

**Age and severity of Internet addiction
as shown by lower and upper secondary school students**

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Summary

Internet addiction was defined for the first time by Young [1] as a habit and impulse disorder which does not cause physical intoxication, but which deteriorates significantly the functioning of an individual in the social, professional and family sphere.

The aim of the study was to answer the following research problem: do any differences occur, if any, between lower secondary school students and upper secondary school students in terms of Internet addiction symptoms measured by the Internet Addiction test and within which addiction symptoms do these differences occur?

The examined group: The research consisted of 175 lower secondary school students and 356 upper secondary school students (238 boys and 293 girls) aged 13-19 years. 98 boys and 77 girls attended lower secondary school, whereas upper secondary school was attended by 131 boys and 212 girls.

Methods: In the research the Questionnaire by Potembska was used [15] and the Internet Addiction Test designed by Young [2].

Results: Based on the statistical analyses carried out statistically significant differences were found between upper and lower secondary school students as regards the severity of the Internet addiction symptoms.

Conclusions

1. *Lower secondary school students are characterised by a greater severity of the Internet addiction symptoms as compared to upper secondary school students.*
2. *Lower secondary school male students belong to the group that is at risk of Internet addiction.*
3. *The older the examined adolescents, the less severe Internet addiction symptoms they show.*

Key words: Internet addiction, age, adolescents

Internet addiction was defined for the first time by Young [1] as a habit and impulse disorder which does not cause physical intoxication, but deteriorates significantly the functioning of an individual in the social, professional and family sphere. Initially, based on the DSM-IV criteria, the author [1] created 8 diagnostic criteria (Young Diagnostic Questionnaire – YDQ regarding the Internet addiction, which she completed later by adding another 12 questions [2] creating the Internet Addiction test (IAT). The individuals who scored at least 70 points in the Internet Addiction test were defined by Young [2] as Internet addicted, whereas the persons whose score ranged from 40 – 69 points were defined as being at risk of developing the Internet addiction.

The current research [3,4] shows a continuous growth in the number of the individuals at risk of developing the Internet addiction and addicted to the Internet. However, what we lack are precisely defined criteria and definition of this disorder [1,5,6] that is why many researchers demand that the Internet addiction be included in the DSM-V [5,7] as a separate nosological entity.

With the use of the Young Diagnostics Questionnaire (YDQ) Siomos et al. [8] showed that 5,9% of

adolescents – 4,4% of boys and 1,5% of girls were Internet addicted i.e. they fulfil more than 5 criteria in the 8 item YDQ scale. The prevalence of the Internet addiction in various countries – as per current research results encompassing a group of adolescents aged 12-18 – is varied and on average ranges from 0,6% [4] to circa 1-2% [9,10].

The number of youths addicted to the Internet in Norway amounts to 2% [10], in Italy to 5,4% [11] and in Greece 5,8% [8]. The greatest and most rapid increase in the number of adolescents addicted to the Internet is observed in Taiwan and in China: increase from 6% to 11% throughout 4 years' period [12]. The average time the user spends online in Korea amounts to 15,6 hours a week i.e. 2 to 4 times more than the user from the United States, Canada or Japan [13].

Internet addiction and the time spent on the Internet are conditioned significantly by cultural and economic factors typical of a given country. Siomos [8] and Yen et al. [14] stress as well the dependencies between the age and the intensification of Internet addiction. These researchers showed statistically significant differences between two groups of adolescents: teenagers aged 12-15 and 16-18. Among the group aged 12-15 years 3,2% were ad-

dicted to the Internet, whereas in the group aged 16-18 the symptoms of this addiction were shown by 2,6% of adolescents.

The results obtained by Yen et al. [14] were different. These authors [14] demonstrated that older boys (above 15 years of age) are characterised by a greater risk of developing Internet addiction (26,5%) as compared to the boys under 15 years of age (22,5%). No differences were found though regarding the risk of the Internet addiction in the group of younger and older girls (under 15 and over 15 years of age respectively).

No research has been carried out in Poland so far to determine the frequency and severity of the Internet addiction among lower and upper secondary school students.

Based on the subject literature the following research problem was formulated in the study: do any differences occur, if any, between lower secondary school students and upper secondary school students in terms of Internet addiction symptoms measured by the Internet Addiction test and within which addiction symptoms do these differences occur?

The examined group

The research consisted of 175 lower secondary school students and 356 upper secondary school stu-

dents (238 boys and 293 girls) aged 13-19 years. 98 boys and 77 girls attended lower secondary school, whereas upper secondary school was attended by 131 boys and 212 girls. 251 respondents came from urban areas, whereas 280 came from rural areas. 87% students were raised in full families and 11% in single parent families. 75% of mothers and 81% of fathers of the respondents were professionally active. Unemployed were 17% of mothers and 7% of fathers of the students. Circa 46% of parents had secondary level education, 33% of fathers and 22% of mothers of the examined students had vocational education.

Methods

In the research the Questionnaire by Potembka was used [15] and the Internet Addiction Test designed by Young [2].

