Full length article

Personality and positive orientation in Internet and Facebook addiction. An empirical report from Poland

CrossMark

Agata Błachnio[*], Aneta Przepiorka

Institute of Psychology, The John Paul II Catholic University of Lublin, Poland, Al. Racławickie 14, 20-950 Lublin, Poland

A B S T R A C T

Nowadays the Internet is used more and more. The use that becomes the most popular is social networking sites. The main aim of our two studies is to find an answer to the question of whether personality and positive orientation are linked to Internet and Facebook addiction. Two studies were conducted, verifying the effects of personality traits and positive orientation on these two kinds of addiction. Study 1 involved 631 participants and Study 2 involved 452. The Bergen Facebook Addiction Scale, the Internet Addiction Test, the Short Personality Scale, and the Positive Orientation Scale were used. Our results indicate that lower positive orientation, conscientiousness, emotional stability, and openness to experience are related to problematic use of both Internet and Facebook. What is more, extraversion and agreeableness are connected only with problematic Internet use.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

The emergence of the Internet was a technological breakthrough for civilization in the 20th century. Since then, the impact of the Internet has become enormous and omnipresent in all spheres of our lives (Gosling & Mason, 2014). In the course of these years, we have been witnessing the digital world entering our everyday life even more profoundly. Social networking sites (SNSs), which have multiple functions, are one of the forms of online communities (see Beenen et al., 2004). Facebook is an example of the most recognizable and most frequently used SNS. The statistics reaching an average of over 829 million daily active users are the best proof of its popularity (Facebook, 2014). Facebook is an indispensable tool used on a daily basis. Not only is it a source of entertainment, but it also serves as educational and professional purposes. Its applications and functions give their users unlimited possibilities of expressing themselves and sharing their opinions as well as a new way of communicating with each other. However, there is also a dark side of this technological advancement — namely, the increasing number of addicted users (Andreassen & Pallesen, 2014). Although Internet addiction was not included in the latest update to the Diagnostic and Statistical Manual of Mental Disorders (the DSM-5), the problem is widely acknowledged by scholars and practitioners (Pezoa-Jares, 2012). Facebook addiction may be a subtype of Internet addiction and therefore therapeutic approaches may be used on a similar basis (Andreassen & Pallesen, 2014). There is an urgent need to learn more about this phenomenon and to increase our knowledge on the possible predictors of Internet and Facebook addition. Although the prolific number of articles on that topic that have been published recently (e.g., Błachnio, Przepiórka, & Rudnicka, 2013; Caers et al., 2013; Wilson, Gosling, & Graham, 2012) proves the existence of keen scientific interest, there is still a gap in the literature when it comes to research on Facebook addiction and its relation to Internet addiction. Over the last ten years in psychology, research on changes in Internet usage have been steadily increasing. Initially, scientists studied the psychological aspects of Internet addiction in general but they need to investigate the psychological aspects of specific activities in the Internet. Although studies on the determinants of Internet addiction exist in the literature (e.g., Bozoglan, Demirer, & Sahin, 2013), there is a lack of similar studies on Facebook addiction.

The rates of addicted users vary across different countries depending on the diagnostic tool used (see Kuss, Griffiths, Karila, & Billieux, 2014). Statistics show that Internet addiction is spreading among users and, additionally, new subtypes of this addiction are appearing. Andreassen and Pallesen (2014) stressed there is scarce research on Facebook addiction and therefore it might be difficult to determine the causal relationship and to identify the

* Corresponding author.
   E-mail addresses: gatta@kul.pl (A. Błachnio), aneta.przepiorka@gmail.com (A. Przepiorka).

determinants of social networking site addiction. Despite the criticism of Facebook Addiction Scale (see Griffiths, 2012), more research is needed to explore this concept and to uncover the mechanism behind addiction to Facebook (Andreassen & Pallesen, 2014).

The present research is an attempt to determine the extent to which self-beliefs and personality traits are related to Internet and Facebook addiction. Firstly, this article is aimed at filling a gap in research by investigating the links between Internet addiction and personality traits as well as positive orientation. Secondly, we wanted to verify whether Internet and Facebook addictions were caused by similar patterns and factors. Thirdly, we want to establish the psychological profiles of normal and addicted Internet and Facebook users. We planned two studies checking which factors cause both Internet and Facebook addictions.

