



Relations Between Facebook Intrusion, Internet Addiction, Life Satisfaction, and Self-Esteem: a Study in Italy and the USA

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Abstract

With the increasing popularity of new media, problems involving its excessive use have emerged. The main aim of the study was to analyze the associations between Facebook intrusion, Internet addiction, self-esteem, and life satisfaction in Italy and the USA. We administered the Facebook Intrusion Scale, Internet Addiction Test, Self-Esteem Scale, and Satisfaction with Life Scale. The participants in the online study were $N = 555$ Italian and American Facebook users, aged 18 to 59 in the case of Italy ($M = 24.66$, $SD = 6.52$) and 17 to 67 in the case of the USA ($M = 23.65$, $SD = 10.96$). The results showed that the relations between the Internet and Facebook use and life satisfaction are not universal. The study revealed that in Italy, Facebook intrusion was associated with higher life satisfaction, and in the USA, Internet addiction was associated with lower life satisfaction. In both countries, Internet addiction was associated with higher Facebook intrusion and lower self-esteem.

Keywords Facebook intrusion · Internet addiction · Life satisfaction · Self-esteem

Internet addiction has been the subject of an impressive number of studies. It is defined as a loss of control over Internet use without intoxication (e.g., Tsitsika et al. 2014; Błachnio and Przepiorka 2016). While considering individual characteristics, we may draw a picture of those who are more inclined to Internet addiction are shyer (Caplan 2005; Chak and Leung 2004), have deficiency in social skills (Caplan 2002, 2005), are more introverted (Kraut et al. (2002a, b), are lonely (Caplan 2002), and have external locus of control (Hamburger and Ben-Artzi 2000). There is a noticeable lack of consent among researchers regarding the nature of the

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syndrome; they certainly pay attention to the lack of its uniformity (for a review Pies 2009). Some authors suggest distinguishing between different aspects of Internet addiction, such as Facebook addiction (Elphinston and Noller 2011; Andreassen et al. 2012), cyber gaming (Wu et al. 2013), or cybersex (Bostwick and Bucci 2008), rather than investigating Internet addiction in general. There is also some inconsistency between the scholars in the debate on the nature of Facebook addiction. Some researchers claim that Facebook addiction may be treated as a subtype of Internet addiction (Andreassen and Pallesen 2014; Koc and Gulyagci 2013). It is difficult to explain how this form of addiction develops; it can be a new problem or a manifestation of comorbidity of other problems (e.g., depression) (Koc and Gulyagci 2013). For instance, Błachnio and Przepiorka (2016) showed that there is a similarity in the predictors of both phenomenon. Personality traits from the Big Five model and positive orientation were significant predictors of both types of addictions.

Worldwide, there are about 2 billion people who have Facebook profiles.¹ Taking into account the salient role in modern societies that Facebook play, its powerful influence on behavior, emotions, and mood (e.g., Koc and Gulyagci 2013; Frost and Rickwood 2017), and the number of its users,² it is of a great importance to take a closer look at both types of addictions. Some people using Facebook become greatly involved in this social networking site and manifest difficulties in logging off from it. We may then speak about Facebook intrusion (Elphinston and Noller 2011) which is defined as excessive involvement in Facebook that disrupts day-to-day activities and duties, manifesting itself in the compulsive use of the site and in the neglect of social life. There are three phases distinguished in Facebook intrusion phenomenon: (1) withdrawal, which is connected with distress when person cannot have access to Facebook; (2) relapse and reinstatement, when person has failure in controlling their amount of Facebook use and cannot reduce it; and (3) euphoria, which embraces positive feelings and sense of connectedness with other people while using (Elphinston and Noller 2011).

A plethora of research show that those who become affected by Facebook intrusion differ in various dimensions, for instance social anxiety, and general self-efficacy (Atroszko et al. 2018), narcissism (Casale and Fioravanti 2018), loneliness, and need for privacy (Błachnio et al. 2016b). There is also some evidence that, in addition to individual differences, cultural factors can predict Facebook intrusion as well (Błachnio et al. 2016a).

