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Prevalence of Internet addiction and risk of developing addiction as exemplified by a group of Polish adolescents from urban and rural areas

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Abstract

Objective. The objective of the study was to determine the prevalence of Internet addiction and the risk of developing this addiction in Polish adolescents attending junior high schools and high school in Lublin Province, to indicate the differences regarding the intensity of Internet addiction symptoms, and the types of online activity of adolescents residing in urban and rural areas.

Material and Methods. The examined group comprised 1,860 participants (1,320 girls and 540 boys) with an average age of 17 years. 760 students lived in urban areas and 1,100 lived in rural areas. The following were used in the study: the Socio-demographic Questionnaire designed by the authors, the Internet Addiction Questionnaire designed by Potembska, the Internet Addiction Test by Young and the Internet Addiction Questionnaire (Kwestionariusz do Badania Uzależnienia od Internetu – KBUI) designed by Pawłowska and Potembska.

Results. The adolescents living in urban areas showed a significantly greater intensity of Internet and computer addiction symptoms measured by the KBUI Questionnaire, compared to those living in rural areas.

Conclusions. The Internet addiction criteria were fulfilled by 0.45% of adolescents living in urban areas and 2.9% of those living in rural areas, whereas 35.55% of urban dwelling students and 30.18% of students living in rural areas showed a risk of developing this addiction. More adolescents living in urban areas, compared to those living in rural areas, use Internet pornography, play computer games, disclose their personal data to unknown individuals encountered on the Internet, use Instant Messaging (IM) services, electronic mail and Facebook social networking service. Compared to their peers from urban areas, significantly more adolescents from rural areas use 'Nasza Klasa' (Our Classmates) online social networking service.

Key words

Internet addiction, adolescents

INTRODUCTION

Over the last four years in Poland, a fast increase has been observed in the availability of the Internet, not only analogue, but also wideband Internet. The data collected by the Central Statistical Office (Główny Urząd Statystyczny – GUS) show that 70.5% of Polish households have access to the Internet in 2012 [1]. Access to the Internet varies, depending on the urbanization of the place of residence and the type of household. Compared with families without children, significantly more families having children under 16 years of age (91.5%) have access to the Internet [1]. Over the last 5 years, the highest increase in Internet access has been observed in households with children (by 30.1%). Regarding the place of residence, the greatest increase in the percentage of households connectable to the Internet was in rural areas (by 30%), where the access is still the lowest (66%), compared to towns (69.5%) and cities (75.8%) [1]. However, the studies commissioned by the President of the Electronic Communications Office conducted in Poland in 2012, comprising 1,624 adolescents aged 15–24 years, indicate that Internet access is provided to 82% of people living in rural areas, 73% living in towns and 86–88% from medium-sized and large cities [2]. Moreover, the fast development of technology enables the users to be connectable to the network not only via computers, but also using smartphones. In 2012, access to the analogue Internet was available to 66% of adolescents and to the mobile Internet to 22% [2]. Access to the mobile Internet was provided to 23% living in rural areas, 18% living in towns, 25% living in cities with a population of up to 200,000, and 21% in cities with more than 50,000 residents [2].

The Internet is currently an element present on a permanent basis in the lives of young people, it is one of the most common sources of information and entertainment, as well as social interaction. Apart from the advantages mentioned

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above, Internet use by young people may have the features of excessive, maladaptive or addictive Internet usage.

According to Young [3], Internet addiction is a disorder of habits control which does not cause intoxication, but which in a significant and visible deterioration in the functioning of the individual in all spheres of life. Young [3], while referring to the diagnostic criteria of pathological gambling presented in DSM IV, suggested 8 criteria of Internet addiction. Internet addiction can be diagnosed if during the last 12 months at least 5 out of 8 of the symptoms described below occurred [3]:

1) strong necessity to stay online, expressed by continuous preoccupation with being online;
2) need to increase the frequency and time of staying online in order to achieve satisfaction from the above activity;
3) unsuccessful attempts to stop or limit the time of staying online;
4) existence of withdrawal symptoms during attempts to stop or reduce online activity such as anxiety, depressions, nervousness, intensive thinking about the Internet;
5) staying online longer than originally intended;
6) work and education-related problems, conflicts in family interactions and with friends as a result of staying online;
7) telling lies to family and friends in order to hide the amount of time spent online;
8) focusing on the Internet in order to escape from problems or to improve psychological well-being (sense of helplessness, depression, anxiety).

