Internet Addiction of Young Greek Adults: Psychological Aspects and Information Privacy

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Abstract. The main goal of this study is to examine the Internet addiction status of Greek young adults, aged from 18 to 25, using Young's Internet Addiction Test (IAT) and self-administered questionnaires. In addition this paper assesses the psychological traits of addicted persons per addiction category, using the big five factor model tool to study the user's personality and analyze the components that lead a person to become Internet addicted. Our results show that in most of the addiction levels the majority of people are women except of in the moderate level. Furthermore, we found an association between addicted people and the five factors from the Big Five Factor Model; i.e., extraversion, agreeableness, conscientiousness, neuroticism, openness to experience. Moreover, this paper discusses information privacy and security issues related to Internet Addiction.

Keywords: Internet addiction; Psychological factors; Big Five Factor model; information security policies;

1   Introduction

Internet addiction (IA) defined as the inability to control Internet use [34, 36], is a behavioral addiction which nowadays is being considered as a serious mental health issue, with neurological effects, serious psychopathological symptoms, as well as difficulties at school, work, and relationships [35,36]. And most importantly, with no standardized treatment.

Research on IA has always been controversial. While IA has been shown to be related to *disorders* such as impulse control disorder [36], attention deficit hyperactivity [42] etc, it is still under debate whether IA is a discrete disorder or it constitutes a symptom of another major disorder [38]. Second, it is still unknown whether all types of excessive Internet use, i.e., online pornography / social media / online gaming / gambling / browsing etc, constitute discrete addictions or may share same psychological, neurophysiological and personality characteristics [39].

Among common *factors* determining Internet addiction to people of this category are [1,4,6]: Gender/sex, family and social status, academic achievements, or even other addictions. Psychological factors also seem to play an important role in IA.

Specifically, IA has been shown to share *psychological* and *psychopathological* characteristics with substance-based and other behavioral addictions such as pathological gambling [37], including depression, anxiety, obsessive symptoms [41]. IA has also be shown to be related to *personality* traits such as impulsivity [37], the feeling of loneliness, emotional instability and low self-esteem [33, 35, 31]. IA has also be shown to be related to *neurological* complications (e.g., immature cognitive control) and a few works have studied the effects of IA to brain activity (i.e., cerebral blood flow [40], abnormalities in white/grey matter [43] etc). It is unknown whether all these aspects contribute positively to the development of Internet addiction for a person, or whether the addiction itself creates all these psychological symptoms.

The IA problem is more acute in *late adolescence*, particularly when parents do not control their children who live, most of the times, far from their hometown [1]. In this paper we focus on aspects of IA among young adults. People who go through late adolescence (mostly students, between 18 − 25) are often excessive on the use of Internet, with an amplifying factor being related to the fact that they often leave their hometown and, thus, parental control gets more difficult [1].

Our contribution. The main contribution of this study is first to examine the Internet addiction status of Greek young adults. Second to assess the psychological traits and symptoms of addicted persons, per addiction category, using the big five factor model tool to study the user's personality and analyze the components that lead a person to become Internet addicted. More specifically, we performed a survey targeting people between 18 to 25 years old in Greece and we collected responses from 210 participants. Our results show that in most of the addiction levels the majority of people are women except of moderate level. Furthermore, we found an association between addicted people and the five factors from the Big Five Factor Model. Finally, this paper discusses information privacy and security issues related to Internet Addiction.

This paper is organized as follows. Section 2 presents the methodology and results of the empirical survey. Section 3 discusses the related work on the subject and in Section 4 we discuss security and privacy issues related to Internet Addiction.

2   A study of IA regarding early adults in Greece

2.1   Methodology

The target group of this research were people aged from 18 to 25 years. We surveyed a total of 210 people and the valid questionnaires were 183. Our survey used self-administered questionnaires and its purpose was to find whether people from our target group are Internet addicted, which hours users prefer to be online, what they like doing when online and also the users' psychological profiles. The level of addiction was investigated using the *Internet Addiction Tool* (IAT), which contains a set of 20 questions. The users' psychological profile was investigated with the help of the *Big Five Factor Model* which studies the psychological characteristics of users through five traits.