Therefore, in our study, we included cultural background as well. The study was conducted in Italy and in the USA among young adults who constitute the largest group of Facebook users (Walrave 2016). The main aim of the study was to analyze the model of associations between Facebook intrusion, Internet addiction, self-esteem, and life satisfaction in two different cultures. In the present study, we tested the model of relations among Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life (Fig. 1). We wanted to check if this model was valid in different countries. For this purpose, we were interested in the universality of the relations between those variables. The study was conducted in two different cultures: Italy and the USA. These two countries differ in terms of Hofstede's³ cultural dimensions: power distance (50 vs. 40 for Italy and the USA, respectively), individualism (76 vs. 91), masculinity (70 vs. 62), uncertainty avoidance (75 vs. 46), long-term orientation (61 vs. 26), and indulgence (30 vs. 68).

¹ www.statista.com

² <https://www.hofstede-insights.com/country-comparison/italy,the-usa/>

³ <https://geert-hofstede.com/>

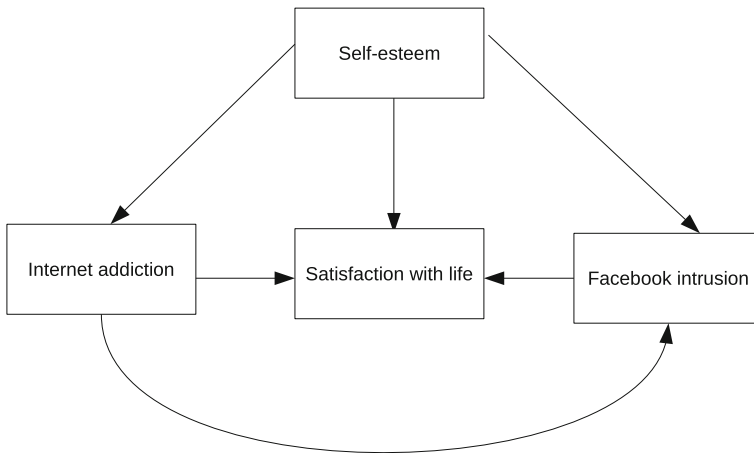


Fig. 1 Theoretical model of dependences between Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life

Power distance is defined as the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally (Hofstede et al. 2010, p. 28). As it pertains Italy, north and south are quite different: the first tends to prefer equality and decentralization of power and decision-making, with a younger generation that prefers teamwork and open management style than control and formal supervision, while Southern Italy is quite the opposite. As it concerns the USA, power distance index is lower than the Italian one and it denotes some similarities with the Northern Italy.

Individualism describes how much a society sees itself in terms of “I” or “We,” considering that Individualist societies are supposed to be characterized by people that look after themselves and their direct family only, while Collectivist societies are supposed to be characterized by people that take care of “in group” members in a loyalty dynamic. Both, Italy and USA, are individualist cultures; however, USA is one of the most individualistic in the world, while the Italian Individualism Index is not so high.

Masculinity/Femininity index describes a society based on a clear distinction in roles (masculinity) or a society in which gender roles overlap (femininity). Ego-orientation, conflict solution through force, traditional family structure characterizes a masculine society, while relationship orientation, negotiation, and flexible family structure describe a low masculine (or feminine) society. Italy and USA are similarly masculine society, even though the Italian score is higher.

Uncertainty avoidance focuses on how cultures cope with uncertainty and adapt to changes (conservatism vs. openness to change; structured learning vs. open-ended learning; traditional gender roles vs. fewer gender roles). From this point of view, Italy and USA are quite different since Italy has a high score while the USA has a low score. This is clearly recognizable in the recent history of technological innovations and Start-Up, in which the USA played one of the most important roles in the world.

Long-term orientation characterizes societies that promote virtues oriented towards future rewards (e.g., perseverance and thrift), while short-term orientation societies are guided by the past and the present (e.g., respect for tradition, preservation of “face,” and fulfilling social obligations). Like the Indulgence index, Long Term Orientation index is that in which Italy

and USA show the widest differences in score. In particular, Italy seems to be long-term oriented while the USA with a low score of 26 is strongly short-term oriented.

Finally, Indulgence index describes whether a society (Indulgent) allows relatively free gratification of basic and natural human drives related to enjoying life and having fun or, on the contrary (Restraint), it does not put emphasis on leisure time and control the gratification of desires. From this point of view, Italy and USA are very different: the USA shows a high Indulgent score, while Italy with a score of 26 seems to be characterized by a restraint society.

In 2016, Internet penetration reached 65.6% in Italy and 88.5% in the USA, while the figures for Facebook penetration were 54.5 and 59.17%, respectively.

