Examining the Relationship Between Student School Burnout and Problematic Internet Use

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Abstract

Student burnout and Internet addiction are two of the serious problems that are common among young people. Both are connected with many negative effects on the mental functioning of adolescents. However, so far only few studies have explored these two phenomena all together. The aim of our study was to test the relationship between student burnout (SB) and internet addiction (IA). Specifically, we explored three problems: (i) sex differences in the level of student burnout and problematic Internet use among Polish late adolescents; (ii) correlations between student school burnout and its sub-dimensions and problematic Internet use indicators; (iii) the prediction power of student burnout indicators, quality of social bonds and school functioning characteristics on the level of Internet addiction and its subdimensions. The study was conducted among 230 high school students. The results of the research showed that there were no significant differences between girls and boys in the level of problematic use of the Internet, except that male students assessed their dishonesty about Internet use as higher compared to females. As expected, a higher level of school burnout indicators was significantly connected with a higher level of problematic Internet use. Additionally, school burnout (especially burnout from studying, loss of interest in school and burnout due to parental pressure) and school performance characteristics such as additional classroom lessons and low quality of classmates relationships, significantly predicted the problematic Internet use, which explained 19% of variances in the total score of internet addiction. Our findings confirmed that preventative and interventional strategies developed to reduce IA should include activities that also reduce school burnout. In reducing IA and SB we should include actions targeted not only on the adolescent's group, but also on the school environment (teachers and schoolmates) and the family environment (parents and siblings).

Keywords

School burnout • Internet addiction • adolescents

Burnout research is most often related to occupational context, usually conducted among employees representing social professions and defined as occupationally specific dysphoria (Maslach & Leiter, 2016). Even though the concept of burnout has been widely explored in the professional field, the number of studies with high school students studies is low (Wickramasinghe, Dissanayake, & Abeywardena, 2018). Following the classical definitions of burnout, Schaufeli, Martínez, Pinto, Salanova, and Bakker (2002) and Salmela-Aro, Tolvanen, and Numri (2009) defined three components of school burnout: emotional exhaustion (the students being overwhelmed with school demands), cynical attitude (interpersonal component, withdrawing and feeling of detachment from the school environment), and reduction of personal accomplishment (lack of competence and effectiveness in school activities). The consideration of the three-component structure of student burnout syndrome was criticised and modified by many authors (Zhao & Ding, 2020). The main reason to look for other measures of burnout syndrome among young people was that research performed on students did not take into account the specificity of the developmental period (immaturity of certain mental structures), and underestimated the importance of family and peer environments for coping with stressful school situations (Tomaszek & Muchacka-Cymerman, 2019a, 2019b). Aypay (2012) conducted exploratory studies among students aged 11 - 17 years old and proposed seven components of school burnout related to educational stress sources: (i) loss of interest in school activities and boredom, (ii) burnout due to overwhelming study demands, (iii) incompetence in school abilities, (iv) burnout related to parental and (v) teacher pressure on high school achievements, (vi) burnout related to overload by the amount of homework and (vii) the lack of time to rest and have fun.

Past investigations reported multifactorial prevalence of student burnout related to personal figures but also with school and family environmental characteristics, e.g. the high educational demands and low personal resources related to effectiveness in fulfilment of school duties, teachers' and parents' expectation and behaviours, chronic educational stress and maladaptive coping strategies, and student alienation (Rahmatpour, Chehrzad, Ghanbari, & Sadat-Ebrahimi, 2019; Salmela-Aro et al., 2009; Salmela-Aro & Upadyaya, 2014; Shoda & Titiloye, 2019). According to Schulte-Markwort (2015), students' school burnout is becoming an increasingly serious problem and it is affecting a growing number of students. A high risk of school burnout was also found among Asian students, in which achieving high academic performance is associated with success in life and confirmation of a high status (Bonafé, Maroco, & Bonini Campos, 2014). Polish primary school pupils also experience exhaustion related to parental pressure, as well as mismatches in school requirements and lack of interest in school. Secondary school students are more exhausted by school activities (Tomaszek & Muchacka-Cymerman, 2018a). Results obtained from many studies confirmed the negative impact of burnout on educational performance indicators, i.e. lower intrinsic motivation, lower school outcomes, higher level of maladjusted behaviours, and truancy, and low educational aspirations and engagement (Fiorilli, de Stasio, di Chiacchio, Pepe, & Salmela-Aro, 2017). The importance of conducting studies in this field is also justified by serious mental problems that are associated with student burnout including depression and anxious reactions and fears, social withdrawal, frustration, hostility, problematic behaviours, substance abuse and suicide ideation (Puranitee et al., 2019; Rahmatpour et al., 2019; Tomaszek & Muchacka-Cymerman, 2019b).