According to some researchers [4], Internet addiction is not uniform and several subtypes can be differentiated. Young [4] divides Internet addiction into 5 types, such as: cybersexual addiction, addiction to Internet social interactions, obsessive Internet use, computer addiction and information overload, i.e. compulsion to get input information. Block [5] is of the opinion that Internet addiction can be divided into 3 types: playing computer games, preoccupation with Internet pornography, excessive sending of emails, and use of instant messaging (IM) services.

Potembska [6] demonstrated that the adolescents addicted to the Internet, as well as those at risk of such an addiction, have been seeking acceptance and understanding in the Internet, they are convinced that it is only on the Internet that they can show their true feelings, opinions, use more frequently instant messaging services, visit web pages, download music files, films from the Internet, browse web pages, play violent computer games, visit Internet pornography websites, have online sex chats, and download films and pornographic pictures.

Fast technological developments, as well as increasingly easier access to the Internet, is one of the factors affecting the number of individuals addicted to the Internet.

Attempts to assess the number of adolescents addicted to the Internet made so far have demonstrated that the criteria for this addiction, as defined by Kimberly Young, are fulfilled by the following percentages of individuals: 5.4% in Italy [7], 8.1% in the United States [8]. and 11% in China [9]. As regards Poland, the percentage of individuals addicted to the Internet in 2006 amounted to 1% [10], whereas in 2011 it rose to 3.5% [11]. According to Thomas and Martin [12], 2.2% of adolescents are addicted to online games. Currently, the Internet is the main medium used by adolescents to brose pornography [13]. This phenomenon stems from easy accessibility, affordability and anonymity of the Internet [14]. Braun-Courville and Rojas [15] found that about 55% of adolescents visit Internet sex sites. Tsitsika et al. [16] stress that about 20% of teenagers browse web pornography sites and about half of this group have been visiting such sites on a regular basis.

Sung et al. [17] inform that there are no differences between the number of adolescents at risk of Internet addiction living in rural areas, in towns and large cities. In the group that is at risk of Internet addiction, 52.7% of respondents live in cities, 40.8% in towns and only 6.5% in rural areas, whereas in the group that is not at risk of this addiction, 5.3% of respondents live in rural areas, 54.1% in cities and 40.5% in towns [17]. Similar results were obtained by Ozgun-Ozturk et al. [18], who did not find any significant differences between the number of adolescents addicted to the Internet living in urban and rural areas.

Cao et al. [19], after administration of the Internet Addiction Test (IAT) [20] to adolescents aged 10–24 years, demonstrated that individuals living in urban areas significantly more often showed problematic Internet use, compared to the inhabitants of rural areas. Similarly, Stavropoulos et al. [21] are of the opinion that Greek youth (average age of the respondents – 16 years) living in urban areas are characterized by a greater risk of developing Internet addiction, compared to their peers living in rural areas.

The results of research carried out by Potembska [6] among Polish adolescents attending junior high schools and high schools show a lack of statistically significant differences between the number of adolescents addicted to the Internet, and at risk of developing Internet addiction living in urban and rural areas.

The objective of the presented study was to answer the following research problems:

1. What is the prevalence rate of addiction symptoms and risk of Internet addiction among Polish adolescents attending junior high schools and high schools living in urban and rural areas, as measured by the IAT by Young and the KBUI developed by Pawłowska and Potembska?
2. Do any differences occur regarding Internet addiction between adolescents living in urban and rural areas, and what symptoms do they concern?
3. Do the adolescents living in urban areas differ from their peers living in rural areas, and what scope of activity shown on the Internet (use of Internet pornography, playing computer games, use of social networking websites, instant messaging, film and music downloading) do these differences concern?

Analysing the differences regarding the online activity of teenagers living in rural and urban areas the gender division of the examined was also taken into account.

MATERIALS AND METHOD

Prior to conducting the research, consent was obtained from the Bioethics Committee at the Medical University in Lublin, Poland (No. KE-0254/94/2012). The research was conducted in 2012 and involved students attending junior high schools and high schools located in the city of Lublin, after obtaining the approval from their principals. The students completed questionnaires voluntarily and were informed about the anonymity of the results, as well as their scientific character. The questionnaires were completed by a total of 2,340

students. After rejecting incomplete questionnaires, the examined group comprised 1,860 respondents (1,320 girls and 540 boys) with an average age of 17 years (the youngest respondent was 13 and the oldest 19). Of the examined group, 108 respondents attended junior high schools and 1,786 – high schools. 760 students lived in Lublin, whereas 1,100 students resided in rural areas in the Lublin region. It should be noted that the girls completed the questionnaires more willingly than the boys; moreover, they more often provided fully completed questionnaires.