The Role of Facebook Addiction and Self-Esteem in the Internet Use

The social compensation hypothesis posits that there is a negative relation between self-esteem and Internet addiction. According to this hypothesis, people with low levels of self-esteem compensate for their social and personal problems by using the Internet (Kraut et al. 2002a, 2002b). Many studies have confirmed this assumption (Gonzales and Hancock 2011; Niemi et al. 2005). Low self-esteem has been found to be a predictor of Internet addiction in Poland, Ukraine, and Turkey (Błachnio et al. 2016d). However, there is also research showing that self-esteem is not an important predictor of Internet addiction (Ayas and Horzum 2007). Moreover, self-esteem can play a moderating role in the relationship between the intensity of Facebook use and well-being. People with lower self-esteem gain more from their use of Facebook in terms of bridging social capital than people with higher self-esteem (Steinfeld et al. 2008; Mazzoni and Iannone 2014).

In the case of Facebook addiction, it has been shown that people with higher levels of Facebook addiction scored lower on self-esteem than ordinary Facebook users (Błachnio et al. 2016c). In another study, it was shown that those with lower levels of self-esteem scored higher on Facebook addiction (Spraggins 2011; Malik and Khan 2012). In sum, many of studies show an association between self-esteem and Facebook addiction; thus, based on previous results, we formulated the following hypotheses:

H1.1: Self-esteem is negatively related to Internet addiction.

H1.2: Self-esteem is negatively related to Facebook intrusion.

H2: Internet addiction is positively related to Facebook intrusion.

The Role of Facebook Addiction and Life Satisfaction in the Internet Use

There is some evidence indicating that satisfaction with life is negatively associated with Internet addiction (Bozoglan et al. 2013) (Mazzoni et al. 2016). A meta-analysis revealed a higher prevalence of Internet addiction in nations with low scores on the Life Satisfaction Index (Cheng and Li 2014). Moreover, problematic Facebook use is related to low levels of life satisfaction, flourishing, subjective happiness, and individual vitality (Satici and Uysal 2015). In the literature, there is also evidence showing the opposite—positive—association between Facebook connectedness and life satisfaction (Grieve et al. 2013; Valenzuela et al. 2009). Probably, when people use Facebook more often, their satisfaction decreases (Błachnio et al. 2016a).

The direction of the relation between Internet and Facebook intrusion and self-esteem and life satisfaction seems to be clear, but there is some ambiguity in the results of past studies. On the one hand, many studies confirm the negative relation of self-esteem and satisfaction with life to the Internet and Facebook addiction. On the other hand, the literature also provides results showing the absence of this relation (Ayas and Horzum 2007). A possible explanation for these results may be cultural factors. Previous research revealed differences in Facebook and Internet usage between cultures (Błachnio et al. 2016a; d). Thus, based on previous results, we formulated the following hypotheses:

H3: Internet addiction is negatively related to satisfaction with life.

H3.1: Facebook intrusion is negatively related to satisfaction with life.

H4: Self-esteem is positively related to satisfaction with life.

To sum up, we assumed that self-esteem predicts Facebook and Internet addiction, satisfaction with life, as well. What is more, satisfaction with life is an outcome of these relationships.

Method

Participants and Procedure

The study sample consisted of $N = 555$ participants from Italy and the USA, Italy ($n = 317$, 67% female) and USA ($n = 238$, 73% female). The participants' age ranged from 19 to 59 in Italy ($M = 24.66$, $SD = 6.52$) and from 17 to 67 in the USA ($M = 2.65$, $SD = 10.96$).

The participants were informed about the anonymity of the study. Some results of the survey, unrelated to the objective of the current study but connected with the Facebook use, have been presented elsewhere (Błachnio et al. 2016a). The study was approved by the ethics committees of the John Paul II Catholic University of Lublin, the University of Bologna, and Albright College. The participants had to meet one criterion—namely, they had to be Facebook users. We recruited them via online questionnaires sent to Facebook users. The participants received no remuneration for taking part in our research project. None of them was excluded from the study. The participants were informed about the aims of the study and assured that they were free to withdraw at any time.

Measures

The participants completed an online survey measuring Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life. All the questionnaires used had been previously published in English and were therefore translated into Italian for the Italian participants. To assess the factor structure equivalence (see Table 1) of all the measures used, we compared the results of factor analysis performed on the aggregate sample with the solutions obtained in each of the two countries (as cited in Sircova et al. 2014).