In the original version of the Job Demands-Resources model that describes job burnout causes and consequences, job demands may initiate a health-impairment process when the person is exposed to chronic overload stress over a long period of time (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). As a result of chronic exhaustion, physical and mental health problems occur. However, recently Bakker and Demerouti (2018) proposed the modification of this theory. They added a process that inversely may activate loss of the cycle of job-related demands. Self-undermining is defined as behaviours that increase difficulties in

meeting job requirements, conflicts and more negative behaviours over time. Following this proposition, we believe that Internet addiction (IA) is one of the consequences of overburden with study demands and may play an important role as a form of self-undermining behaviour.

Internet addiction is conceptualised as a subset of behavioural addiction, an inability to control time and effort spent on the Internet, which leads to neglecting off-line life responsibilities and relationships (Jiang, Huang, & Tao, 2018). Billieux et al. (2017) state it as repeated behaviours that cause significant harm or distress and are not reduced by the person and persist over a significant period of time (e.g. at least 12 months), producing functional impairment. Some scholars have proposed that it should be considered as a newly emerged adolescent risk behaviour (Ko, Yen, Chen, Chen, & Yen, 2008).

It is well proven that addicted people have a similar psychological profile, with a high level of stress and tension, loneliness and low social support (Dowling & Brown, 2010). These characteristics make them a school burnout risk group. Burnout requires deficits in social and family support (Gungor, 2019), and the confirmation is research which has shown that social support from superiors is associated with a lower level of burnout, while family support is less related to increased burnout (Huebner, 1994). Exhausted students can isolate themselves from others or get angry and aggressive, as well as have inappropriate social relationships in the school and non-school environments (Ang, Huan, Teng, Cheong, & Leaw, 2015; Bilge, Tuzgöldost, & Çetin, 2014; Oreizi-Esfahan & Tomlinson, 2018). The results of exhaustion are often a lack of self-acceptance, poor resistance to stress, low intrinsic motivation and apathy, a decrease in the effectiveness of performed activities and sometimes escape into various forms of activity that may lead to addiction and crime (Fiorilli et al., 2017; Li & Lerner, 2011; Rahmati, 2015; Salmela-Aro et al., 2009).

Past research has shown that IA contributes to negative outcomes in social relationships, educational failures and school burnout (Macafee & De Simone, 2012). However, the studies of Tsitsik et al. (2016) revealed that the problem of too intensive use of the Internet is related to gender, lower parental education, lack of siblings and overweight/obesity. The results of the research conducted by Salmela-Aro, Upadyaya, Hakkarainen, Lonka, and Alho (2016) on Finnish youth showed that students' school burnout predicted excessive Internet use in the future and, inversely, the general results confirmed that spending too much time in front of the Internet can largely result in student burnout. In the examined group, the group of boys more often suffered due to excessive use of the Internet. A further part of the research showed that digital addiction can also cause burnout in adolescents and even lead to depression. Similar conclusions appeared in the studies of Imani et al. (2018), who drew attention to the fact that IA contributes to school burnout of these students in the future. Burnout prevents students from continuing their education and this affects their negative self-esteem caused by a sense of failure. Research conducted by Kim, Kim, Park, Kim, and Choi (2017) performed on a group of Korean teenagers showed that the use of the Internet by respondents for educational purposes was closely related to their higher marks. Young people who used Internet resources for general purposes - not only academic ones - obtained much lower results.