Previous studies have shown that Internet addiction and Facebook addiction are linked with some personality factors. Internet addiction was found to be connected with loneliness (Caplan, 2007), depression and low self-esteem (Yang & Tung, 2007), and social anxiety (Caplan, 2007). Numerous studies show that Internet addiction is positively correlated with neuroticism (Yao, He, Ko, & Pang, 2014) and negatively with extraversion, conscientiousness, and openness (Stieger, Burger, Bohn, & Voracek, 2013). Self-esteem explained a considerable amount of variance in Internet addiction (Ayas & Horzum, 2013; Bozoglan et al., 2013); the same was attested for satisfaction with life (e.g., Wang et al., 2013). The cross-cultural comparison between adolescents in the Netherlands and university students in England (Daria J. Kuss, Shorter, van Rooij, van de Mheen, & Griffiths, 2014) confirmed the relationship between the Internet addiction components model and personality. In both samples the Internet addiction components factor negatively correlated with agreeableness and positively with neuroticism. Conscientiousness and resourcefulness were related to it but only in the adolescents'' group. Regarding addiction to social networking sites (SNSs), SNS usage was found to be positively related to extraversion, introversion, and narcissism (Kuss & Griffiths, 2011). Conscientiousness correlated negatively with SNS usage. Also Facebook addiction was found in previous research to be more common among those who had lower self-esteem and social skills and who had a tendency to depression (e.g., Herrera Harfuch, Pacheco Murguía, Lever, & Andrade, 2010). Facebook addiction was also found to correlate positively with neuroticism and extraversion and negatively with conscientiousness (Andreassen, Torsheim, Brunborg, & Pallesen, 2012).

Considering the likeness between Internet and Facebook addiction in terms of some determinants, we decided to examine the same predictors and their relation to these two types of addiction. To achieve this goal, we focused only on personality traits and positive orientation. These factors were chosen on the basis of the literature, which shows significant associations between personality, self-esteem, satisfaction with life, and Internet and Facebook addiction. We referred to the positive orientation construct, which comprises three self-belief dimensions: self-esteem, optimism, and satisfaction with life (Heikamp et al., 2014). Self-beliefs are well-established predictors of future behaviors in the fields of health (e.g., Schwarzer, & Renner, 2000), education (Bong, Cho, Ahn, & Kim, 2012), or work (Cunningham, Bruening, Sartore, Sagas, & Fink, 2005). To our best knowledge, this is the first study where the construct of positive orientation is used in the context of the Internet. The term "positive orientation" is understood to mean positive perception of oneself, positive evaluation of one's life, and expecting positive things in the future. As previous research shows, positive orientation is a key factor in better adjustment (Alessandri, Caprara, & Tisak, 2012), more efficient coping with difficulties and making up with losses more quickly (Caprara et al., 2009). Cross-

cultural and longitudinal studies proved the generality of this construct (Alessandri et al., 2012) (Caprara, Steca, Alessandri, Abela, & McWhinnie, 2010).

The paper comprises two studies aiming to examine whether Internet addiction and Facebook addiction are associated with positive orientation and personality traits. In both studies, widely used methods for assessing Internet and Facebook addiction scales were applied. Both had been adapted into Polish and used satisfactorily in many studies. The scales measuring positive orientation (Caprara et al., 2010) and personality (Gosling, Rentfrow, & Swann, 2003) were selected on the basis of their common use in different cultures and the low number of items. This is extremely important in online studies in order to achieve good reliabilities (Gosling, Vazire, Srivastava, & John, 2004).

1.1. Study 1

On the basis of the literature, we formulated the following hypotheses for Study 1:

Hypothesis 1. Internet addiction will be related to lower positive orientation.

Hypothesis 2. Internet addiction will be related to higher extraversion and neuroticism and to lower conscientiousness.

2. Methods

2.1. Participants and procedure

The sample consisted of 631 individuals. The mean age of the participants was $M = 22.48$ years ($SD = 6.24$ years) with a range from 14 to 64 years, and 64% of the participants were woman. An online version of the questionnaire was prepared, so there was no information on the number of questionnaires not completed. Undergraduate students from the Psychology Department agreed to take part in the study and to send the link to the questionnaires to Facebook users with a request to spread the message among their Facebook friends. The participants fulfilled two criteria: they were Internet as well as Facebook users. They received no remuneration or credit points for their participation. The sample completed three questionnaires: the Internet Addiction Test (IAT), the Positive Orientation Scale (POS), and the Ten-Item Personality Inventory (TIPI). Additionally, the respondents were asked about gender, age and the time they devoted to Internet use. We used the Polish versions all of the scales.

2.2. Measures

Young's *Internet Addiction Test* (Young, 1998) comprised 20 items (e.g., *How often do you become defensive or secretive when anyone asks you what you do on-line?; How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?*) adapted into Polish by Hawi, Blachnio, and Przepiorka (2015). Its Cronbach's α was .94. The IAT is a valid cosmopolitan one-factor instrument for measuring Internet addiction. Each item took the form of the following Likert scale from 0 — *not applicable* to 5 — *always*.