Young's *Internet Addiction Test* consists of 20 items (e.g., *How often do you become defensive or secretive when anyone asks you what you do online?*). The IAT is a valid cosmopolitan one-factor instrument for measuring Internet addiction. Each item was rated on a Likert scale with the following options: *not applicable*, *rarely*, *occasionally*, *frequently*,

Table 1 Cronbach α , φ Tucker, and mean and standard deviations of all measures

	FB intrusion			IAT			Self-esteem			Satisfaction with life		
	α *	φ **	M(SD)	α	φ	M(SD)	α	φ	M(SD)	α	φ	M(SD)
Italy (<i>N</i> = 317)	0.85	0.996	22.84 (9.60)	0.90	0.918	40.34 (11.33)	.89	0.936	3.02 (.06)	0.90	0.999	4.68 (1.38)
USA (<i>N</i> = 280)	0.82	0.993	24.63 (9.31)	0.91	0.891	28.70 (13.25)	.76	0.867	3.46 (.61)	0.89	0.999	4.61 (1.40)
<i>t</i> (539)			2.17*			10.75***			-8.27***			.54

*Cronbach's α **Tucker's φ

often, and always. Cronbach's α was 0.90 for Italy and 0.91 for the USA. As we can see in Table 1, by all conventions, Tucker's phi indicated a good cross-cultural equivalence of the Internet Addiction Test (Lorenzo-Seva and Berge 2006).

The *Facebook Intrusion Questionnaire*, developed by Elphinston and Noller (2011), is based on behavioral addiction components and on a scale measuring phone involvement. It consists of eight items (e.g., *I have been unable to reduce my Facebook use*) measuring eight aspects of behavioral addiction, namely, cognitive salience, behavioral salience, interpersonal conflict, conflict with other activities, euphoria, loss of control, withdrawal, and relapse and reinstatement. The items are rated on a 7-point Likert scale from 1—*strongly disagree* to 7—*strongly agree*. Tucker's phi indicated a good cross-cultural equivalence of the Facebook Intrusion Scale (see Table 1).

To measure self-esteem, we used *Rosenberg's Self-Esteem Scale* (SES). It consists of 10 items with a four-point Likert scale and provides an overall assessment of self-esteem (e.g., *I feel that I have a number of good qualities*). Tucker's phi indicated a good cross-cultural equivalence of the Self-Esteem Scale (see Table 1).

Satisfaction was measured by means of the *Satisfaction With Life Scale* (Diener et al. 1985), with five items designed to measure global cognitive judgments of satisfaction with one's life (e.g., *The conditions of my life are excellent*). Tucker's phi indicated a good cross-cultural equivalence of the Satisfaction With Life Scale (see Table 1).

Results

Table 2 presents the correlations between variables. In both countries, Internet addiction was strongly positively correlated with Facebook intrusion, and Facebook intrusion was negatively associated with self-esteem. The Facebook intrusion was negatively correlated with satisfaction with life only in the USA. In Italy and the USA, Internet addiction was negatively linked with both self-esteem and satisfaction with life. Daily Internet use on weekdays was $M = 6.74$ h ($SD = 4.92$) in Italy and $M = 3.57$ h ($SD = 1.29$) in the USA; on weekends, it was $M = 6.39$ h ($SD = 4.95$) in Italy and $M = 3.95$ h ($SD = 1.44$) in the USA. The USA scored higher than Italy in the Facebook intrusion. While Italy scored higher in Internet addiction than the USA (see Table 2).

Table 2 Correlations between variables in Italy and the USA

	1		2		3
1. Facebook intrusion	Italy				
	USA				
2. IAT	Italy	0.651***			
	USA	0.604***			
3. Self-esteem	Italy	−0.244***	−0.391***		
	USA	−0.226***	−0.309***		
4. Life satisfaction	Italy	−0.011	−0.197***		0.629***
	USA	−0.170*	−0.317***		0.463***

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

The Model of Relations Between Facebook Intrusion, Internet Addiction, Self-Esteem, and Satisfaction with Life in Italy and the USA

The next step of the analyses concerned the relations between Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life (Fig. 1) in the whole sample from Italy and USA. The theoretical model is saturated (it includes all possible non-reciprocal paths). Invariance analysis is still possible, without weak invariance (factor structure and factor loadings not significant in saturated path analysis). We found no invariance (Table 3), so we tested the models separately in Italy and in the USA.