In addition, IA may also play an important role as an example of self-undermining behaviours that create obstacles which negatively impact the ability to implementing study duties. Specifically, an addicted individual is unable to manage his or her use of the Internet, which finally results in social, psychological, school, and/or work difficulties in a person's life (Kraut, Fussell, Brennan, & Siegel, 2002). Previous research has confirmed the detrimental effect of IA on school and academic performance (Bhushan, Piplani, & Tekkalaki, 2018; Ghulami, Ab Hamid, Ibrahim, Hikmat, & Aziz, 2018; Siomos et al., 2013), and its association with academic/work failure and interpersonal alienation (Jiang et al., 2018). Excessive Internet users spend so much time and invested effort on the Internet that they usually neglect their basic needs such as eating, sleeping, hygiene and exercise in order to stay longer in the online world (Hussain & Griffiths,

2009; Hsu & Yu, 2007). What is more, IA appears to be a serious social and clinical problem in a group of adolescents. Past studies have indicated that IA in adolescence negatively impacted on health, and leads to depression, insomnia and suicide ideation (Akin & Iskender, 2011; Cheung & Wong, 2011; Fu, Chan, Wong, & Yip, 2010), identity formation (Kim et al., 2012), and such problematic behaviours as hostility, aggression and delinquency/ crimes (Jiang et al., 2018; Ko et al., 2006), or alcohol and drug use (Gong et al., 2009; Ko, Yen, Yen et al., 2008; Kuss, van Rooij, Shorter, Griffiths, & van de Mheen, 2013). Additionally, it may change the structure of the developing brain (Lin et al., 2012; Yuan et al., 2011).

The integrative model of Adolescent Health Risk Behaviours created by Keeler and Kaiser (2010) assumed that during the adolescent period young people experience a state of temporary developmental disharmony, which may impair risk assessment and adequate decision processes. Kelley, Schochet, and Landry (2004) connected this disharmony with the late maturation of some structures and brain connections that are responsible for attention control, prediction deferred behavioural consequences, regulating emotional states, controlling unwanted behaviour and the process of decision making. Problematic behaviours such as lack of control and morale, lack of reward and fairness, conflicts and truancy appear also among burnt out students (Rahmati, 2015). According to health risk behaviours, more risk factors such as lack of social support, negative behaviour patterns flowing from the media, and adverse impact of peers will weaken the development of mature decisions. Jiang et al. (2018), who analysed IA in the theoretical framework of risk behaviours, stated that this addiction is related to psychological distress, personality disorders, degree of self-control, substance addictions and abnormal behaviours. One of the stages that may be distinguished in IA is passive coping that is related to ineffective behaviour strategies based on aggression and escape mechanisms in the face of various demands and difficulties (Tao, Ying, Yue, & Hao, 2007). Similar antecedents were found such as student burnout predictors (Shoda & Titiloye, 2019). It seems to be logical and possible that psychological distress first leads to an overburden, and then students start to seek ways of freeing themselves from exhaustion by withdrawing from the school and family environment and engaging in online activities.

Finally, it is worth noting that engaging in multiple risk behaviours and IA is more frequent among boys than girls (Bimber, 2000; Croisant, Iaz, Rahman, & Berenson, 2013; Su, Han, Jin, Yan, & Potenza, 2019). Sex differences relevant to this regularity were explained by higher social aggressiveness, expressiveness and the different structure of friendship (Canary & Dindia, 1998). On the contrary, some authors found that girls are more prone to educational stress and they are more likely to develop student burnout (Backović, Zivojinović, Maksimović, & Maksimović, 2012; Salmela-Aro & Tynkkynen, 2012). Nonetheless, not all studies confirmed significant gender differences associated with school burnout (Arumede, Eskay, Eneh, & Aja, 2019). Noticing other inquisitive regularity psychopathological characteristics, which are listed by many authors as student burnout consequences, such as depression, social anxiety and suicidal ideation, are usually more common among adolescent girls than boys (Caballo et al., 2014; Malooly, Flannery, & Ohannessian, 2017; Zhang et al., 2019). From this perspective testing the gender gap when examining the association between IA and student burnout should be taken into account.

Purpose of the Present Study

The previous literature is rich with studies focusing on IA among adolescents, however so far very little research has dealt with students' school burnout and their possible problematic use of the Internet. There has been no research conducted on this issue in terms of several variables. Findings from two longitudinal studies made by Salmela-Aro et al. (2016) have confirmed a link between IA and school burnout among early and late Finnish adolescents. The reciprocal cross-lagged paths showed that excessive

Internet use contributes to the development of school burnout and, conversely, school burnout predicted later excessive Internet use (Salmela-Aro et al., 2016). Moreover, Imani et al. (2018) found a significant relationship between IA and educational burnout and all its subscales in a group of university students of the Faculty of Management and Medicine. In this context, one of the purposes of this study is to test the associations between the problematic use of the Internet and the level of burnout among high school students. The above-mentioned past studies did not analyse which aspect of multidimensional construct of student burnout is most related to excessive Internet use. What is more, the examination of the relationship between IA and student burnout was largely based only on the psychological characteristics of youths. However, they did not include the social relationships and the school performance indicators. Our study has extended the analysis by including the multidimensional perspective of student burnout, sex differences, school performance characteristics and quality of student relationships with parents, classmates and teachers. The main research question is: Which indicators of school burnout predict problematic use of the Internet?

