shows that there is a positive relationship between life satisfaction and Facebook use. For instance, an Australian study showed that Facebook connectedness is related to lower depression and anxiety and to higher life satisfaction (Grieve, Indian, Witteveen, Anne Tolan, & Marrington, 2013). Similarly, a positive relationship between Facebook intensity and life satisfaction was found in a sample of 2603 college students across Texas (Valenzuela, Park, & Kee, 2009). One of the reasons might be that Facebook helps young people to enhance social capital. On the other hand, as Chan (2014) shows, there is a link between the intensity of Facebook use, personality, and life satisfaction. A high level of Facebook usage has negative effects on satisfaction with life both in extraverts and in neurotics when users replace social relationship with the online ones. In the study with experience sampling, 82 participants taking part in the experiment received text-messages five times per day for 14-days each with a link to an online survey. They assessed their life satisfaction both before and immediately after the 14-day experiment (Kross et al., 2013). The results showed that Facebook use had detrimental effects on life satisfaction.

The main objective of this research was to examine the relationship between Facebook intensity, Facebook addiction, self-esteem, and life satisfaction. On the basis of previous results, we posed the following hypotheses:

H1. Self-esteem is negatively related to Facebook intensity. Those with lower self-esteem use Facebook more intensively.

H2. Lower self-esteem is positively related to Facebook addiction.

H3. Higher Facebook intensity is positively related to Facebook addiction.

H4. Facebook addiction is negatively related to life satisfaction.

2. Methods

2.1. Participants and procedure

The participants were 381 Facebook users (62.8% were females). Their mean age was 20.73 years, $SD = 4.49$, with a range from 12 to 58 years. They were recruited through posting a link to the online survey on the Facebook 'wall.' The survey was available for two weeks in April 2014 in Poland. The only condition one had to meet to take part in the study was having a Facebook account. The participants received no remuneration. In the instruction they were informed that the study concerned Facebook activity and that their contributions were anonymous. We used Polish versions of all the methods.

2.2. Instruments

The online survey comprised a series of basic demographic questions (e.g., age, gender, occupation, location) as well as some measures of Facebook addiction, self-esteem, and life satisfaction. We used two methods connected with extensive Facebook usage, the first one measuring only the intensity of use, and the second one measuring not only the intensity but also the consequences of this use. The methods used in the study have been widely applied in the subject literature, have good theoretical background, and showed good reliability in previous studies.

For measuring the intensity and frequency of Facebook usage, we used the *Facebook Intensity Scale* (FBI) (Ellison et al., 2007) with 8 items (e.g., *Facebook is part of my everyday activity*). As regards internal consistency, in the present study the scale had a Cronbach's α of 0.82. The scale measures the number of Facebook "friends," the amount of time spent on Facebook, and engagement in Facebook.

For measuring Facebook addiction, we used *the Bergen Facebook Addiction Scale* (BFAS) (Andreassen et al., 2012). The scale has 18 items, 3 items per each symptom of addiction, the symptoms being: salience, mood modification, tolerance, withdrawal, conflict, and relapse (Andreassen et al., 2012). The last version of the measure has 6 items, one per each symptom. We chose the items with loadings ranged from 0.80 to 0.84. The Cronbach's α reliability of the scale was 0.92. The range of the Facebook Addiction Scale was from 1 to 5. A higher score indicates a more severe level of Facebook addiction.

To measure self-esteem, we used *Rosenberg's Self-Esteem Scale* (SES) as adapted into Polish by Łaguna, Lachowicz-Tabaczek, and Dzwonkowska (2007). The Rosenberg Self-Esteem Scale contains 10 items with a four-point Likert scale and provides an overall evaluation of a person's self-esteem (e.g., *I feel that I have a number of good qualities*). The reliability of the scale (Cronbach's α) was 0.83.

Life satisfaction was measured with the *Satisfaction With Life Scale* (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985), consisting of 5 items designed to measure global cognitive judgments of satisfaction with one's life (e.g., *The conditions of my life are excellent*). The reliability of the scale (Cronbach's α) was 0.81.

3. Results

Table 1 shows the descriptive statistics and correlations between variables: Facebook intensity, Facebook addiction, self-esteem, and satisfaction with life. No gender differences were

Table 1
Descriptive statistics for Facebook intensity, Facebook addiction, self-esteem, and satisfaction with life.