Research methods used in the study. A socio-demographic questionnaire based on the following variables determined: gender, age, place of residence, education level, parents' education, and family structure of the respondents.

The Internet Addiction Questionnaire designed by Potembska, determined the fiollowing: which web pages are used by the respondents, whether they established contacts with unknown people via the Internet, whether they browsed Internet pornography and how often, whether the respondents play online games and what are these games, as well as what kind of personal details do they make available to other Internet users [22].

The Internet Addiction Test (IAT) consists of 20 items designed by Young [20], based on the pathological gambling criteria as presented in DSM-IV. The minimum score that can be obtained is 20, whereas the maximum is 100 points. The individuals falling within the range of 20–39 points are considered as not being at risk of Internet addiction, the respondents who are at risk of developing Internet addiction obtained 40–69 points, the score from 70–100 points denotes Internet addiction [20].

The IAT is a recognised method used worldwide, translated into many languages to examine Internet addiction. However, it does not contain questions regarding web pornography, playing online games, or the use of social networking websites. In order to determine these types of activity shown by the examined adolescents, the Internet Addiction Questionnaire (Kwestionariusz do Badania Uzależnienia od Internetu – KBUI) designed by Pawłowska and Potembska [22] was used. The correlation coefficient was very high (r = 0.76) The process of designing, standardization of the KBUI and its psychometric properties, have been described by Pawłowska and Potembska [22]. The KBUI [22] consists of 50 questions and includes the following dimensions of Internet addiction: seeking acceptance and understanding in interactions only via the Internet; playing aggressive online games; using instant messaging services, web pages, downloading music, films from websites, browsing web pages; visiting online pornography websites, conduction sexual conversations online and downloading films and pornographic pictures from websites [22]. The minimum score is 0, whereas the maximum score amounts to 200 points. The respondents who obtained 0–49 points in the general KBUI scale are considered as not being at risk of Internet addiction, the respondents who are at risk of Internet addiction obtained 50–109 points, the result 110–200 points denotes Internet addiction [11]. The reliability coefficients for individual KBUI scales are as follows: for Acceptance scale – Cronbach's α (alpha) = 0.92; for Games scale – Cronbach's α (alpha) = 0.92; for Utility function scale – Cronbach's α (alpha) = 0.84; for Internet Addiction scale – Cronbach's α (alpha) = 0.90, and for the general KBUI scale – Cronbach's α (alpha) = 0.93 [22].

The results of research obtained, based on the KBUI, have been published in Polish periodicals and at conferences held in Poland and abroad.

RESULTS

During the first stage of analysis, the groups meeting addiction criteria and at risk of developing Internet addiction were identified from among the students, based on the Young IAT (Tab. 1). In the entire examined group, 1.83% of respondents met the Internet addiction criteria, whereas 32.22% of students were at risk of developing this addiction.

Table 1. Number of junior high school and high school students addicted to the Internet or at risk of addiction to the Internet, identified based on IAT results

Respondents	Entire group		Girls		Boys	
	Urban areas	Rural areas	Urban areas	Rural areas	Urban areas	Rural areas
Addicted	0.45%	2.09%	1.68%	2.30%	0.54%	1.22%
At risk of addiction	35.44%	30.18%	35.57%	30.14%	34.86%	31.71%

In the group of adolescents addicted to the Internet, according to the criteria presented by Young [3], more individuals (both boys as well as girls) live in rural areas then in cities. On the contrary, in the group of respondents meeting the Internet addiction criteria according to Young, more people (both girls and boys) live in urban areas. These differences are not significant statistically.

Afterwards, using the t-Student test, the results obtained by the adolescents living in rural areas, as well as in urban areas, were compared within the IAT general scale (Tab. 2), as well as individual symptoms of Internet addiction (Tab. 3). The analyses reflect the gender of the respondents.

Table 2. Comparison of mean results obtained in the general IAT scale by adolescents living in urban and rural areas

IAT overall result	Urban areas		Rural areas		t	p
	M	SD	M	SD		
IAT total score – entire group	36.80	12.01	35.94	13.04	1.47	ns
IAT total score – girls	37.08	12.17	36.03	12.99	1.47	ns
IAT total score – boys	35.66	11.51	36.20	12.81	-0.44	ns

Adolescents living in urban areas (both boys and girls) did not differ from their peers living in rural areas as regarding the intensity of Internet addiction symptoms measured by the general scale of IAT by Young.