Positive Orientation Scale (Caprara et al., 2010) (Cronbach's α was .84) as adapted into Polish by Łaguna, Oleś, and Filipiuk (2011) consists of 8 items measuring the tendency to see positive aspects of life, which comprises three components: self-esteem, optimism, and satisfaction with life (e.g., *I have great faith in the future; I look forward to the future with hope and enthusiasm*) ranged from 1 (*completely disagree*) to 5 (*completely agree*).

Ten Item Personality Measure (Gosling et al., 2003) measuring the Big Five dimensions: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience (Cronbach's α ranged from .23 to .63) It consists of 10 items, 2 items for each of the 5 dimensions. There is a list of different characteristics related to each dimension e.g., extraverted, enthusiastic; reserved, quiet. The items are rated on a 7-point Likert scale from 1 = disagree strongly to 7 = strongly agree. In the Polish version of the TIPI (Łaguna, 2012), test-retest stability after 2 weeks ranged from .61 to .83.

3. Results

Table 1 shows the correlations between Internet addiction and other variables. Additionally, the higher was the Internet addiction the lower was the age ($r = -.19$, $p = .001$) and the longer was the time devoted to Internet use ($r = .22$, $p = .001$).

The next step was regression analyses. We performed hierarchical multiple regression analyses to assess the impact of demographic and personality variables on Internet addiction (Table 2). Age was entered in the first step, followed by positive orientation in the second step and by the Big Five dimensions of personality in the third step.

Table 2 presents the results of regression analyses for Internet addiction. The results indicate that age is a good predictor of Internet addiction. Positive orientation is a predictor only in the second step of analyses. After adding the personality variables, only age and selected personality dimensions (i.e., agreeableness, conscientiousness, and openness to experience) are significant.

To compare people with low and high level of Internet addiction and intensity, we performed an ANOVA. Using cut-off scores for IAT in accordance with Young's proposal (Young & Nabuco de Abreu, 2011), we divided the sample into groups such as normal users (scores between 0 and 30), mildly addicted users (31–49), moderately addicted users (50–79), and severely addicted users (80–100). Because of the insufficient number of participants in the group labeled as having a severe level of Internet addition, this group ($n = 15$) was combined with that of moderately addicted users. Thus, we divided the sample into three groups: normal users scored up to 30, mildly addicted users scored between 31 and 49, and moderately/severely addicted users scored 50 or above.

Table 3 shows the results of ANOVA comparing positive orientation and personality among normal and addicted Internet users. Internet addicts scored lower on positive orientation, extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience than normal Internet users. Moreover, they spent much more time online.

4. Discussion

The main aim of the first study was to examine the associations of Internet addiction with personality traits and positive orientation.

Table 2
Results of hierarchical multiple regression analysis for Internet addiction (N = 631).

	Internet addiction		
	Step 1 β	Step 2 β	Step 3 β
Age	-.19***	-.19***	-.16***
Positive orientation		-.12**	-.01
Extraversion			.01
Agreeableness			-.08*
Conscientiousness			-.15***
Emotional stability			-.04
Openness to experience			-.15***
R^2	.03	.05	.12
R^2 change	.03***	.01**	.07***

*$p < .05$; **$p < .01$; ***$p < .001$.
Note. All beta weights are standardized; all R^2 values presented in the results are adjusted R^2 values.

The results show that people who scored high on Internet addiction had a low level of positive orientation. Those users who displayed maladaptive Internet use had lower self-esteem, evaluated their life less positively (see Bozoglan et al., 2013), and had lower positive expectations regarding the future (see Çelik & Odacı, 2013). There is also a link between personality and Internet addiction, which is consistent with other studies (Kuss, van Rooij, Shorter, Griffiths, & van de Mheen, 2013). People with a high level of Internet addiction had a low level of consciousness, agreeableness, emotional stability, and openness to experience. This was not consistent with the study by Andreassen et al. (2012), which suggested positive correlation also with extraversion.

Our results indicate that age and positive orientation are predictors of Internet addiction, but if we add personality to equation positive orientation is not significant.

4.1. Study 2

In Study 1 we tested which variables distinguished the group of people addicted to the Internet from normal Internet users. In Study 2, we investigated the differences between the group of addicted Facebook users and normal Facebook users in terms of personality traits and positive orientation. The main aim of Study 2. was to examine the relationships of Facebook addiction with personality traits and positive orientation. We understand Facebook addiction as a more specific addiction and a subtype of Internet addiction. On the basis of the literature, we formulated the following hypotheses for Study 2:

Hypothesis 3. Facebook addiction will be related to lower positive orientation.