This study seeks answers to the following questions: (i) Are there significant sex differences in the level of student burnout and problematic Internet use among Polish late adolescents? (ii) Does a higher level of student school burnout and its sub-dimension correlate with higher problematic Internet use indicators? (iii) Do the indicators of student burnout and the declarations about school functioning predict the level of problematic Internet use and its subdimensions?

In particular, the present study tested three hypotheses. (H1) Girls will show significantly higher levels of student school burnout and lower ones of problematic Internet use than boys. (H2) The higher the score in the SSBS scale, the lower the score in the IA test, such that students with a higher level of burnout and its indicators will be more digitally addicted. (H3) Burnout from studying and parents will have the greatest impact on the level of overuse of the Internet and its indicators.

Methods

Participants

This study was conducted among 230 high school students (26% male), aged 17 - 20 years ($M = 18.25$, $SD = 0.45$). The students were chosen randomly. All the students were from the 4th class of three high schools because the SSBS scale is intended for a group of high school students. The research sample, consisting mainly of women (74%), is related to the structure of the classes in which the study took place and due to the students' presence in the classroom on the day of the survey. All the high schools belong to public educational institutions located in large cities in central, south and north Poland (Warsaw, Cracow and Gdańsk). The research was conducted in January 2019. The students were also asked some questions about their sociodemographic characteristics, school performance and family and school relationships.

Instruments

The *Student School Burnout Scale* (SSBS) by Aypay (2012) includes 34 items categorized into seven sub-scales: *Loss of interest in school* (LIS), *Burnout due to studying* (BDS), *Burnout due to parents* (BDF), *Burnout due to doing homework* (BDH), *Being bored and tired of teacher attitudes* (BTT), *Need to rest and have fun* (NRF) and *Incompetence in school* (ISS). All items were scored on a 4-point Likert scale varying from 1 (*strongly agree*) to 4 (*strongly disagree*). Students mark an X in a box to choose one of the options to state how these items appeal to them. The lower score in the SSBS scale means the higher level of burnout. The validity of the Polish version of SSBS was confirmed on a sample of 696 adolescents

(Tomaszek & Muchacka-Cymerman, 2020). In the current study, the reliability estimates by Cronbach's alfa for SSBS Total Score was equal to .87, and for the sub-scales were LIS α = .83, BDS α = .72, BDF α = .82, BDH α = .69, BTT α = .29, NFR α = .77, and IIS α = .79.

The *Internet Addiction Test* (IA) was created by Young (1998). In the Polish version of Poprawa (2011) the instrument measures the level of problematic use of the Internet that manifests itself in escapism, compulsivity, obsessiveness and dependency. The IA test also allows to examine conflicts in personal, social or occupational/school performance that may emerge from addictive use. The Polish version of the IA (named by the author TPUI-22) contains 22 questions scored on a 6-point Likert-scale. A higher score signifies a higher level of addiction to the Internet. The structure of the IA was discussed, and the consensus about the number of its dimension has not been reached. Some researchers indicated one-dimensional solutions (Poprawa, 2011), however others revealed a multidimensional structure.

Recently, a psychometric analysis conducted on a group of at-risk college students by Samaha et al. (2018) revealed a four-factor structure of the IA test. Because the study by these authors confirmed the validity of the IA on the young people, and its usefulness as a screening tool particularly in this population or similar at-risk populations, we decided to investigate the four factor solution in our studies also conducted on adolescents. Exploratory Factor Analysis results confirmed four factor solution: *Emotional and cognitive dependence* [ECD] (e.g., the person is thinking all the time about going online again; fear that life without the Internet would be boring, empty or joyless; feels depressed, guilty and moody and gets relaxed when he/she is back online; feels irritated when he/she has to cut off time on the Internet; and spends more time online to be satisfied), *Time management problems* [TMP] (e.g., the person's problems with controlling time while being online and their consequence, unsuccessfully trying to cut down the amount of time spent online, staying online longer than intended; work performance or productivity suffer because of the Internet; school performance or productivity suffer because of the Internet), *Lack of control and neglecting of social life* [CSL] (e.g., the person's concentration on Internet consumption and low quality of relationships with others), *Dishonesty about internet use* [DI] (e.g., the person is lying about their Internet activity). The internal reliability score measured by Cronbach alpha coefficient was equal to .90, and for the subscales ranged from .59 to .87.