Table 3 contains a comparison of answers to individual IAT questions provided by the adolescents living in urban and rural areas.

The results obtained by the respondents regarding the IAT Young questions indicate that the adolescents from urban areas, compared to their peers from rural areas, significantly more often extended the time of staying online, neglected household chores and lost sleep due to late night log-ins. The obtained results show that girls living in urban areas, compared to their peers living in rural areas, significantly more often extended the time of staying online, neglected household chores and lost sleep due to late night log-ins. The

Table 3. Comparison of mean results obtained for IAT items by adolescents living in urban and rural areas

IAT questions	Urban areas		Rural areas		t	p
	M	SD	M	SD		
Entire group						
How often do you find that you stay online longer than you intended?	2.84	1.15	2.56	1.18	4.97	0.001
How often do you neglect household chores to spend more time online?	2.37	1.06	2.21	1.06	3.29	0.001
How often do you lose sleep due to late night log-ins?	1.77	1.03	1.67	0.96	2.25	0.02
How often do you find yourself saying 'Just a few more minutes' when online?	2.51	1.27	2.26	1.22	4.39	0.001
Girls						
How often do you find that you stay online longer than you intended?	2.91	1.13	2.62	1.18	4.44	0.001
How often do you neglect household chores to spend more time online?	2.41	1.07	2.23	1.06	2.94	0.003
How often do you check your E-mail before something else that you need to do?	2.44	1.21	2.27	1.15	2.62	0.01
How often do you lose sleep due to late night log-ins?	1.77	1.03	1.65	0.96	2.12	0.04
How often do you find yourself saying 'Just a few more minutes' when online?	2.60	1.29	2.32	1.23	3.89	0.001
Boys						
How often do you choose to spend more time online instead of going out with others?	1.43	0.76	1.61	0.89	-2.12	0.04

The Table contains only these IAT items where the compared groups showed significant statistical difference of at least 0.05

boys living in rural areas, compared to their peers living in urban areas, declared that they preferred to spend more time online than other forms of entertainment.

Analysis of online activity types of the respondents was performed using the t-Student test to compare the results obtained by the adolescents living in urban and rural areas within individual KBUI scales and individual KBUI items (Tab. 4).

The findings showed statistically significant differences between adolescents living in urban and rural areas regarding the intensity of Internet and computer addiction. Adolescents living in urban areas showed significantly more intensified symptoms of Internet addiction, compared to adolescents living in rural areas. Adolescents living in urban areas, compared to their peers living in rural areas, significantly more often played violent computer games, used electronic mail instant messaging services, downloaded films from the Internet, spent increasingly more time online, reacted with anger when they could not use the Internet, spent time with friends playing computer games as well as using computer for study and work purposes (Tab. 4). The adolescents living in rural areas, compared to their peers living in urban areas, significantly more often used online social networking services. such as 'Nasza Klasa' (Our Classmates), stated that the Internet is a way to cope with difficulties, sense of

Table 4. Comparison of mean results obtained in KBUI scales and obtained for KBUI items by adolescents living in urban and rural areas

KBUI scales	Urban areas		Rural areas		t	p
	M	SD	M	SD		
Acceptance	0.48	0.59	0.50	0.55	-0.61	ns
Games	0.54	0.83	0.51	0.78	0.82	ns
Computer addiction	2.22	0.70	2.07	0.73	4.47	0.001
Internet addiction	0.68	0.62	0.62	0.61	2.26	0.02
Pornography	0.22	0.44	0.23	0.48	-0.54	ns
KBUI overall result	38.23	21.90	36.23	21.86	1.96	0.05
KBUI items						
I visit 'Nasza Klasa' (Classmates) online social networking service	0.85	0.95	1.22	1.06	-8.00	0.001
I like computer games in which I kill enemies	0.93	1.34	0.79	1.25	2.39	0.02
I stay online more often and longer than I intended	1.85	1.22	1.64	1.23	3.67	0.001
Using web pornography enables me to change a partner whenever I feel like it	0.10	0.43	0.16	0.63	-2.81	0.005
Internet allows me not to feel helpless in difficult situations	0.38	0.75	0.47	0.82	-2.56	0.01
I am irritated when I cannot use the Internet	1.04	1.14	0.88	1.07	3.09	0.002
I react with anger if I am not allowed to use the Internet	0.78	1.04	0.67	0.97	2.42	0.02
I send and receive e-mails	2.20	1.23	1.95	1.22	4.37	0.001
I use instant messaging services (Gadu-Gadu, Skype, Tlen)	2.71	1.28	2.47	1.36	3.92	0.001
I download films to my computer	1.55	1.33	1.38	1.25	2.94	0.003
I use the Internet for work and study purposes	2.74	0.97	2.57	1.08	3.47	0.001
I browse web pages	2.97	1.21	2.71	1.28	4.53	0.001
I use a computer which has instant messaging services	2.14	1.58	1.77	1.56	5.07	0.001
When my friends visit me, we play computer games or stay online	1.11	1.14	0.88	1.05	4.47	0.001