Results

In order to answer the research problem formulated in the study, using the t Test a comparison was made of the results achieved by the lower secondary school students to the results obtained by the upper secondary school students within the general IAT scale and individual IAT items (Table 1).

Tab. 1. Comparison of mean results obtained by lower and upper secondary school students within IAT individual items and general scale

Scales IAT	lower secondary school		upper secondary school		t Test	
	M	sd	M	sd	t	p
Do you find that you stay online longer than you intended?	3,25	1,23	2,59	1,11	6,14	0,001
Do you neglect household chores to spend more time online?	2,49	1,12	2,22	1,07	2,69	0,01
Do others in your life complain to you about the amount of time you spent online?	2,09	1,22	1,63	0,99	4,33	0,001
Do you become defensive or secretive when anyone asks you what you do online?	2,03	1,10	1,60	0,99	4,55	0,001
Do you block disturbing thoughts about your life with soothing thoughts of the Internet?	1,81	1,15	1,38	0,78	4,52	0,001
Do you find yourself anticipating when you go online again?	2,29	1,25	1,62	1,00	6,16	0,001
Do you fear that life without the Internet would be boring, empty and joyless?	2,34	1,26	1,75	1,05	5,32	0,001
Do you snap, yell, act annoyed if someone bothers you while you are online?	2,05	1,18	1,69	1,01	3,44	0,001
Do you lose sleep due to late night log-ins?	1,96	1,18	1,71	1,03	2,42	0,02
Do you feel preoccupied with the Internet when off-line on fantasise about being online?	1,71	0,98	1,36	0,73	4,27	0,001
Do you find yourself saying "Just a few minutes" when online?	2,71	1,40	2,27	1,25	3,68	0,001
Do you try to cut down the amount of time you spent online and fail?	1,81	1,06	1,48	0,91	3,53	0,001
Do you try to hide how long you've been online?	1,57	0,97	1,35	0,78	2,62	0,01
Do you choose to spend more time online over going out with others?	1,82	1,02	1,41	0,81	4,64	0,001
Do you feel depressed, moody, or nervous when you are offline, which goes away once you are back online?	1,74	1,11	1,42	0,80	3,38	0,001
IAT /general result/	40,50	12,38	34,13	13,34	5,27	0,001

Note: The table includes only those IAT items between which significant statistically differences occurred

The results of statistical analyses contained in Table 1 show significantly greater severity of Internet addiction in lower secondary school students as compared to upper secondary school students. Lower secondary school students much often than upper secondary school students extend the time spent online, they are secretive about the time spent online, they neglect household chores, lose sleep due to the time spent online, escape into the virtual world from negative thoughts about their lives, they think that life without the Internet would be empty and boring, they are annoyed if they cannot use the Internet, they make unsuccessful attempts to reduce the time spent online and prefer to spend time before the computer than with their peers.

In the general IAT scale lower secondary school students scored 40,5 points, which indicates that they fall within the group of the persons who are at risk of developing the Internet addiction, whereas upper secondary school students obtained the score 34,13 points, which indicates the lack of Internet addiction [2].

The next stage of study involved the answer to the question: do any differences occur, if any, between the lower and upper secondary school female students and within which addiction symptoms do these differences occur?

Table 2 shows the results of the t Test obtained between the group of lower and upper secondary school female students within the IAT scales.

Tab.2. Comparison of mean results within the IAT items and IAT general scale obtained by lower and upper secondary school female students

Scales IAT	lower secondary school		upper secondary school		t Test	
	M	sd	M	sd	t	p
Do you find that you stay online longer than you intended?	2,95	1,16	2,48	1,03	3,29	0,001
Do others in your life complain to you about the amount of time you spent online?	1,83	1,09	1,45	0,83	3,20	0,002
Do you become defensive or secretive when anyone asks you what you do online?	1,77	1,02	1,46	0,87	2,52	0,01
Do you block disturbing thoughts about your life with soothing thoughts of the Internet?	1,68	1,07	1,26	0,66	3,21	0,002
Do you find yourself anticipating when you go online again?	2,03	1,12	1,46	0,87	4,04	0,001
Do you fear that life without the Internet would be boring, empty and joyless?	2,13	1,15	1,63	0,96	3,42	0,001
Do you snap, yell, act annoyed if someone bothers you while you are online?	2,14	1,16	1,53	0,89	4,25	0,001
Do you feel preoccupied with the Internet when off-line on fantasise about being online?	1,48	0,79	1,24	0,59	2,45	0,02
Do you try to cut down the amount of time you spend online and fail?	1,74	1,04	1,38	0,82	2,77	0,01
Do you try to hide how long you've been online?	1,49	0,98	1,23	0,61	2,23	0,03
Do you choose to spend more time online over going out with others?	1,95	1,12	1,29	0,66	4,87	0,001
Do you feel depressed, moody, or nervous when you are offline, which goes away once you are back online?	1,64	1,12	1,31	0,70	2,38	0,02
IAT/general result/	37,81	11,91	31,65	11,50	3,99	0,001

Note: The table includes only those IAT items between which significant statistically differences occurred

Both lower and upper secondary school female students achieved average results in the general IAT scale indicating the lack of risk of developing the Internet addiction. It should be stressed that numerous statistically significant differences were found between the general IAT results and individual test items obtained by lower and upper secondary school female students. It was found that compared to upper secondary school female students, lower secondary school female students significantly extend the time spent online, they are preoccupied with the Internet, escape from negative thoughts in their lives into the virtual world, they more often

think that life without the Internet would be empty and boring, they get annoyed if they are bothered while being online, they made unsuccessful attempts to limit the time spent online, they are secretive if asked how much time they spend online, they prefer to spend more time in front of the computer than to meet their peers and more often act annoyed if they cannot use the Internet.