It is worth observing that Cronbach's alfa is dependent on the number of the items. Due to the limited number of scale items (the DI subscale consists only of 2 items), the accepted α value is in the range between .45 - .60 (Bretz & McClary, 2014; Taber, 2018). In summary, our results conformed to the four-factor structure of IA among adolescents.

Procedure

The study meets the ethical requirements set for scientific research and the implementation of the research was approved by the Ethics Committee of the Pedagogical University of Kraków (WP.113-6/2019). The study is cross-sectional. Schools were selected randomly. School heads were contacted to obtain approval for the study. After receiving permission to conduct the study, the teachers appointed by the school management were contacted. The research was conducted by one of the authors of the article. Each student received a separate copy of the tests preceding the instructions. Students participating in the study were informed that research in which they participate measures conflicts in personal, social or occupational/ school performance and the fatigue they experience at school. In addition, it was noted that the survey was fully anonymous, and adolescents were asked to answer each question honestly. After a short introduction, students completed the paper-and-pencil self-administered questionnaire.

Data Analysis

Several multivariate statistic procedures were obtained to test our hypotheses. Specifically, the Pearson correlation coefficients, and the *F* test one-way ANOVA were calculated. To determine the predictors of problematic Internet use, several linear multiple regression models were examined. The statistical analyses in this research study were performed with SPSS 22 version (*t*-Student value, linear multiple regression) and Statistica 13.3 version (the Pearson correlations analysis).

Results

According to one-way ANOVA test results, there was only one significant difference between girls and boys in the level of problematic use of the Internet. The male students assessed their dishonesty about Internet use as higher compared to the females ($F_{(1,227)}= 5.23$, $p < .05$). Additionally, girls experienced a higher level of burnout syndrome than boys ($F_{(1,228)} = 20.47$, $p < .001$). Females also scored significantly higher on most of the school burnout sub-dimensions. Only one insignificant sex difference was found that showed a similar level of burnout due to parents among girls and boys (see Table 1).

Table 1. *Sex differences among problematic Internet use and student school burnout*

	Girls (n = 171)		Boys (n = 59)		F	df[a]	p	η^2
	M	SD	M	SD				
Loss of interest in school	13.91	3.7	16.14	3.78	15.78	1,228	.000	.065
Burnout due to studying	15.22	3.17	16.49	3.14	7.12	1,228	.008	.030
Burnout due to parents	13.1	3.43	13.92	3.72	2.37	1,228	.125	.010
Burnout due to doing homework	11.6	2.63	12.69	2.98	7.13	1,228	.008	.030
Being bored and tired of teacher attitudes	9.96	2.09	11.19	4.55	7.75	1,228	.006	.033
Need to rest and have fun	9.13	2.67	10.36	2.73	9.10	1,228	.003	.038
Incompetence in school	8.23	2.33	9.31	2.9	8.24	1,228	.004	.035
Student school burnout	81.14	12.75	90.08	14.06	20.47	1,228	.000	.082
Emotional and cognitive dependence	15.50	6.05	16.17	8.93	0.41	1,227	.522	.002
Time management problems	24.64	6.84	25.34	8.87	0.39	1,227	.534	.002
Lack of control and neglecting social life	8.69	3.60	9.49	4.27	1.97	1,227	.161	.009
Dishonesty about Internet use	4.28	2.09	5.03	2.47	5.23	1,227	.023	.023
Problematic Internet use	53.11	14.75	56.03	18.25	1.52	1,227	.219	.007

Note. df[a] - the firs number indicated the degrees of freedom between groups and the second one within groups