Internet addiction Tool. The tool (IAT) was created by Young (1998a). We use IAT because it fully examines the user's personality in different psychological dimensions without the need to use different types of questionnaires for each dimension. Normally it contains 20 questions, but in this research we used a shorter version of this tool with 11 questions by merging some questions with the same meaning. The reason was that it contains some questions which would be useless for the purpose of this research, so we replaced them with proper questions to find out the hours that users stay online, the time of day they prefer to be online, and their behavior while they are online. IAT classifies IA with a score ranging from 0 to 100, with higher scores presenting higher levels of IA. People with score that ranges from 0 to 30 points considered to be normal Internet users. Scores that range from 31 to 49 represented mild level of addiction, from 50 to 79, a moderate level and scores from 80 to 100 a severe level of Internet addiction.

Big Five Factor Model. The *Big Five Factor Model* (Goldberg, 1990) is a set of questions used in order to investigate the psychological characteristics of the users' personality through five traits. We used a shorter version of this model because normally this question set contains over 70 questions. We chose 2-3 of the most characteristic questions for each factor in order for our results to be valid. The five dimensions that this tool evaluates are:

Extraversion: It is the personality trait of seeking fulfillment from outside sources. High scorers tend to be very social while low scorers are lonely.

Agreeableness: The trait reflects how much individuals adjust their behavior to suit others. High scorers are typically polite and likeable people. Low scorers tend to "tell things as they are".

Conscientiousness: It is the personality trait of being honest and hardworking. High scorers tend to follow rules. Low scorers may cheat other people and be less honest.

Neuroticism: The personality trait of being emotional. People with high scores are emotionally stable. People with low scores are more anxious from the others and they have higher chances of suffering from depression in the future.

Openness to Experience: It is the personality trait of seeking new experiences and intellectual pursuits. High scores may dream a lot. Low scorers may be very down to earth.

2.2 Results

Our target group consisted of 87 males and 96 females. The mean score from the Internet Addiction Tool was 22.53. According to IAT categories, 27.8 % (51 people) presented a normal level of Internet usage, 51.3 % (94 people) a mild level of addiction, 20.2 % (37 people) a moderate level and 0.7 % (1 person) a severe Internet addiction. As we can see, in most of the addiction levels the majority of

people are women except of moderate level (Table 1). People mostly prefer to be online at night and stay online for 5 to 10 hour per day.

	Total people	Females	Males
Normal Users	51 (27.8 %)	29 (30.2 %)	22 (25.3 %)
Mild addiction	94 (51.3 %)	50 (52 %)	44 (50.6 %)
Moderate addiction	37 (20.2 %)	16 (16.66 %)	21 (24.1 %)
Severe addiction	1 (0.7 %)	1 (1.04 %)	0

Table 1. Gender and Internet addiction levels

With regard to the addiction categories, we notice that social network activities, information searching and email are the top three categories associated with IA (Table 2).

	Males	Females	Mild Addiction	With addiction (moderate or severe)	Normal users	Total number of people
Information	57 (65.5 %)	73 (76 %)	69 (73.4 %)	25 (65.7 %)	36 (70.5 %)	130 (71 %)
Online Gaming	43 (49.4 %)	19 (19.7 %)	30 (31.9 %)	19 (50 %)	13 (25.4 %)	62 (33.8 %)
Social Networks	63 (72.4 %)	83 (86.4 %)	73 (77.6 %)	31 (81.5 %)	42 (82.3 %)	146 (79.7 %)
E-mail	41 (47.1 %)	63 (65.6 %)	50 (53.1 %)	25 (65.7 %)	29 (56.8 %)	104 (56.8 %)
Pornography	27 (31 %)	2 (2 %)	15 (15.9 %)	8 (21 %)	6 (11.7 %)	29 (15.8 %)
Gambling	3 (3.4 %)	1 (1.04 %)	1 (1 %)	3 (7.8 %)	0 (0 %)	4 (2 %)
Work/Education	11 (12.6 %)	3 (3.1 %)	8 (8.5 %)	1 (2.6 %)	5 (9.8 %)	14 (7 %)
Chat	2 (2.2 %)	1 (1.04 %)	1 (1 %)	0 (0 %)	2 (3.9 %)	3 (1 %)
Entertainment	4 (4.5 %)	12 (12.5 %)	5 (5 %)	2 (5.2 %)	9 (17.6 %)	16 (8 %)
Online purchases	6 (6.8 %)	4 (4.1 %)	5 (5 %)	2 (5.2 %)	3 (5.8 %)	10 (5 %)