The Table contains only these KBUI items where the compared groups showed significant statistical difference of at least 0.05

helplessness, and claimed that web pornography enabled them to change a partner without any consequences.

Table 5 contains a comparison of results obtained by the girls in the scales, and presents the results obtained in KBUI items.

Girls living in cities were characterised by a significantly greater intensity of Internet and computer addiction symptoms, compared to girls ling in rural areas. Girls living in urban areas, compared to their peers living in rural areas, stayed online longer than intended, used instant messaging services, electronic mail, engaged in sexual conversation online, played online games with elements of violence, browsed web pages, reacted with anger when they could use the Internet, neglected school and work to spend more time online, and used the Internet more often for study and work purposes (Tab. 5). Girls from rural areas, compared to their peers living in urban areas, used online social networking, e.g. 'Nasza Klasa' (Our Classmates).

Table 6 contains a comparison of the results obtained by the boys in individual scales, and KBUI items.

Table 5. Comparison of average results obtained in KBUI scales and obtained for KBUI items by girls living in urban and rural areas

KBUI scales	Urban areas		Rural areas		t	p
	M	SD	M	SD		
Acceptance	0.48	0.59	0.47	0.52	0.05	ns
Games	0.33	0.66	0.27	0.53	1.79	ns
Computer addiction	2.24	0.67	2.11	0.71	3.24	0.001
Internet addiction	0.68	0.61	0.59	0.59	2.85	0.004
Pornography	0.14	0.33	0.13	0.34	0.28	ns
KBUI overall result	35.55	19.58	32.79	18.64	2.63	0.009
KBUI items						
I visit 'Nasza Klasa' (Classmates) online social networking service	0.92	0.94	1.26	1.03	-6.41	0.001
I like computer games in which I kill enemies	0.56	1.09	0.42	0.93	2.38	0.02
I stay online more often and longer than I intended	1.92	1.22	1.68	1.26	3.40	0.001
I react with anger if I am not allowed to use the Internet	0.80	1.04	0.64	0.94	2.79	0.005
I send and receive emails	2.23	1.21	2.02	1.18	3.26	0.001
I use instant messaging services (Gadu-Gadu, Skype, Tlen)	2.77	1.27	2.53	1.32	3.34	0.001
I engage in sexual conversations online	0.36	0.82	0.26	0.69	2.23	0.03
I play violent online games	0.33	0.80	0.22	0.64	2.55	0.01
I use the Internet for work and study purposes	2.81	0.91	2.68	1.02	2.40	0.02
I neglect study and chores due to staying online	0.74	0.95	0.61	0.90	2.53	0.01
I browse web pages	2.97	1.19	2.75	1.23	3.27	0.001
I use a computer which has instant messaging services	2.17	1.59	1.81	1.57	4.19	0.001
When my friends visit me. we play computer games or stay online	1.05	1.14	0.79	1.01	4.32	0.001

The Table contains only these KBUI items where the compared groups showed significant statistical difference of at least 0.05

Table 6. Comparison of average results obtained in KBUI scales and obtained for KBUI items by boys living in urban and rural areas

KBUI scales	Urban areas		Rural araes		t	p
	M	SD	M	SD		
Acceptance	0.49	0.58	0.56	0.59	-1.26	ns
Games	1.17	0.99	1.23	0.93	-0.59	ns
Computer addiction	2.17	0.75	1.93	0.76	3.30	0.001
Internet addiction	0.67	0.65	0.69	0.61	-0.36	ns
Pornography	0.46	0.61	0.51	0.63	-0.91	ns
KBUI overall result	46.57	26.21	46.69	24.80	-0.05	ns
KBUI items						
I visit 'Nasza Klasa' (Classmates) online social networking service	0.71	0.99	1.06	1.11	-3.44	0.001
Using web pornography enables me to change a partner when I feel like it	0.25	0.66	0.41	0.91	-2.13	0.03
It is only on the Internet that I can talk about the matters important to me	0.42	0.71	0.61	0.88	-2.48	0.01
When I study or meet my friends I am preoccupied with the thought 'when I can spend time online again?'	0.30	0.67	0.47	0.85	-2.31	0.02
Staying online I do not feel helpless	0.40	.75	0.56	0.88	-2.09	0.04
I send and receive e-mails	2.13	1.24	1.69	1.27	3.59	0.001
I download films to my computer	1.88	1.33	1.56	1.29	2.51	0.01
I use the Internet for work and study purposes	2.53	1.06	2.21	1.15	3.01	0.003
I browse web pages	2.98	1.26	2.65	1.35	2.59	0.01
I down load music files to my computer	2.53	1.38	2.26	1.36	2.02	0.04
I use a computer which has instant messaging services	2.05	1.55	1.68	1.51	2.54	0.01