Pearson correlations were used to evaluate associations among indicators of problematic use of the Internet and student school burnout. Analyses of the total data sample showed a significant relationship between the levels of SSBS, BDS, BDF and INS, and IA, ECD, and TMP, such that those with more problematic use of the Internet tendencies (especially TMP and ECD) also tended to be more burnt out (especially burnout due to studying and parents and feeling incompetent in school; $r =$ from -.15 to -.28). Higher *Emotional and cognitive dependency* in Internet use was related to higher *Burnout due to doing homework* ($r = -.15$) and higher *Time management problems* with a higher *Need to rest and have fun* ($r = -.13$). Higher *Lack of control and neglecting of social life* was associated with higher *Burnout due to studying* ($r = -.21$) and higher *Dishonesty about Internet use* with higher *Burnout due to parents* ($r = -.22$). However, the strength of all correlations, using the guide that Evans (1996) suggested for the absolute value of *r*, were weak. There were no significant correlations between IA scores and LIS and BTT (see Table 2).

Table 2. *Correlation matrix of problematic Internet use and student school burnout*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Loss of interest in school	-												
2. Burnout due to studying	.44***	-											
3. Burnout due to parents	.23***	.16*	-										
4. Burnout due to doing homework	.44***	.42***	.23***	-									
5. Being bored and tired of teacher attitudes	.37***	.27***	.12	.29***	-								
6. Need to rest and have fun	.40***	.29***	.12	.40***	.31***								
7. Incompetence in school	.38***	.27***	.28***	.19**	.27***	.41***	-						
8. Student school burnout	.76***	.65***	.51***	.66***	.59***	.64***	.61***	-					
9. Emotional and cognitive dependence	-.01	-.25***	-.26***	-.15*	.00	.04	-.15*	-.18**	-				
10. Time management problems	.03	-.20**	-.24***	-.06	-.06	-.13*	-.18**	-.19**	.39***	-			
11. Lack of control and neglecting social life	.01	-.21***	-.08	-.07	.05	.08	-.03	-.06	.66***	.32***	-		
12. Dishonesty about internet use	.03	-.08	-.22***	-.04	-.01	.13	-.11	-.07	.46***	.40***	.42***		
13. Problematic internet use	.02	-.27***	-.28***	-.12	-.02	-.00	-.17**	-.19**	.84***	.77***	.74***	.63***	-

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

Table 3. *Multiple linear regression model of problematic Internet use*

Variables	Problematic internet use	Emotional and cognitive dependency	Time management problems	Lack of control and neglecting of social life	Dishonesty about Internet Use
1. Loss of interest in school	.28**	.18*	.35***	.06	.14
2. Burnout due to studying	-.26**	-.22**	-.23**	-.17*	-.08
3. Burnout due to parents	-.24***	-.22**	-.21**	-.07	-.19**
4. Burnout due to doing homework	-.07	-.13	.01	-.03	-.07
5. Being bored and tired of teacher attitudes	-.00	.03	-.06	.07	-.04
6. Need to rest and have fun	.05	.13	-.09	.05	.18*
7. Incompetence in school	-.11	-.14	-.04	-.06	-.11
8. Quality of family relationships	.02	-.07	.08	.02	.06
9. Quality of classmates' relationships	.12	.03	.18*	-.01	.16*
10. Quality of teacher-student relationships	.07	.10	.05	.02	-.06
11. School performance	-.08	.06	-.16*	-.03	-.16*
12. Additional classroom lessons	.15*	.13*	.05	.24***	.05
13. Devoting time to study per day	-.02	-.01	.06	-.14	-.06
14. Gender	.12	.10	.06	.10	.13*
Model F	5.01***	3.98***	4.64***	3.11***	3.28***
df^a	13, 225	13, 225	13, 225	13, 225	13, 225
R^2 Adjusted	.20	.16	.18	.11	.12

Note. In the table standardized regression coefficients of independent variables were included; *F*: Test of equality of variances; Adjusted R^2: Explained variance; df^a - the firs number indicated the degrees of freedom between groups and the second one within groups; ***$p < .001$; **$p < .01$; *$p < .05$

The results of multiple regression to explain the level of IA and its subdimension *Emotional and cognitive dependency* showed that strongest burnout indicators are *Loss of interest in school*, *Burnout due to parental pressure*, and *Burnout due to studying*, were significantly related to these dependent variables. In the regression models, also one school performance characteristic - *not taking additional classroom lessons* - was a predictor of IA and ECD levels. Adjusted coefficient of determination for IA was equal to $\Delta R^2 = .20$, and for ECD $\Delta R^2 = .16$. The parameters of the models were $F_{(13,215)} = 5.01$, $p < .001$ and $F_{(13,215)} = 3.98$, $p < .001$, respectively (see Table 3).