Hypothesis 4. Facebook addiction will be related to higher extraversion and neuroticism and to lower conscientiousness.

Table 1
The correlations between Internet addiction and personality and positive orientation.

N = 631	M	SD	1	2	3	4	5	6
1. Internet addiction	31.81	19.80						
2. Positive orientation	28.14	5.35	-.12**					
3. Extraversion	4.80	1.38	-.08	.34***				
4. Agreeableness	4.77	1.18	-.17***	.15***	.06			
5. Conscientiousness	4.67	1.37	-.23***	.24***	.11**	.15***		
6. Emotional stability	4.10	1.31	-.12**	.28***	.13**	.28***	.13**	
7. Openness to experience	5.01	1.31	-.19***	.34***	.45***	.25***	.19***	.12**

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 3
Means, standard deviations, and significant differences on positive orientation and personality for normal Internet users as well as mildly and moderately/severely addicted Internet users.

Variable	Normal range of IAT $N = 346$		Mild $N = 165$		Moderate and severe $N = 101$		$F(2, 611)$	NIR
	M	SD	M	SD	M	SD		
Daily Internet use time in minutes	166.73	117.06	210.53	140.69	226.99	168.50	10.74***	1≠2,3
Positive orientation	.12	.95	-.05	.99	-.32	.97	8.81***	1≠2,3; 2≠3
Extraversion	.07	1.01	.01	1.05	-.25	.92	4.01*	1≠3; 2≠3
Agreeableness	.12	1.02	-.17	.94	-.20	.88	7.42***	1≠2,3
Conscientiousness	.19	1.00	-.15	1.00	-.30	.80	13.44***	1≠2,3
Emotional stability	.11	1.03	-.14	.97	-.09	.90	4.48*	1≠2,
Openness to experience	.12	.97	-.01	1.04	-.33	.88	8.43***	3≠1,2

$^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.

5. Methods

5.1. Participants and procedure

In the second study, the mean age of the participants was 21.04 years, $SD = 3.95$ years with a range from 14 to 65, and 67% of the participants were woman. The sample consisted of 452 participants. The procedure was the same as in Study 1. To be included in the study, the participants had to fulfill two criteria: they were Internet as well as Facebook users. They received no remuneration and took part in the study on a voluntary basis. We used the Polish version of all scales. We did the adaptation of the Bergen Facebook Addiction Scale and the Facebook Intensity Scale. Additionally, the respondents were asked about gender, age, and the time they devoted to Internet use.

5.2. Instruments

The Bergen Facebook Addiction Scale (Andreassen et al., 2012), whose previous version had 18 items, 3 items concerning one symptom of addiction, measures symptoms of addiction such as: salience, mood modification, tolerance, withdrawal, conflict, and relapse (Cronbach's α was .94). The participant has to respond to each of the statements by answering the question: *How often during the last year have you … ?* For this study we adapted this method into Polish (N. Hawi, Błachnio, & Przepiórka, 2014). The back-translation procedure was used. As in original version, we obtained corrected item-total correlation coefficients for all items. We chose one item in each symptom with the higher item-total correlation ranging from .70 to .81. The final version contains 6 items (e.g., *Thought about how you could free more time to spend on Facebook?*; *Used Facebook in order to forget about personal problems?*). Cronbach's α was .88.

Facebook Intensity Scale (Ellison, Steinfield, & Lampe, 2007) (Cronbach's α was .84) measuring the intensity and frequency of Facebook usage; additionally, emotional attitude to the site and its impact on daily activities are measured (e.g., *I feel I am part of the Facebook community; Facebook has become part of my daily routine*). This scale contains 8 items. Responses are given on a Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. Each person also has to indicate how many Facebook friends they have and how many minutes per day they spend. In order to obtain the Polish version of the scale, the back-translation procedure was used.

Additionally, we used two methods from Study 1: *Positive Orientation Scale* and *Ten Item Personality Measure*.

6. Results

Table 4 shows the correlations between Facebook addiction and other variables. Additionally, the higher was Facebook addiction the lower was the age, ($r = -.12$, $p = .017$) and the longer was the time devoted to Internet use ($r = .11$, $p = .027$).

The hierarchical multiple regression analyses were performed to assess the impact of demographic and personality variables on Facebook addiction and Facebook intensity (Table 5). Age was entered in the first step, followed by positive orientation in the second step and by the Big Five dimensions of personality in the third.

Table 5 presents the results of regression analyses for Facebook addiction and intensity. The results indicate that age is a good predictor of Facebook addiction. Positive orientation is a predictor only in the second step of the analyses. If we add personality to the equation, only age, conscientiousness, and openness to experience are significant. Moreover, age and emotional stability are predictors of Facebook intensity.