Table 2. Addiction level per addiction category

We found an association between addicted people and the five factors from Big Five Factor Model. For example, for normal users we can see that most of them have low scores in the "Neuroticism" trait (Table 3). In detail, 57 % of people with mild and 57% of people with moderate level of addiction have high scores in "extraversion", 86 % with mild and 70 % with moderate level of addiction have high scores in "agreeableness". Also, 79 % of people with mild and 68% of people with moderate level of addiction have high scores in "Conscientiousness". Furthermore it is remarkable that 88 % of people with mild level of addiction have high scores in "openness to experience" trait.

	Extraversion	Agreeableness	Conscientiousness	Neutoricism	Openness to new experiences
Normal users	41 (80 %)	44 (86 %)	30 (59 %)	24 (47 %)	48 (94 %)
Mild level	54 (57 %)	81 (86 %)	74 (79 %)	61 (65 %)	83 (88 %)
Moderate level	21 (57 %)	26 (70 %)	25 (68 %)	23 (62 %)	28 (76 %)
Severe	0	1	1	1	1

Table 3. Association between addiction and the Big Five Factors

	EXTRAVERSION					NEYROTISM									Openness to experience			Agreeableness				Conscientiousnes
PORNO GRAPHY	Men aggressive towards women [19]	Sexual stimula-tion [12]				Unsuccess-ful efforts for abstinence from porno-graphy [16]	Uncontrol-lable sexual behaviour [15]	Solitary stimulation [12]	mood regulation [12]	Distraction [12]	Patho-logical disorder in decision-making [16]	Obsessive-Compulsive Disorder (OCD) [15]			Imagina-tion connecting un-acceptable actions with acceptable. [15]	Sexual curio-sity [12]	Imagi-nation becomes reality [12]	Cocktail of chemical reactions in brain causing pleasure [16]	Satis-faction of sexual fantasies [12]		Sexual satis-faction [12]	No qualms due to anonymity [13]
GAMBLING	Social closeness [22]	Well being [22]	Social potency [22]			Unsuccess-ful efforts for abstinence from gambling [10]	Irritable when trying to reduce or stop gambling [10]	Anxiety [15]	Feeling sad [10]	Negative Emotiona-lity [22]	Panic [15]	self-supression [17]	Agora-phobia [22]	Feeling angry and has violent behaviour [15]	Betting more money in order to feel more excited [10]							
GAMING	Aloneness [13]	Impulsivity [13]				Hyper-activity [13]	Quitting all other interests [17]	Social stress about whether the social circle would accept them or not [13]	Emotion-ally stable [20]	Higher tolerance for stressful situations [31]	Violent behavior [26]							Getting bored easily [13]	Jumping from one game to another [22]	sense of achieved success (for making good impres-sion) [22]	Deeper concern for other's well-being [20]	Aversion towards delayed recognition by the social circle [13]
SOCIAL MEDIA	Curious-ness [21]	Have more friends [23]	The outgoing user socializes [13]	Narcis-sism [13]	More sensitive to potential threats [21]	subtropical behavior (when abstain for a period) [13]	Symptoms of deprivation [13]	Mental anxiety [13]	Neglect-ing personal life [13]	Trying to hide addictive behaviour [13]	Em-pathetic [21]				In a mood for alternate experien-ces [13]	Helpful [24]		Tolerance in devoting more time on social media [14]	Have low self-esteem [13]			
WEB BROWSING						Feeling isolated [18]	Symptoms of deprivation [15]	Social stress about not receiving respect from social relation-ships [16]	Mood changes [15]	Looking for self-esteem via looking for self clarity [18]	Need for more time to spend online [8]	Stress from the familiar environ-ment [15]						Internet fraud when being online [15]	Difficulty in defining his happi-ness [18]			