The Table contains only these KBUI items where the compared groups showed significant statistical difference of at least 0.05

Boys living in urban areas achieved significantly higher results, compared to their peers residing in rural areas, on the scale Computer Addiction. The results presented in Table 6 indicate that the boys residing in the city, compared to their peers living in rural areas, significantly more often used electronic mail, Internet messaging services, browsed web pages, downloaded films and music files, and used the Internet for work and study purposes. Boys living in rural areas, compared to their peers living in urban areas, used 'Nasza Klasa' social networking service significantly more often, they thought that was only on the Internet that they could talk about matters important to them, they could avoid feeling helpless, and were of the opinion that web pornography enabled them to change a partner at any time.

The last stage of the study contains an analysis of the online activity carried out by adolescents on the basis of the answers provided by the respondents in the Questionnaire designed by Potembska. The results obtained based on the Questionnaire in the entire examined group shows that 55.61% of the respondents play violent online games, 12.24% of them used pornography websites, 11.69% of the individuals engaged in sexual conversations online, 6.73% of the examined students received pornographic pictures, 19.22% of the examined students encountered aggression from unknown interlocutors, 95.1% of the respondents use the YouTube video sharing service, 47.67% use Wrzuta video sharing service, 6.87% use the Fotka website, Wikipedia was used by 86.71% of the respondents, 'Nasza Klasa' online social networking service by 69.10% of the respondents, whereas Facebook was used by 78.75% of the respondents. It should be stressed that in total 39.80% of the adolescents admitted using pornography websites, engaging in sexual conversations online, and watching pornographic films and pictures.

During interactions online with an unknown interlocutor, 17.44% of the respondents sent personal data, 22.39% – their picture, 25.44% – their phone number, 32.18% – their email address, 5.40% – their address; 19.78% of the respondents agreed to have a 'face-to-face' meeting, whereas 30.55% were asked to provide their personal details.

Table 7 present the data obtained on the basis of the Questionnaire by Potembska, showing the division of the respondents into gender and place of residence.

The results presented in Table 7 show that significantly more adolescents living in urban areas, as compared to

Table 7. Online activity of adolescents living in urban and rural areas

Data from the Questionnaire	Urban areas		Rural areas		χ^2	p
	N	%	N	%		
Entire group						
Use of YouTube video sharing service	741	96.48	1041	94.12	5.41	0.02
Use of Wrzuta video sharing service	243	38.57	503	53.80	35.91	0.001
Use of Fotka online social networking service	25	4.27	72	8.71	10.52	0.001
Having a profile on 'Nasza Klasa' online social networking service	495	63.46	831	72.96	20.68	0.001
Having a profile on Facebook online social networking service	269	82.77	372	76.07	5.23	0.02
Playing computer games	247	32.29	304	27.36	6.56	0.04
Use of web pornography, conducting sexual conversations online, looking at pornographic films and pictures	331	42.54	432	37.93	4.11	0.04
Sending one's picture to an unknown individual encountered on the Internet	190	24.84	228	20.69	4.47	0.03
Providing one's e-mail address to an unknown individual encountered on the Internet	296	38.39	307	27.83	24.80	0.001
Receiving pornographic pictures from unknown interlocutors	63	8.24	63	5.70	4.64	0.03
Encountering aggression from an individual encountered on the Internet	169	22.12	190	17.21	7.01	0.01
Face-to face meeting with an unknown interlocutor encountered online	180	23.59	190	17.15	11.82	0.001
Girls						
Use of YouTube video sharing service	516	95.91	725	92.95	5.08	0.02
Use of Wrzuta video sharing service	188	41.59	376	56.04	23.46	0.001
Use of Fotka online social networking service	19	4.49	54	9.02	7.65	0.01
Having a profile on 'Nasza Klasa' online social networking service	374	68.37	617	76.36	10.59	0.001
Having a profile on Facebook online social networking service	187	85.39	241	78.76	3.7	0.05
Playing computer games	121	22.45	131	16.58	7.80	0.02
Sending one's picture to an unknown individual encountered on the Internet	138	25.70	156	19.87	6.26	0.01
Sending one's e-mail to an unknown individual encountered on the Internet	204	37.64	199	25.25	25.00	0.001
Receiving pornographic pictures from unknown interlocutors	44	8.13	40	5.08	5.35	0.02
Encountering aggression from an individual encountered on the Internet	111	20.56	116	14.78	7.52	0.01
Face-to-face meeting with an unknown interlocutor encountered online	115	21.34	115	14.59	10.15	0.001
Boys						
Use of Wrzuta online service	37	26.06	98	47.57	16.39	0.001
Having a profile on 'Nasza Klasa' online social networking service	91	49.46	159	61.87	7.52	0.02