The Model of Relations Between Facebook Intrusion, Internet Addiction, Self-Esteem, and Satisfaction with Life in Italy

Next step, we tested a theoretical model of relations between Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life only in Italy. The theoretical model was a poor fit in Italy. Therefore, we made an attempt to improve the model by dropping all non-significant paths and adding those suggested by modification indices. We took into account those indices that made theoretical sense. The structural model was tested using the lavaan package. The values of root mean square error of approximation (RMSEA) should be lower than 0.08 to indicate that the model is well-fitted, and optimally, they should be lower than 0.05 (Konarski 2010). The comparative fit index (CFI) should be higher than 0.90 for an acceptable model and equal to 1.0 for a perfect model (Hu and Bentler 1998). The Tucker-Lewis Index (TLI) should range from 0 to 1: the higher the value, the better the fit (Schermelleh-Engel et al. 2003). The goodness-of-fit indices demonstrated that the model was perfectly fitted to our data: ML $\chi^2 = 1.34$, $df = 2$, $p = .513$, $\chi^2/df = 0.67$, CFI = .99, TLI = .98, RMSEA < 0.01 [0.01, 0.10].

Table 3 Invariance for the path analysis—model 1

Model	Model fit				Differences between models			
	df	Chi ²	CFI	RMSEA	$\Delta\chi^2$	Δdf	ΔCFI	p for difference
Weak	–	–	–	–				
Strong	3	18.93	0.97	0.14	18.93	3	0.03	< 0.001
Strict	6	34.02	0.95	0.13	15.09	3	0.02	0.002

As seen in Table 4 and Fig. 2, in Italy, self-esteem was a negative predictor of Internet addiction and a positive predictor of satisfaction with life. Facebook intrusion increased satisfaction with life. Additionally, Internet addiction was a positive predictor of Facebook intrusion.

The Model of Relations Between Facebook Intrusion, Internet Addiction, Self-Esteem, and Satisfaction with Life in the USA

Next step, we tested a theoretical model of relations between Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life only in the USA. The theoretical model was a poor fit in the USA. We made an attempt to improve the model by dropping all non-significant paths and adding those suggested by modification indices. We took into account those indices that made theoretical sense. The goodness-of-fit indices demonstrated that the model was perfectly fitted to our data: ML $\chi^2 = 0.27$, $df = 1$, $p = .605$, $\chi^2/df = 0.27$, CFI = .99, TLI = .98, RMSEA < 0.01 [0.01, 0.15].

In the USA, self-esteem was a negative predictor of Internet addiction and a positive predictor of satisfaction with life. Internet addiction was associated with a decrease in satisfaction with life and an increase in Facebook intrusion (see Table 5 and Fig. 3).

Discussion

The main aim of the study was to analyze the model of relations between Facebook intrusion, Internet addiction, self-esteem, and satisfaction with life. The model was tested in two countries, Italy and the USA. First of all, we showed that relations between the variables partially differ between these two countries.

In both countries, Internet addiction was associated with the greater Facebook intrusion. In the literature, there is evidence that behavioral addiction can be comorbid with other disorders and addictions such as depression, loneliness, and sexual disorders (Armstrong et al. 2000; Morahan-Martin 2010; Young and Rodgers 1998; Cooper et al. 2005) as well as with other types of addiction, such as alcoholism (Wartberg et al. 2016) or online gambling (Giotakos et al. 2017). People who are addicted to the Internet are prone to be addicted to Facebook as well.

Our results provide confirmatory evidence that self-esteem is a negative predictor of Internet addiction. This was confirmed both in Italy and in the USA. This finding is consistent with the results of previous investigations conducted in other countries (Błachnio et al. 2016d). People with low self-esteem are more prone than others to problems with excessive Internet use. Contrary to expectations, we did not find that self-esteem was a predictor of Facebook intrusion. Perhaps individuals with high self-esteem are more sociable and have more social

Table 4 Standard path coefficients for model in Italy

Dependent	Predictor	SPC	Z	p value
Internet addiction	Self-esteem	−0.39	−7.57	<0.001
Satisfaction with life	Self-esteem	0.67	15.03	<0.001
Satisfaction with life	Facebook intrusion	0.15	3.41	0.001
Facebook intrusion	Internet addiction	0.65	15.27	<0.001



Fig. 2 The model of dependences between Facebook intrusion, internet addiction, self-esteem, and satisfaction with life in Italy

obligations on Facebook, which could lead to a positive relationship between self-esteem and Facebook intrusion, and these interactions involve relationships also maintained offline. This kind of positive relationship could cancel out greater Facebook use in the case of people with low self-esteem, leading to a null finding. Future research should examine users' motivations for using Facebook and determine if these motivations differ according to the level of self-esteem.