Table 4. Psychological factors per Internet addiction category

3 Related Work

3.1 Psychological factors per Internet addiction category

Typically, addiction can be observed in one or more from the categories below:

a) **Online social media**. The success of social media is explained by the fact that they are egocentric media, with Facebook being one of the most common occupations [1]. Addicted users typically want to be accepted by their social circle and maintain their relations [22], mostly by bringing out the positive features of his appearance and personality [23]. In fact, young people tend to connect to Facebook at least 5 to 10 times a day [4]. They tend to be connected to this 5-10 times per day [4]. Furthermore, men tend more to be addicted to Internet than women. [4, 1].

b) **Online pornography.** Men being influenced by the content of these movies, become more aggressive [24], addictive and coercive [25].

c) **Online gambling,** Online gambling players, similarly to social media (addicted) users, do not admit or try to hide how many hours they spend in their online activity [10].

d) **Online gaming,** The biggest percentage of addicted users associated to online gaming is teen boys [20]. Their distinctive feature is that if they continue this addictive behavior, their addiction will stay or may be increased as they grow old.

e) **Internet browsing**. Users addicted to Internet browsing are divided in other subcategories according to their habits such as Internet shopping, e-mail checking, discussing in forums/ groups [1]. It has been shown that addicted people might use the Internet up to 20 times a day [4]

One of the purposes of this paper was to survey the related literature on the various psychological aspects that have been shown to be more or less related to Internet addiction. To this end, we have carried out an extensive research on recent and scientific articles, firstly by studying general articles on the Internet addiction issue, then categorizing the research articles on the categories of addiction above.

Then, a more oriented research has been carried out focusing on one category at the time, in an attempt to explain better the reasons which lead people to addiction. In particular, which are the personality features of addicted users and their psychological symptoms. To be consisted with our own survey of Section 2, Table 4 summarizes, per addiction category, the psychological characteristics of addicted users (underlined in the table), as well as their basic personality traits as described in the big five factor model.

3.2 Related Internet addiction surveys on young adults

In a recent research [2], conducted in Italy, the user habits and psychological factors of Internet addicted users, aged 19-26, where surveyed, using the Big Five

Factor Model and Internet Addiction Test. In the survey, which involved 190 people (117 women and 73 men), it was indicated that 31 people (~16%), 13 women and 18 men were addicted. As for user habits, the majority (109 persons - ~58%) connected mainly in the afternoon, while the number of users at night and midday was the same. The majority of users were shown to use the Internet to meet other people or chat with friends, but also to gather information, while very few users appear to use the Internet for work or education purposes. As for psychological factors, it was observed that the factor of extraversion and agreeableness had a negative impact in the addiction problem, while the factor of openness to new experiences had a positive effect in addiction. Conscientiousness and neuroticism did not have any effect in the addiction problem [2]. Specifically no person was detected to have high scores in the Internet Addiction Test and there were not any differences between the two sexes. It was observed that the frequent Internet use can have positive impact in the problem [2].

A survey in China [3] targeted students between 20 and 30 years old. The survey focused on the psychological profile of users, such as stress, restraint and depression while trying to correlate them with the users' Internet addiction level. In the survey participated 500 people, 262 of them were women and 238 men. The results of the Internet addiction test showed a total of 85 people (17%) being addicted, (in particular, 42 women and 43 men). There were also 33 addicted people (38.8%) and 54 people (13%) without addiction that showed depression signs. It appears that people with positive relation with the problem are more likely to experience depression than others [3]. No differences were observed in relation to age or sex. It was also observed that the self-restraint is not linked to the problem of Internet addiction while the denial is positively related to it. The research also showed that the addiction is associated with stress, while persons with positive relation are more likely to have other mental diseases such as depression [3].

A survey in Chile [4] assessed the addiction levels of 384 medical students, with an average age of 21 years, on the Internet as well as the psychological factors associated with the problem. A 63.8 % of surveyed students, among which 224 males (58.3 %) and 160 females (41,7 %), answered that their parents live away from the town of their study. All users answered that they use e-mail, while 97.6% answered to be Facebook users and 33% Twitter users. Also 35.2% said they had a history of psychiatric diagnosis while 9.1% were in psychiatric treatment [4]. The results of the Internet addiction test showed that 33 men (14.7%) and 11 women (6.9%) were addicted.