To compare people with low and high levels of Facebook addiction and intensity, we conducted an ANOVA. The author of the BFAS (Andreassen et al., 2012) did not provide the cut off scores, which is why we used cluster analysis to divide the participants into groups. Cluster analysis, described in Study 1, was used to divide the participants into groups connected with Facebook addiction. The analysis resulted in participants being assigned to two groups. These clusters differed in the level of Facebook addiction. Cluster 1 was called normal Facebook users and Cluster 2 − addicted Facebook users.

Cluster 1 comprised 298 participants (63% of woman). They were characterized by a low level of Facebook addiction ($M = -.55$; $SD = .41$). In Cluster 2 there were 123 participants (76% were women). They scored high on Facebook addiction ($M = 1.34$, $SD = .69$).

Table 6 shows the results of ANOVA comparing positive orientation and personality among normal and addicted Facebook users. The one-way ANOVA revealed statistically significant differences between the two groups. Facebook addiction users scored higher on Facebook intensity and lower on positive orientation, conscientiousness, emotional stability, and openness to experience than normal Facebook users.

7. Discussion

This study particularly shows that Facebook and Internet addictions show certain similarities in terms of personality predictors and positive orientation. Some personality traits − namely conscientiousness, emotional stability, and openness to experience − were important in identifying Facebook addiction. Similarly, Wilson, Fornasier, and White (2010) found that consciousness was negatively correlated with the time of Facebook use. By contrast, in previous studies openness was positively correlated with social

Table 4
The correlations between Facebook addiction and personality and positive orientation.

N = 452	M	SD	1	2	3	4	5	6	7
1. Facebook addiction	1.89	.89							
2. Facebook intensity	−.01	.89	.59***						
3. Positive orientation	28.75	5.79	-.12*	-.02					
4. Extraversion	4.92	1.42	−.03	.10*	.29***				
5. Agreeableness	4.78	1.23	−.08	−.05	.16***	.22***			
6. Conscientiousness	4.68	1.32	−.16**	−.08	.26***	.28***	.28***		
7. Emotional stability	4.21	1.32	−.14**	−.19***	.39***	.28***	.35***	.23***	
8. Openness to experience	5.20	1.29	−.17**	−.02	.40***	52***	.24***	.30***	.25***

Table 5
Results of hierarchical multiple regression analysis for Internet addiction (N = 631).

	Facebook addiction			Facebook intensity		
	Step 1 β	Step 2 β	Step 3 β	Step 1 β	Step 2 β	Step 3 β
Age	−.12*	−.12*	−.14**	−.21***	−.21***	−.19***
Positive orientation		−.13*	−.01		−.03	.06
Extraversion			.06			.10
Agreeableness			.01			-.02
Conscientiousness			−.14*			−.08
Emotional stability			−.09			−.24***
Openness to experience			−.15*			−.03
R^2	.01	.03	.08	.04	.04	.08
R^2 change	.01*	.02*	.06**	.04***	.01	.05***

*$p < .05$; **$p < .01$; ***$p < .001$.
Note. All beta weights are standardized; all R^2 values presented in the results are adjusted R^2 values.

Table 6
Means, standard deviations and significant differences on Facebook intensity, positive orientation, and personality for normal and addicted Facebook users.

Variable	Cluster 1 normal Facebook users		Cluster 2 addicted Facebook users		$F(1, 412)$	Cohen's d
	M	SD	M	SD		
Facebook intensity	−.31	.89	.69	.87	1183.25***	1.136
Positive orientation	.08	1.00	−.20	1.00	7.00**	.28
Extraversion	.07	.96	.03	1.07	.16	−
Agreeableness	.14	.92	−.01	.96	2.27	−
Conscientiousness	.11	.98	−.15	1.02	5.94*	.260
Emotional stability	.11	1.00	−.14	1.00	5.33*	.25
Openness to experience	.11	.95	−.26	1.07	12.14***	.365

*$p < .05$; **$p < .01$; ***$p < .001$.

media use (Correa, Hinsley, & de Zúñiga, 2010). Positive orientation was also related to Facebook addiction. Facebook-addicted users had lower self-esteem, evaluated their life less positively, and had lower optimism. In the study Facebook addiction was associated with Internet addiction. Wilson et al. (2010) showed that self-esteem was a predictor of SNS addictive tendency.

8. General discussion

The main aim of presented studies was to find an answer to the question of whether age, personality, and positive orientation are linked to Internet and Facebook addiction. The similarities of the associations Internet and Facebook addiction were also analyzed. Thanks to conducting these two studies it was possible to verify to what extent these two addictions are common constructs.