The analysis of the predictors of *Time management problems* evidenced an explanatory model composed of five variables that altogether explained 18% of the variance of this dimension. Statistics of the model were $F = 4.64$, $p < .001$. *Loss of interest in school activity* was the variable with the greatest impact on the level of TMP. Also, BDS and BDF were significant predictors of TMP. Lower school performance and the worse quality of classmates' relationships was also connected with this IA indicator (see Table 3).

The variation of the *Lack of control and neglecting of social life* was explained in 11% by two variables demonstrating that the larger the *Lack of control and neglecting of social life*, the less often students attended additional classroom lessons, and the more they are burnt out due to study demands.

Finally, the regression model for *Dishonesty about Internet use* consisted of five significant predictors, namely: higher BDF on school achievements, higher frustration over NRF, lower school performance, worse quality of classmates' relationships and gender, indicating that *Dishonesty about Internet use* was significantly higher for boys. These five variables explained 12% of the total variances. As shown in Table 3 statistics for the model were $F = 3.28$, $p < .001$.

Discussion

This study was conducted in order to explore the relationship between IA and school burnout among late adolescents. The descriptive analysis generally confirmed our hypothesis that females would score higher in student school burnout level. However, basically there were no significant sex differences between girls and boys in the level of problematic use of the Internet (there was only one significant difference in the level of dishonesty about the Internet use). Weiser (2000) came to similar conclusions in his research. He claimed that students did not differ significantly between gender in terms of the activity of using the Internet. The problematic use of the Internet by young people is increasingly frequent - an average global prevalence of IA was estimated at 6% of the population, whereby prevalence of IA among young people in the adolescent period was much higher estimated, even at around 15% in Europe and 27% in Asian countries (Fumero, Marrero, Voltes, & Pénate, 2018). Researchers pay attention to the causes that relate to depression, substance use and aggressive behaviour. However, in the research it turned out that male students present a heavier dependence on the Internet and are less aware of it.

The results of Pearson's correlations analysis confirmed that a higher level of student school burnout is significantly connected with a higher level of problematic use of the Internet. However, the strength of all correlations was weak, and only three sub-dimensions of school burnout were connected with more than one of the IA indicators: burnout from studying, burnout from parents and incompetence in school. Several past studies showed similar results. Walburg, Mialhes, and Moncla's (2016) study showed that there is a link between burnout and the problematic use of Facebook by students. Recently, Liu and Ma (2018) analysed the mechanism underlying the development of social media burnout. In their findings, clinical and psychological characteristics (e.g. envy and social media use anxiety) mediated the association between social media addiction and burnout. What is more, when a meta-analysis of empirical studies on the indices

of IA were performed, the magnitude of the overall size effect of the personal characteristics linked with IA was significantly higher than that of interpersonal characteristics (Koo & Kwan, 2014). Our results suggest that school burnout may have an indirect effect on IA via other psychological characteristics.

The findings revealed three indicators of school burnout: burnout from studying, burnout from parents and loss of interest in school and a school performance characteristic - less additional classroom lessons - that predicted the Internet addiction total score and its subdimension emotional and cognitive dependency. Altogether, these variables explained 19% of variances in the IA. Burnout from parents and from studying emerged as the most common predictors of the indicators of problematic use of the Internet. Loss of interest in school activities was the strongest predictor of IA and time management problems, however also worse school performance and classmates relationships were significant predictors of this subdimension of IA. Less additional classroom lessons was the strongest predictor of lack of control and neglecting of social life. Finally, worse quality of classmates relationships was associated with higher dishonesty about the Internet use.

The presented research raises an extremely important topic. The results confirm a protective role of both family and school close relationships against IA and focus on mitigating the negative effects of school stress and burnout. The fact that the loss of interest in school activities and overload due to parental pressure had the greatest importance for IA is consistent with the theoretical approach. Gackenbach (2007) explained IA by appealing to either intrapersonal or interpersonal-contextual perspectives. The first perspective focuses on the individual's internal characteristics, such as deficits in behaviour control, impulsivity, hostility, irritability and lower self-esteem, while the interpersonal perspective emphasises the key role of social support (Fumero et al., 2018).