The Table contains only these Questionnaire questions where the compared groups showed significant statistical difference of at least 0.05

those living in rural areas, use the YouTube video sharing service, Facebook online social networking service, play online games and have sent their email address, picture to unknown interlocutors encountered on the internet, have received pornographic pictures, encountered aggression from interlocutors met online, and have been asked for providing their personal details. Significantly more adolescents living in urban areas, compared to those living in rural areas, admitted having encountered 'face-to-face' an unknown individual met on the Internet, and using web pornography, watching pornographic films and pictures. Significantly more adolescents living in rural areas, compared to those living in urban areas, stated using the Wrzuta online service, Fotka online social networking service, as well as 'Nasza Klasa' online social networking service.

The research findings show that significantly more girls living in urban areas, compared to those living in rural areas, use the YouTube online service, Facebook online social networking service, play online games, admit having sent their pictures and e-mail address to an unknown individual encountered online, as well as having encountered aggression from such a person. Significantly more girls living in urban areas met face-to face an unknown interlocutor encountered online, and had received pornographic pictures from an unknown person.

Significantly more girls living in rural areas, compared to those living in rural areas, use Wrzuta and Fotka online services, as well as 'Nasza Klasa' online social networking service. The results obtained during the research indicate that significantly more boys living in rural areas, compared to those living in urban areas, use the Wrzuta online service and 'Nasza Klasa' online social networking service.

DISCUSSION

The results of the research show that in the examined group of adolescents aged 13–19 years living in Lublin Province, the prevalence of Internet addiction was 1.83%, whereas the risk of this addiction was 32.22%. However, the obtained results should be treated with caution due to the fact that some students did not fill-in the questionnaires, and some of them filled-in the questionnaires incompletely.

The Internet addiction criteria were met by 0.45% of adolescents living in urban areas and 2.9% living in rural areas. 35.55% of students living in urban areas and 30.18%

living in rural areas were at risk of developing this addiction. The Internet addiction criteria were met by more girls and boys living in rural areas, compared to those living in urban areas, whereas the criteria for developing Internet addiction were met by more adolescents living in urban areas. The differences between the number of adolescents living in urban and rural areas who fulfilled the criteria for Internet addiction and the criteria for the risk of developing this addiction, were not statistically significant. The results obtained correspond to the results of research conducted in 2011 by Potembska [6] involving a group of Polish adolescents, as well to the conclusions formulated by Sung et al. [17] and Ozgun-Ozturk et al. [18], who consider that the prevalence of Internet addiction and the risk of developing this addiction among young people living in urban and rural areas are similar.

The results obtained during the research show that as regards the intensity of Internet addiction measured using the IAT Young scale, no statistically significant differences were found between the adolescents living in urban and rural areas. Significant differences between the compared groups were found by analyzing the IAT answers provided by the respondents. The adolescents living in urban areas, compared to their peers living in rural areas, significantly more often neglected household chores and lost sleep due to late night log-ins. Boys living in rural areas, compared to those living in urban areas, significantly more often claimed that they preferred to spend more time staying online to other forms of entertainment.