We understand Facebook addiction as a subtype of Internet addiction (see Andreassen & Pallesen, 2014). The first study concerned the relation between Internet addiction and personality and positive orientation. Identifying the personality traits related to

both of these constructs allowed us to characterize them. The second study revealed a similar pattern as the first study, which may indicate a similarity between maladaptive behaviors in these two types of addictions − Internet and Facebook addiction. These results may serve prevention purposes in screening tests for the personality profile more prone to Internet or Facebook addiction.

Age is the crucial factor distinguishing both Internet and Facebook addiction. Young people more often have a problem with excessive Internet and Facebook use than adults. On the one hand, it may be only a stereotype that young people are more prone to Internet or Facebook addiction. But on the other hand, the rare previous studies showed that the main group of Internet addicts are young people (see Błachnio, Przepiórka, & Rowiński, 2014). This may also be connected with the fact that, in general, there are more young people than there are adults among Internet users. More research is needed to determine this relationship.

Moreover, positive orientation is important in differentiating people with low and high levels of Internet and Facebook addiction. The people who have a problem with excessive Internet use exhibit a low level of positive orientation; in other words, they have a low level of self-esteem, optimism, and satisfaction with life. Also, the people who scored higher on Facebook addiction more often used Facebook intensively. In a previous study, Bozoglan et al. (2013) indicated that self-esteem as well as loneliness and satisfaction with life explained a relatively high proportion of variance in Internet addition. However, in a different study it was found that Facebook-addicted people scored lower on self-esteem (Błachnio, Przepiorka, & Pantic, 2016). As regards positive orientation (a broader construct than self-esteem), it is a new direction in explaining this phenomenon.

The people who scored higher on Internet and Facebook addiction spent more time using the Internet and had a low level of the Big Five factors: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. Our results indicate that the Big Five factors explain Internet and Facebook addictions better than positive orientation. People who scored higher on

these scales were rather introvert and neurotic and had a low level of agreeableness, conscientiousness, and openness to experience. Moreover, they had a low level of conscientiousness, emotional stability, and openness to experience. Similarly, there is some previous evidence that people with a high level of neuroticism as well as a low level of extraversion and conscientiousness are likely to be Internet-addicted people (Müller et al., 2013). A number of previous studies show a negative relationship between conscientiousness and Facebook addiction (for a review, see Andreassen et al., 2013), while emotional stability is a predictor of Facebook intensity.

To sum up, positive orientation, conscientiousness, emotional stability, and openness to experience diversify normal and problematical use of Internet and Facebook. What is more, extraversion and agreeableness correlate only with Internet use. This indicates that Facebook addiction can be part of a larger phenomenon: Internet addiction. However, they are not the same phenomenon. People who scored low and high on Internet and Facebook addiction scales differ significantly. The results may be used in the screening test for prevention programs and in the therapy of Internet and Facebook addiction. Positive orientation enhancement may be a good step in the therapy of addicted users.

9. Limitations

The above findings have potential limitations. The first limitation is the self-report assessment of traits and other variables. In future research we suggest using different methods. Second, the direction of causality between addiction and the psychological variables is not determined and more longitudinal studies are recommended. Future studies should concentrate on cultural differences as well.

10. Conclusions

To conclude, the presented studies help to learn the nature of Internet and Facebook addiction. Our results extend the knowledge about Internet usage. Personality traits and positive orientation play a significant role in Internet and Facebook addiction. Considering the great danger that online addiction presents, it is important to search for other determinants of these two types of addictions.

Author disclosure statement

No competing financial interests exist.

References

Alessandri, G., Caprara, G. V., & Tisak, J. (2012). The unique contribution of positive orientation to optimal functioning: further explorations. *European Psychologist, 17*(1), 44.

Andreassen, C. S., Griffiths, M. D., Gjertsen, S. R., Krossbakken, E., Kvam, S., & Pallesen, S. (2013). The relationships between behavioral addictions and the five-factor model of personality. *Journal of Behavioral Addictions, 2*(2), 90–99. http://dx.doi.org/10.1556/JBA.2.2013.003.

Andreassen, C. S., & Pallesen, S. (2014). Social network site addiction – an overview. *Current Pharmaceutical Design, 20*(25), 4053–4061. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=24001298&site=ehost-live.

Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook addiction scale. *Psychological Reports, 110*(2), 501–517. http://dx.doi.org/10.2466/02.09.18.PR0.110.2.501-517.

Ayas, T., & Horzum, M. B. (2013). Relation between depression, loneliness, self-esteem and internet addiction. *Education, 133*(3), 283–290.