In Greece, a survey was conducted with 534 medical students at the Aristotle University of Thessaloniki [1]. From the participants, 373 people (69.9%) were normal Internet users, 131 (24.5%) showed mild level of addiction, 29 people (5.4%) had moderate level of addiction and one person (0.2%) showed a severe dependence [1]. From the addicted people, 76 were men and 85 women. It was

detected that the majority of addicted people lived alone in the town of their study (81 people). Addicts were mainly connected to the Internet from home, while Facebook usage was shown to have positive relation with the problem. Other activities of dependent users were online games, online gambling, pornography, and chatting. It was also observed that the use of email has a negative association with the problem. An observation made in the survey is that the connection of people in places other than their home is a factor that can make people develop Internet addiction [1].

The difference between own research and the survey in [1] is that we not only examine the addiction levels of young adults but also we use the big five factor model to assess the psychological profile of the addicted and study their personality.

4 Information Privacy and Internet Addiction

Several studies have investigated the factors driving online information disclosure willingness and the information privacy paradox [47]. The information privacy paradox refers to an inconsistent behavior in which although privacy is a primary concern for individuals, at the same time they are willing to reveal personal information for relatively small rewards, often just for drawing the attention of peers in an online social networks [47]. Users claim that the main benefits of information sharing that they value are self-clarification, social validation, relationship development, social control, and self-representation [46].

Therefore, in this paper we stress that in addition to all other psychological symptoms (e.g., depression) and impacts that had been associated to IA, addicted individuals may also be confronted with significant consequences regarding their information privacy following disclosure of personal information. Research in this field is in its infancy and mostly targeted around social networks. Studies associate the possession of SNS profile with high-risk taking attitudes towards information sharing. Interestingly a survey study conducted in 2013 [44] among Facebook users and Facebook quitters concludes that people who quitted Facebook had higher IA scores and higher concerns about information privacy. The survey investigated the reasons behind Facebook quitting: the top reason reported was information privacy concerns and the second reason was the feeling of getting addicted to Facebook. Information privacy are also reported to be the main reason leading individuals to decide what is metaphorically called 'virtual identify suicide' (a person quitting her online social life and associated digital identity) [44]. On the other hand, another study presents contradictory findings: a survey conducted also in 2013 concludes that privacy concerns of SNSs users (including unauthorized secondary use of, and improper access to, shared information) did not significantly affect their problematic SNS use, which means even if people have privacy concerns, those concerns do not necessarily prevent them from using SNS compulsively [45]. Future research is this field is

imperative which will investigate the relationship among information privacy risk-taking behavior and the personality traits of Internet addicted individuals. Further, additional research in necessary to explore the association among privacy concerns and their potential contribution to IA treatments, thus IA interventions with emphasis on privacy concerns aiming to deal with IA. Further, future research should investigate information privacy in the context of other IA categories, such as email or information search, which have not been explored yet.

References

[1] Tsimtsiou, Z., Haidich, A. B., Spachos, D., Kokkali, S., Bamidis, P., Dardavesis, T., & Arvanitidou, M. (2015). Internet addiction in Greek medical students: an online survey. Academic Psychiatry, 39(3), 300-304.

[2] Servidio, R. (2014). Exploring the effects of demographic factors, Internet usage and personality traits on Internet addiction in a sample of Italian university students. Computers in Human Behavior, 35, 85-92.

[3] Chou, W. P., Ko, C. H., Kaufman, E. A., Crowell, S. E., Hsiao, R. C., Wang, P. W., Yen, C. F. (2015). Association of stress coping strategies with Internet addiction in college students: The moderating effect of depression. Comprehensive psychiatry, 62, 27-33.

[4] Berner, J. E., Santander, J., Contreras, A. M., & Gómez, T. (2014). Description of internet addiction among Chilean medical students: a cross-sectional study. Academic Psychiatry, 38(1), 11-14.

[5] Brand, M., Young, K. S., & Laier, C. (2014). Prefrontal control and Internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings. Frontiers in human neuroscience, 8, 375.