N = 381	M	SD	1	2	3
1. Facebook intensity	0.02	0.69			
2. Facebook addiction	2.01	1.07	0.53[***]		
3. Self-esteem	2.81	0.55	−0.16[**]	−0.16[**]	
4. Satisfaction with life	4.52	1.15	−0.12[*]	0.03	0.30[***]

[*] $p < .05$. [**] $p < .01$. [***] $p < .001$.

found in Facebook intensity or Facebook addiction.

In our study *k*-means cluster analysis was used to identify the level of Facebook addiction. Cluster analysis is a statistical method that allows to divide participants into groups based on their similarity (Grimm & Yarnold, 2000). To examine Facebook addiction, a series of *k*-means cluster analyses were performed for Facebook addiction and Facebook intensity. The analysis resulted in participants being assigned to three groups, as shown in Table 2. These three groups were labeled according to the profiles of addictive Internet users described by Young (1998).

Cluster 1 comprised 212 participants with a low level of Facebook addiction ($M = -0.73$, $SD = 0.24$) and a low level of Facebook intensity ($M = -0.30$, $SD = 0.48$). This group was labeled "ordinary Facebook users." Cluster 2 comprised 57 participants with a medium level of Facebook addiction ($M = 1.89$, $SD = 0.56$) and a high level of Facebook intensity ($M = 0.73$, $SD = 0.67$). This group was labeled "problematic Facebook users." Cluster 3 comprised 123 participants characterized by a high level of Facebook addiction ($M = 3.89$, $SD = 0.44$) and a medium level of Facebook intensity ($M = 0.25$, $SD = 0.57$). This group was labeled "addicted Facebook users." The difference between these two groups − problematic and addicted users − lies in the degree to which their life is seriously affected by Facebook addiction. Similarly, as stated by Young (1998b) and, based on this division, in the recent study on Internet addiction by Mak et al. (2014), the severity of consequences brought about by excessive Facebook use is greater in the group of addicts.

One-way ANOVA checking the differences between three clusters was conducted (Table 3 and Fig. 1). We demonstrated that ordinary Facebook users differed statistically from both addicted and problematic Facebook users. Problematic Facebook users were characterized by a low level of self-esteem and a high level of life satisfaction, while Facebook addicted users were characterized by a low level of both self-esteem and life satisfaction. Ordinary Facebook users scored higher on self-esteem ($M = 0.16$, $SD = 1.21$) than both the others groups: than addicted ($M = -0.17$, $SD = 1.02$) and problematic Facebook users ($M = -0.24$, $SD = 0.84$). Moreover, they scored higher ($M = 0.09$, $SD = 1.09$) on life satisfaction than Facebook addicted users ($M = -0.28$, $SD = 1.03$).

4. Discussion

The main aim of this study was to examine the relationship

between Facebook use, self-esteem, and life satisfaction. Also, one of the goals of this research was to investigate whether people with different levels of Facebook intensity and Facebook addiction differ in self-esteem and life satisfaction.

As a result of the study, three out of four hypotheses were supported. The results indicated that Facebook intensity is negatively related to satisfaction with life. The level of life satisfaction was the lowest among addicted Facebook users when we compared these three groups. These results are consistent with those of another study, suggesting a negative relationship between Facebook intrusion and life satisfaction (Elphinston & Noller, 2011). It seems quite logical that excessive Facebook use seriously affects addicts' quality of life.

The Pearson correlations showed that higher Facebook intensity is positively related to Facebook addiction. The more one uses Facebook the more prone one is to develop the addiction. This may be due to the process of habituation, characteristic for addiction. A person gradually needs more intense stimulation that in the beginning, and the same time and dose of Facebook use might not be sufficient at a later stage of addiction. Interestingly, in the group of problematic Facebook users, the level of life satisfaction was the highest. Valenzuela et al. (2009) found a positive relationship between Facebook intensity and life satisfaction. This may also indicate the presence of a defense mechanism: those who observe the first negative consequences of their Facebook use may delude themselves and claim they are satisfied with their life, and they may not see this problem. This defense mechanism is common in the addiction phases in general. In the first stage of addiction users can use Facebook intensively without feeling other symptoms of addiction. Facebook intensity can be correlated with high level of life satisfaction.