Beenen, G., Ling, K., Wang, X., Chang, K., Frankowski, D., Resnick, P., et al. (2004). Using social psychology to motivate contributions to online communities.

Bong, M., Cho, C., Ahn, H. S., & Kim, H. J. (2012). Comparison of self-beliefs for predicting student motivation and achievement. *Journal of Educational Research, 105*, 336–352.

Bozoglan, B., Demirer, V., & Sahin, I. (2013). Loneliness, self-esteem, and life satisfaction as predictors of Internet addiction: a cross-sectional study among Turkish university students. *Scandinavian Journal of Psychology, 54*(4), 313–319. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2013-25641-007&site=ehost-live.

Błachnio, A., Przepiorka, A., & Pantic, I. (2016). Association between Facebook addiction, self-esteem and life satisfaction: a cross-sectional study. *Computers in Human Behavior, 55*, 701–705. http://dx.doi.org/10.1016/j.chb.2015.10.026.

Błachnio, A., Przepiórka, A., & Rowiński, T. (2014). Dysfunkcjonalne korzystanie z internetu – przegląd badań. *Psychologia Społeczna, 4*(31), 378–395. http://dx.doi.org/10.7366/1896180020143101.

Błachnio, A., Przepiórka, A., & Rudnicka, P. (2013). Psychological determinants of using Facebook: a research review. *International Journal of Human-Computer Interaction, 29*(11), 775–787. http://dx.doi.org/10.1080/10447318.2013.780868.

Caers, R., De Feyter, T., De Couck, M., Stough, T., Vigna, C., & Du Bois, C. (2013). Facebook: a literature review. *New Media & Society, 15*(6), 982–1002. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2013-32830-010&site=ehost-live.

Caplan, S. E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. *Cyberpsychology & Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society, 10*(2), 234–242. http://dx.doi.org/10.1089/cpb.2006.9963.

Caprara, G. V., Fagnani, C., Alessandri, G., Steca, P., Gigantesco, A., Sforza, L. L. C., et al. (2009). Human optimal functioning: the genetics of positive orientation towards self, life, and the future. *Behavior Genetics, 39*(3), 277–284.

Caprara, G. V., Steca, P., Alessandri, G., Abela, J. R., & McWhinnie, C. M. (2010). Positive orientation: explorations on what is common to life satisfaction, self-esteem, and optimism. *Epidemiologia E Psichiatria Sociale, 19*(01), 63–71.

Çelik, Ç. B., & Odacı, H. (2013). The relationship between problematic internet use and interpersonal cognitive distortions and life satisfaction in university students. *Children and Youth Services Review, 35*(3), 505–508. http://dx.doi.org/10.1016/j.childyouth.2013.01.001. Retrieved from.

Correa, T., Hinsley, A. W., & de Zúñiga, H. G. (2010). Who interacts on the web?: The intersection of users' personality and social media use. *Computers in Human Behavior, 26*(2), 247–253. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2009-24129-014&site=ehost-live.

Cunningham, G. B., Bruening, J., Sartore, M. L., Sagas, M., & Fink, J. S. (2005). The application of social cognitive career theory to sport and leisure career choices. *Journal of Career Development, 32*(2), 122–138.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "Friends:" social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143–1168. http://dx.doi.org/10.1111/j.1083-6101.2007.00367.x.

Facebook. (2014). *Statistics*. http://newsroom.fb.com/company-info/.

Gosling, S. D., & Mason, W. (2014). Internet research in psychology. *Annual Review Of Psychology*. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=25251483&site=ehost-live.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality, 37*(6), 504–528. http://dx.doi.org/10.1016/S0092-6566(03)00046-1.

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *The American Psychologist, 59*(2), 93–104. http://dx.doi.org/10.1037/0003-066X.59.2.93.

Griffiths, M. D. (2012). Facebook addiction: concerns, criticism, and Recommendations—a response to Andreassen and colleagues 1. *Psychological Reports, 110*(2), 518–520. http://dx.doi.org/10.2466/01.07.18.PR0.110.2.518-520.

Hawi, N. S., Blachnio, A., & Przepiorka, A. (2015). Polish validation of the Internet addiction test. *Computers in Human Behavior, 48*, 548–553. http://dx.doi.org/10.1016/j.chb.2015.01.058.

Hawi, N., Błachnio, A., & Przepiórka, A. (2014). *Polish validation of the Internet addiction test, in review*.

Heikamp, T., Alessandri, G., Laguna, M., Petrovic, V., Caprara, M. G., & Trommsdorff, G. (2014). Cross-cultural validation of the positivity-scale in five European countries. *Personality and Individual Differences, 71*, 140–145. http://dx.doi.org/10.1016/j.paid.2014.07.012.