Lack of significant differences in the IAT general scale and the occurrence of significant differences between the compared groups in the KBUI general scale and subscales can be explained by the fact that the KBUI Questionnaire examined more dimensions of Internet and computer addiction, compared to the IAT. The KBUI results, regarding the entire group of adolescents, as well as girls, indicate that the adolescents living in urban areas, compared to those living in rural areas, are characterised by a significantly higher intensity of Internet and computer addiction measures by the KBUI, the only difference being that between boys living in rural areas there were more intensified computer addiction symptoms. These results correspond to the opinion expressed by Cao et al. [19] who, based on a study involving a group of adolescents aged 10–24, indicated that people living in urban areas significantly more often showed problematic Internet use characteristics, compared to those living in rural areas.

The results obtained in individual KBUI items and the answers provided by the respondents to the questions contained in the Questionnaire designed by Potembska, provided interesting and detailed data regarding the types of online activity shown by the studied groups of adolescents.

At the same time, the data shows the prevalence of use among the respondents of web pornography, websites, online social networking services, playing online games full of violence, and disclosing their personal details and pictures to unknown interlocutors encountered online, as well as putting themselves at risk of aggression and demoralization. The test results showed that 55.61% of students play violent games, about 40% of adolescents admit using web pornography sites, conducting sexual conversations online, watching pornographic films and pictures, about 20% of respondents provided personal details to unknown interlocutors, about 20% of respondents met-face-to face an unknown individual encountered online, 95% of the students use the YouTube online service, and 70% of the respondents use online social networking services.

The above data correspond to the results obtained by the researchers who indicate that about 20% to 55% of adolescents use web pornography sites [15, 16], 26% to 74% of the respondents play online games, about 90% of adolescents use electronic mail, 46% of respondents use chat rooms and about 95% of students use the Internet to help them with homework [20]. The results obtained during the research regarding the number of individuals playing online games correspond to the data achieved in 1996 by Boroń and Zyss [23], who mention 56% of adolescents playing online games, as well as data by Bobrowski [24], who claims that 64% of junior high school and high school students play online games every day. Based on the research involving adolescents aged 12–17, Wojtasik [25] found that about 75% of respondents were offered online a face-to-face encounter, 25% met such a person encountered on the Internet, 61% of girls and 35% of boys reported being encouraged online to conduct sexual conversations, 14% of respondents received pornographic pictures, 32% encountered aggression from other Internet users, and 66% were asked to send a picture [25]. The author stresses [25] that 87% of adolescents made their e-mail available to the person encountered online, 64% – their phone number, 42% – their private address, and 44% of individuals sent their photograph to an unknown person.

At the same time, it should be stressed that in the subject literature there is a lack of data about the prevalence of individual types of online activity among the adolescents living in rural and urban areas.

Based on the conducted research, it was found that girls living in the urban areas, compared to girls living rural areas, significantly more often extended the time of Internet use, used instant messaging services, electronic mail, became involved in sexual conversations online, played online games with elements of violence, browsed web pages, and became annoyed if they could not use the Internet, neglected school and work to spend more time online. Significantly more girls living in urban areas, compared to those living in rural areas, used the YouTube online service, Facebook online social networking service, played online games, admitted having sent their photograph and e-mail address to an unknown person encountered online, as well a having encountered aggression from an individual encountered online, having had a face-to-face meeting with such a person, and having received pornographic pictures from an unknown person. Significantly more girls living in rural areas, compared to those living in urban areas, used Wrzuta and Fotka online services, as well as 'Nasza Klasa' online social networking service.

Compared to their peers living in rural areas, boys living in urban areas significantly more often used electronic mail, instant messaging services, browsed web pages, downloaded films and music files, and used the Internet for work and study purposes. Boys living in rural areas, compared to their peers living in urban areas, used 'Nasza Klasa' online social networking service, thought that that it was only on the Internet that they could talk about the things important to them, and not feel helpless. They were convinced that web pornography enabled them to change a partner. Significantly more boys living in rural areas, compared to those living

urban areas, used Wrzuta online service and 'Nasza Klasa' online social networking service.

To sum up, it should be stressed that the online activity of adolescents is affected, among others, by the place of residence, availability of new technologies related to it, access to various alternative forms of entertainment, as well as the gender of the respondents.

CONCLUSIONS

The criteria for Internet addiction were met by 0.45% of adolescents living in urban areas and 2.9% of those living in rural areas, whereas 35.55% of junior high school and high school students living in urban areas and 30.18% of their peers living in rural areas are at risk of developing this addiction.

Compared to their peers living in rural areas, more adolescents living in urban areas use web pornography, play online games, disclose their personal details to unknown interlocutors encountered online, use instant messaging services and electronic mail, as well as Facebook online social networking service.

Significantly more adolescents living in rural areas, compared to those living in urban areas, use 'Nasza Klasa' online social networking service.

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