[6] Wallace, P. (2014). Internet addiction disorder and youth. EMBO reports, 15(1), 12-16.

[7] Yan, W., Li, Y., & Sui, N. (2014). The relationship between recent stressful life events, personality traits, perceived family functioning and internet addiction among college students. Stress and Health, 30(1), 3-11.

[8] J Kuss, D., D Griffiths, M., Karila, L., & Billieux, J. (2014). Internet addiction: a systematic review of epidemiological research for the last decade. Current pharmaceutical design, 20(25), 4026-4052.

[9] Laconi, S., Rodgers, R. F., & Chabrol, H. (2014). The measurement of Internet addiction: a critical review of existing scales and their psychometric properties. Computers in Human Behavior, 41, 190-202.

[10] Sauvaget, A., Jiménez-Murcia, S., Fernandez-Aranda, F., Fagundo, A. B., Moragas, L., Wolz, I., ... & Real, E. (2015). Unexpected online gambling disorder in late-life: a case report. Frontiers in psychology, 6.

[11] Griffiths, M. (2003). Internet gambling: Issues, concerns, and recommendations. CyberPsychology & Behavior, 6(6), 557-568.

[12] Wéry, A., & Billieux, J. (2016). Online sexual activities: An exploratory study of problematic and non-problematic usage patterns in a sample of men. Computers in Human Behavior, 56, 257-266.

[13] Chou, W. J., Liu, T. L., Yang, P., Yen, C. F., & Hu, H. F. (2015). Multi-dimensional correlates of Internet addiction symptoms in adolescents with attention-deficit/hyperactivity disorder. Psychiatry research, 225(1), 122-128. 2015.

[14] Watson, J. C. (2005). Internet addiction diagnosis and assessment: Implications for counselors. Journal of Professional Counseling, Practice, Theory, & Research, 33(2).

[15] Kubey, R. W., Lavin, M. J., & Barrows, J. R. (2001). Internet use and collegiate academic performance decrements: Early findings. Journal of communication, 51(2), 366-382.

[16] Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. Computers in Human Behavior, 31, 351-354.

[17] Prause, N., Steele, V. R., Staley, C., Sabatinelli, D., & Hajcak, G. (2015). Modulation of late positive potentials by sexual images in problem users and controls inconsistent with "porn addiction". Biological psychology, 109, 192-199.

[18] Gainsbury, S. M. (2015). Online gambling addiction: The relationship between internet gambling and disordered gambling. Current addiction reports, 2(2), 185-193.

[19] Tsitsika, A., Tzavela, E., Mavromati, F., & Schoenmakers, T. (2014). Research on internet addictive behaviours among European adolescents.

[20] Wang, C. W., Ho, R. T., Chan, C. L., & Tse, S. (2015). Exploring personality characteristics of Chinese adolescents with internet-related addictive behaviors: Trait differences for gaming addiction and social networking addiction. Addictive behaviors, 42, 32-35.

[21] Gainsbury, S. M. (2015). Online gambling addiction: The relationship between internet gambling and disordered gambling. Current addiction reports, 2(2), 185-193.

[22] 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.

[23] O'Keeffe, G. S., & Clarke-Pearson, K. (2011). The impact of social media on children, adolescents, and families. Pediatrics, 127(4), 800-804.

[24] Mowlabocus, S., & Wood, R. (2015). Introduction: audiences and consumers of porn. Porn Studies, 2(2-3), 118-122.

[25] Dhuffar, M. K., & Griffiths, M. D. (2015). A systematic review of online sex addiction and clinical treatments using CONSORT evaluation. Current Addiction Reports, 2(2), 163-174.

[26] Bean, A., & Groth-Marnat, G. (2016). Video gamers and personality: A five-factor model to understand game playing style. Psychology of Popular Media Culture, 5(1), 27.

[27] Sayre, G. M., & Dahling, J. J. (2016). Surveillance 2.0: How personality qualifies reactions to social media monitoring policies. Personality and Individual Differences, 90, 254-259.

[28] Miller, J. D., MacKillop, J., Fortune, E. E., Maples, J., Lance, C. E., Campbell, W. K., & Goodie, A. S. (2013). Personality correlates of pathological

gambling derived from Big Three and Big Five personalitymodels. Psychiatry research, 206(1), 50-55.