The division into three clusters may reflect the division of Facebook addiction into stages, from normal to excessive use. *Ordinary Facebook users* use Facebook in a normal, healthy way. They do not have problems with quitting Facebook use and are not too much involved in it. They have high levels of self-esteem and life satisfaction, which may serve as a buffer against developing an addiction. This group of people use Facebook as a tool. They will probably never become dependent on Facebook. *Problematic Facebook users* are the people who use Facebook very heavily, but they may not have encountered any serious problems yet, and despite occasional problems with the duration of their use and difficulties in controlling their use they derive satisfaction from this activity. This seems to be the stage of Facebook euphoria. Some people in this group may have a tendency to become addicted. If they use Facebook more and more intensively, their life satisfaction will be lower in the future. This phase is similar to the first stage of Internet addiction, when users use the Internet very often and are involved in it but feel well. As the neuropsychological chain model of Internet addiction (Young, Yue, & Ying, 2011) shows, the state of euphoria will be transformed completely into a habit, which, in the end, will result in tolerance. Similar relations can be observed in these stages of Facebook addiction syndromes. The higher level of satisfaction may be explained by the fact of a great dose of dopamine being released while using Facebook. Dopamine, as a neurotransmitter, plays a role in different addictions (Chiara, 2002). *Addicted Facebook users* have problems because of Facebook. They try to limit Facebook use but it is beyond their control and these attempts result in failures, which may lead to higher dissatisfaction. The lower amount of time might be a result of the defense mechanism that is present in addiction, when the addict tries to falsify the real amount of time spent online and usually reduces it. This group of people have a problem with Facebook abuse. They do not derive satisfaction from Facebook usage and, as a consequence, it lowers their life satisfaction.

Table 2
Means and Standard Deviations for the three clusters.

Scale	Clusters					
	1		2		3	
	n = 212		n = 57		n = 123	
	M	SD	M	SD	M	SD
Facebook addiction	−0.73	0.24	1.89	0.56	3.89	0.44
Facebook intensity	−0.30	0.48	0.73	0.67	0.25	0.57

Table 3
Means, Standard Deviations, and significant differences on self-esteem and satisfaction with life among the three clusters.

	Clusters						F	Significance of differences between groups
	Ordinary Facebook users		Problematic Facebook users		Addicted Facebook users			
	M	SD	M	SD	M	SD		
Self-esteem	0.16	1.21	−0.24	0.84	−0.17	1.02	5.09**	1−2; 3
Life satisfaction	0.09	1.09	0.26	1.30	−0.28	1.03	6.30**	1−3, 2−3

$^*p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$
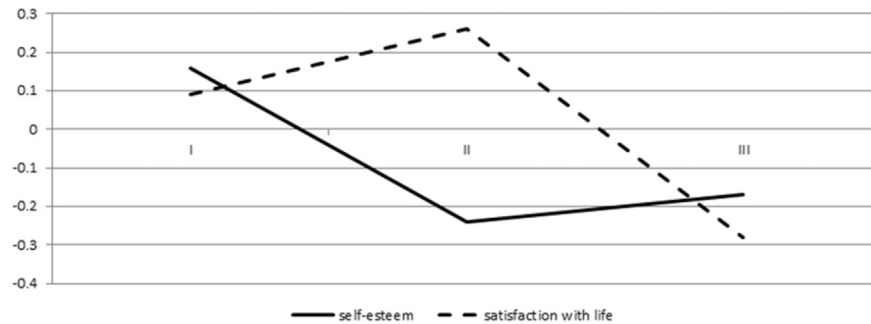
Fig. 1. Differences between three groups of Facebook users in self-esteem and life satisfaction. *I − ordinary Facebook users, II − intensive Facebook users, III − addicted Facebook users.*

5. Limitations and conclusions

Certain limitations of the current study have to be acknowledged. Foremost among them is the usage of self-report methods. On the other hand, research using individual therapeutic assessment would also have limited justification. Future research should concentrate on other traits characterizing these three group of users. Clearly, such investigations would increase our knowledge on Facebook addiction. An important finding that emerges from this study is the presentation of the three phases of Facebook addiction. This can be useful in prevention as well as in psychological and psychiatric practice. However, the results are based on a cross-sectional study; more insight should be obtained from longitudinal studies in order to describe more precisely the development of the phases of addiction and the causal effect of selected personality variables. We cannot be sure about the causality of life satisfaction and self-esteem − about whether it is a cause or a consequence of Facebook addiction. Also, one of the important limitations of our study was a relatively small size of the sample, as well as the fact that it was relatively heterogeneous regarding age and other demographic characteristics. Therefore, the conclusions of the study are only preliminary and cannot be generalized. In the future it will be important to investigate whether the correlations detected in our research are also present in specific population groups, such as high school students, university students, and other adolescents. Nevertheless, this study contributes to the literature not only by examining the relationship between self-esteem, life satisfaction, and Facebook addiction, but also by presenting the relationships between these variables in three groups of users in different phases of addiction.

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