In summary, there is a general agreement among researchers that adolescents who are lacking emotional and psychological support are found to be at a higher risk of IA (Ginige, 2017). Research conducted by Tomczyk and Solecki (2019) on a group of adolescents showed that having a hobby or developing passions is a key factor protecting from IA. Tabak and Zawadzka (2017) confirmed significant associations between IA and emotional loneliness, and emotional loneliness was a statistically significant mediator between IA and quality of life. Our findings support this conclusion that low quality of relationship with peers predicted higher IA level. Rębisz, Sikora, and Smoleń-Rębisz (2016) drew attention to the factor connecting both examined variables, the higher the level of Internet addiction, the more often a sense of loneliness appeared in the respondents. On the Internet adolescents are looking for security and belonging to a group. An important factor that plays a significant role in Internet addiction is played by psychological factors, which include loneliness (Cao, Sun, Wan, Hao, & Tao, 2011) or stress perception (Lam, Peng, Mai, & Jing, 2009). Research shows that relationships with parents can affect children's and adolescent's use of the Internet (Floros & Siomos, 2013). Relationships with parents are also an important factor in school burnout.

According to the Job Demands-Resources model, in-role performance refers to obligations and behaviours officially required by the organisation, and extra-role performance are discretionary behaviours and actions that go beyond formal job demands that directly promote the effective functioning of an organisation without the negative impact on the person's professional duties and productivity (Bakker, Demerouti, & Verbeke, 2004). Similar distinction may be made in an educational context. In-role performance would refer to engagement in fulfilling study demands (i.e., learning for exams, doing homework, being active during lessons), and extra-role performance would be connected with school bonding and drawing from school resources (i.e., attending extra school lessons and projects and participating in science or interest groups). Our studies indirectly supported the assumption that IA may be

one of the negative consequences of school burnout. Next to student burnout indicators, also lower school performance characteristics - decreased in school achievements (in-role performance) and less additional classroom lessons (extra-role performance) - were significantly associated with IA. Additionally, Singh and Barmola (2015) found that students in the severe and profound groups of Internet addiction were at high risk of low academic performance and mental health problems. We believe that the relationship between IA and school performance is more of a reciprocal nature. Likewise, the Kim et al. (2017) study, whose suggestion that the effects of Internet use for education impact on academic performance showed conflicting results with previous studies. In their study lower school performance was a significant predictor of IA, but it is dependent on two other factors - a longer time spent on the Internet, and the non-educational purpose of the Internet use. The authors stated that when exploring association between school performance and IA, other characteristics should also be taken into account. Our studies suggest that one of these figures may be higher school burnout indicators.

Several limitations of this study should be noted in order to provide direction for future research. Firstly, these findings could be subject to sampling error because of a relatively small number of participants, that generalisation of the results is somewhat limited until replicated with a larger sample. Secondly, we used a cross-sectional study that also limits the generalisation only to the high school students' population. Thirdly, self-report methods were used for collecting the data. Therefore, in future research other methods should also be used, such as individual interview to confirm the clinical diagnosis of IA. In addition, we did not investigate the gender role in the relationship between IA and school burnout. Furthermore, longitudinal studies are needed in Poland, and special importance should be given to assessing the multiple psychosocial comorbidities associated with IA and school burnout. It is also recommended to investigate whether IA and school burnout are somehow related to adolescents' problematic and risk behaviours, especially online risk behaviours. The research was carried out in one of the best high schools in Cracow. The results would be more reliable if the research was conducted on a group of students from various secondary schools. Finally, as correlational statistics were performed, no definitive statements can be made about causality.

The reviewed research focused on the analysis of relations between variables in the correlation model in transverse studies. However, it is important to conduct further longitudinal studies on the presented problem. In the light of growing indicators of young people's dependence on modern information technologies, it is necessary to check the level of dependence on the Internet, telephone or social media in other age groups (e.g. school-age children or even academic students). Especially so in the light of findings that abuse of games can affect the functioning of the brain in such a way that the risk of depression in the individual is increased in the future (Desai, Krishnan-Sarin, Cavallo, & Potenza, 2010).

Our findings have confirmed that preventative and interventional strategies developed to reduce IA should include activities that also reduce school burnout. What is more, these actions must concentrate not only on the adolescent's group, but also on the school environment (teachers and schoolmates) and the family environment (parents and siblings). Also, the teacher's study model using information technology and the average grade obtained by the student in the classroom seems not to be without significance. The type of activity of using the Internet by students may also give a significant difference.

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