[29] Egan, V., & Parmar, R. (2013). Dirty habits? Online pornography use, personality, obsessionality, and compulsivity. Journal of sex & marital therapy, 39(5), 394-409.

[30] Marshall, T. C., Lefringhausen, K., & Ferenczi, N. (2015). The Big Five, self-esteem, and narcissism as predictors of the topics people write about in Facebook status updates. Personality and Individual Differences, 85, 35-40.

[31] M'hiri, K., Costanza, A., Khazaal, Y., Khan, R., Zullino, D., & Achab, S. (2016). Problematic Internet use in Older Adults, A Critical Review of the Literature. Journal of Addiction Research & Therapy, 2015.

[31] Caplan, S. E. (2006). Relations among loneliness, social anxiety, and problematic Internet use. CyberPsychology & Behavior, 10(2), 234-242.

[32] Goldberg, L. R. (1990). An alternative" description of personality": the big-five factor structure. Journal of personality and social psychology, 59(6), 1216.

[33] Shaw, L. H., & Gant, L. M. (2002). In defense of the Internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived social support. Cyberpsychology & behavior, 5(2), 157-171.

[34] Young, K. S. (1998a). Internet addiction: The emergence of a new clinical disorder. CyberPsychology & Behavior, 1(3), 237-244.

[35] Young, K. S. (1998b). Caught in the net: How to recognize the signs of Internet addiction--and a winning strategy for recovery. John Wiley & Sons.

[36] Young, K. S., & Rogers, R. C. (1998). The relationship between depression and Internet addiction. CyberPsychology & Behavior, 1(1), 25-28.

[37] Lee, H. W., Choi, J. S., Shin, Y. C., Lee, J. Y., Jung, H. Y., & Kwon, J. S. (2012). Impulsivity in internet addiction: a comparison with pathological gambling. Cyberpsychology, behavior, and social networking, 15(7), 373-377.

[38] Pies, R. (2009). Should DSM-V designate" internet addiction" a mental disorder?. Psychiatry (1550-5952), 6(2).

[39] Griffiths, M. (2000). Internet addiction-time to be taken seriously?. Addiction research, 8(5), 413-418. Chicago .

[40] Feng, Q., Chen, X., Sun, J., Zhou, Y., Sun, Y., Ding, W., ... & Du, Y. (2013). Voxel-level comparison of arterial spin-labeled perfusion magnetic resonance imaging in adolescents with internet gaming addiction. Behavioral and Brain Functions, 9(1), 1.

[41] Carli, V., Durkee, T., Wasserman, D., Hadlaczky, G., Despalins, R., Kramarz, E., ... & Kaess, M. (2012). The association between pathological internet use and comorbid psychopathology: a systematic review. Psychopathology, 46(1), 1-13.

[42] Yoo, H. J., Cho, S. C., Ha, J., Yune, S. K., Kim, S. J., Hwang, J., ... & Lyoo, I. K. (2004). Attention deficit hyperactivity symptoms and internet addiction. Psychiatry and clinical neurosciences, 58(5), 487-494.

[43] Yuan, K., Qin, W., Wang, G., Zeng, F., Zhao, L., Yang, X., ... & Gong, Q. (2011). Microstructure abnormalities in adolescents with internet addiction disorder. PloS one, 6(6), e20708.

[44] Stieger, S., Burger, C., Bohn, M. and 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. September 2013, 16(9): 629-634

[45] Chen H, and Kim Y. (2013) Problematic Use of Social Network Sites: The Interactive Relationship Between Gratifications Sought and Privacy Concerns, Cyberpsychology, Behavior and Social Networking, Volume 16, Number 11, 2013

[46] Lee, H., Park, H. and Kim, J. (2013), Why do people share their context information on Social Network Services? A qualitative study and an experimental study on users' behavior of balancing perceived benefit and risk. International Journal of Human-Computer Studies, 71(9), 862-877.

[47] Kokolakis, S. (2015), Privacy attitudes and privacy behaviour: A review of current research on the privacy paradox phenomenon, Computers & Security, Available online 10 July 2015