Herrera Harfuch, M. F., Pacheco Murguía, M. P., Lever, J. P., & Andrade, D. Z. (2010). La adicción a Facebook relacionada con la baja autoestima, la depresión y la falta de habilidades sociales. = Facebook addiction related to low self-esteem, depression and lack of social skills. *Psicología Iberoamericana, 18*(1), 6–18. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2011-24012-001&site=ehost-live.

Kuss, D. J., & Griffiths, M. D. (2011). Online social networking and addiction—a review of the psychological literature. *International Journal of Environmental Research and Public Health, 8*(9), 3528–3552. http://dx.doi.org/10.3390/ijerph8093528.

Kuss, D. J., Griffiths, M. D., Karila, L., & Billieux, J. (2014). Internet addiction: a systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design, 20*(25), 4026–4052. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=24001297&site=ehost-live.

Kuss, D. J., Shorter, G. W., van Rooij, A. J., van de Mheen, D., & Griffiths, M. D. (2014). The Internet addiction components model and personality: establishing construct validity via a nomological network. *Computers in Human Behavior, 39*, 312–321. http://dx.doi.org/10.1016/j.chb.2014.07.031.

Kuss, D. J., van Rooij, A. J., Shorter, G. W., Griffiths, M. D., & van de Mheen, D. (2013).

Internet addiction in adolescents: prevalence and risk factors. *Computers in Human Behavior, 29*(5), 1987—1996. http://dx.doi.org/10.1016/j.chb.2013.04.002. Retrieved from.

Łaguna, M. (2012). *Polish version of TIPI.* Http://gosling.psy.utexas.edu.

Łaguna, M., Oleś, P., & Filipiuk, D. (2011). Orientacja pozytywna i jej pomiar: Polska adapacja skali orientacji pozytywnej. *Studia Psychologiczne, 49*(4), 47—54. http://dx.doi.org/10.2478/v10167-010-0035-7.

Müller, K. W., Koch, a, Dickenhorst, U., Beutel, M. E., Duven, E., & Wölfling, K. (2013). Addressing the question of disorder-specific risk factors of internet addiction: a comparison of personality traits in patients with addictive behaviors and co-morbid internet addiction. *BioMed Research International, 2013*, 546342. http://dx.doi.org/10.1155/2013/546342.

Pezoa-Jares, R. E. (2012). Internet addiction: a review. *Journal of Addiction Research & Therapy.* http://dx.doi.org/10.4172/2155-6105.S6-004.

Schwarzer, R., & Renner, B. (2000). Social-cognitive predictors of health behavior: action self-efficacy and coping self-efficacy. *Health Psychology, 19*(5), 487—495. http://dx.doi.org/10.1037/0278-6133.19.5.487.

Stieger, S., Burger, C., Bohn, M., & Voracek, M. (2013). Who commits virtual identity suicide? Differences in privacy concerns, internet addiction, and personality between Facebook users and quitters. *Cyberpsychology, Behavior and Social Networking, 16*(9), 629—634. http://dx.doi.org/10.1089/cyber.2012.0323.

Wang, L., Luo, J., Bai, Y., Kong, J., Gao, W., & Sun, X. (2013). Internet addiction of adolescents in China: prevalence, predictors, and association with well-being.

Addiction Research & Theory, 21(1), 62—69. http://dx.doi.org/10.3109/16066359.2012.690053.

Wilson, K., Fornasier, S., & White, K. M. (2010). Psychological predictors of young adults' use of social networking sites. *Cyberpsychology, Behavior and Social Networking, 13*(2), 173—177. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20528274.

Wilson, R. E., Gosling, S. D., & Graham, L. T. (2012). A review of Facebook research in the social sciences. *Perspectives on Psychological Science, 7*(3), 203—220. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2012-14853-001&site=ehost-live.

Yang, S. C., & Tung, C.-J. (2007). Comparison of Internet addicts and non-addicts in Taiwanese high school. *Computers in Human Behavior, 23*(1), 79—96.

Yao, M. Z., He, J., Ko, D. M., & Pang, K. (2014). The influence of personality, parental behaviors, and self-esteem on internet addiction: a study of Chinese college students. *Cyberpsychology, Behavior, and Social Networking, 17*(2), 104—110. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2014-07002-007&site=ehost-live.

Young, K. S. (1998). Internet addiction: the emergence of a new clinical disorder. *CyberPsychology & Behavior, 1*(3), 237—244. http://dx.doi.org/10.1089/cpb.1998.1.237. Retrieved from.

Young, K. S., & Nabuco de Abreu, C. (2011). *Internet addiction. A handbook and guide to evaluation and treatment.* New Jersey: John Wiley.