Analogically to the female students, we compared the results obtained in the general IAT scale and within individual IAT items obtained by lower and upper secondary school male students (Tab. 3).

Tab.3. Comparison of average results of IAT items and IAT general scale achieved by boys attending lower and upper secondary school

Scales IAT	lower secondary school		upper secondary school		t Test	
	M	sd	M	sd	t	p
Do you find that you stay online longer than you intended?	3,49	1,25	2,77	1,22	4,37	0,001
Do you form new relationships with fellow online users?	1,58	0,92	1,85	1,04	-2,07	0,04
Do others in your life complain to you about the amount of time you spent online?	2,30	1,28	1,93	1,14	2,27	0,02
Do you become defensive or secretive when anyone ask you what you do online?	2,24	1,12	1,83	1,11	2,77	0,01
Do you block disturbing thoughts about your life with soothing thoughts of the Internet?	1,92	1,20	1,57	0,91	2,41	0,02
Do you find yourself anticipating when you go online again?	2,50	1,31	1,89	1,13	3,75	0,001
Do you fear that life without the Internet would be boring, empty and joyless?	2,51	1,33	1,95	1,16	3,37	0,001
Do you feel preoccupied with the Internet when off-line on fantasise about being online?	1,90	1,07	1,55	0,89	2,62	0,01
Do you find yourself saying "Just a few minutes" when online?	2,92	1,47	2,38	1,23	3,00	0,003
General IAT result	42,62	12,39	38,16	15,09	2,45	0,02

Note: The table includes only those IAT items between which significant statistically differences occurred

Lower secondary school male students obtained significantly higher result in the general IAT scale as compared to upper secondary school male students, which indicates their being at risk of Internet addiction (43 points). Compared to upper secondary school students, lower secondary school students more often extend the time spent online, they belittle their activity online, they drive away negative thoughts about their lives, finding comfort in the Internet, they are afraid that life without the Internet would be empty and boring and are preoccupied with the Internet when off-line. Upper secondary school students significantly more often as compared to the boys attending lower secondary school establish contacts with other Internet users.

Discussion

The findings of the research show statistically significant differences between lower and upper secondary school students as regards the intensification of the Internet addiction symptoms. Lower secondary school students are characterised by a greater severity of the Internet addiction as compared to upper secondary school students.

The results obtained correspond to the results achieved by Siomos et al. [8], but are contradictory to the results obtained by Yen et al. [14]. Siomos et al. [8] found that among the adolescents aged 12-15 more persons showed Internet addiction symptoms (3,2%) than in the group of adolescents aged 16-18. In the older age group 2,6% of persons were addicted to the Internet. Yen et al. [14] formulated different conclusions. They [14] showed that older boys (aged above 15) were characterised by a greater Internet

addiction risk (26,5%) than the boys under 15 years of age (22,5%), but that did not show any significant differences regarding the severity of the Internet addiction between the younger group (under 15 years of age) and older girls (above 15 years of age).

The authors of this work obtained additional, interesting research results. They found that there are more statistically interesting results between lower and upper secondary school female students as regards the Internet addiction symptoms examined by the IAT test designed by Young than between boys from both types of schools. It should be stressed though that the results obtained show that lower secondary school male students belong to the group which is at risk of the Internet addiction.

Both girls and boys attending lower secondary school significantly more often than upper secondary school students extend the time spent online, they belittle their activity online, they escape into the virtual world from negative thoughts about their lives, they are afraid that life without the Internet would be empty and boring and are preoccupied with the Internet while off-line. Only the upper secondary school male students more often, as compared to the lower secondary school male students, establish contacts with other Internet users.

Lower secondary school female students, compared to upper secondary school female students, are secretive about the amount of time spent online, they prefer online contacts to meeting their peers in the real world, they are annoyed when they cannot use the Internet and more often make unsuccessful attempts to limit the time spent online.

The results obtained indicate the need to carry

out further, more detailed research on the correlations between the age and the severity of the Internet addiction symptoms in adolescents.

Based on the results obtained the following conclusions were formulated:

Conclusions

1. Lower secondary school students are characterised by a greater severity of the Internet addiction symptoms as compared to upper secondary school students.
2. Lower secondary school male students belong to the group that is at risk of Internet addiction.
3. The older the examined adolescents are the less severe Internet addiction symptoms they show.

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