Additionally, self-esteem is a positive predictor of satisfaction with life. This is consistent with other findings (e.g., Zawadzka et al. 2016; Wąsowicz-Kiryło and Baran 2013), and this relationship has been confirmed in many studies in many cultures (Campbell 1981; Diener and Diener 1995). It tends to be stronger in individualistic cultures, such as Italy and the USA (Zawadzka et al. 2016).

As regards the Internet and Facebook addictions and their correlations with life satisfaction, we obtained different results for Italy and for the USA. It should be highlighted that the frequency of Internet usage differs between these two countries, being higher in Italy. The study revealed that Facebook intrusion was associated with greater life satisfaction in Italy. There are some possible explanations for this. Firstly, when a person is beginning to use Facebook, this activity can be connected with higher life satisfaction, and satisfaction decreases with the increasing frequency of usage (Błachnio et al. 2016a). Secondly, perhaps the main reason for using Facebook is different in each of the two countries. The Italians probably still cultivate their

Table 5 Standard path coefficients for model in USA

Dependent	Predictor	<i>SPC</i>	<i>Z</i>	<i>p</i> value
Internet addiction	Self-esteem	−0.31	−4.77	< 0.001
Satisfaction with life	Internet addiction	−0.19	−3.02	0.003
Satisfaction with life	Self-esteem	0.40	6.40	< 0.001
Facebook intrusion	Internet addiction	0.61	10.98	< 0.001



Fig. 3 The model of dependences between Facebook intrusion, internet addiction, self-esteem, and satisfaction with life in USA

relationships offline despite the high frequency of Facebook usage, and thus, Facebook use does not negatively influence their life satisfaction. We found Internet addiction to be associated with lower life satisfaction in the USA, which is consistent with the findings reported by Bozoglan et al. (2013).

The study by Burke et al. (2010) suggests another explanation. Active engagement (as opposed to passive usage) is positively correlated with overall well-being. We can suppose that Italian users tend to use Facebook more actively, which would explain this result. A further explanation can be found in the statistics concerning the percentage of active WhatsApp users among the users mobile Internet. The percentage of WhatsApp users is more than 60% for Italy and less than 10% for the USA. Probably, when investigating daily Internet usage, we should consider that Italians might prefer the WhatsApp platform for interacting with one another, while in the USA, Facebook (and Facebook's Messenger) still remains the preferred social networks for maintaining contacts. This possible explanation opens interesting perspectives for further research to analyze the cultural differences that lead to the use of a particular social medium rather than another.

Certain limitations of the presented study have to be acknowledged. Firstly, we used self-report methods. In future research, different methods of measurement should be used, such as direct observation of Facebook profile activity. In addition, the present data do not provide insight into how changes in Internet addiction or Facebook use over time relate to changes in life satisfaction. Future studies should employ longitudinal and daily diary methods in order to determine how these relations change over time. The recruitment procedure also had limitations that might have disrupted the representativeness of the sample. The participants tended to be younger than others recruited via the postal procedure. Their participation in the study might stem from their personal interest in its subject matter, which might have led to self-selection bias. As indicated by recruitment rates, engagement and participant characteristics depend on the method of recruitment via Facebook (Choi et al. 2017).

Conclusion

New social media accompany people every day and have become part of many aspects of life. The question about how the Internet and social media relate to life satisfaction and quality of life is an important area of research. We found that this association is not universal and can be dependent on culture. Further studies are needed to provide a better understanding of the relations between the Internet and Facebook addiction and satisfaction with life in other cultures.

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Compliance with Ethical Standards

The study was approved by the ethics committees of the John Paul II Catholic University of Lublin, the University of Bologna, and Albright College.

Conflict of Interest The authors declare that they have no conflict of interest.

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