

Original Article

## Assessment of the Effect of Online Addiction in Cyprus

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### Abstract

**Introduction:** The internet is a major technological breakthrough, with an estimated 1.7 billion users worldwide. Through Internet, users can find information, communicate easy and fast, take part in education programs. On the other hand, reckless and irresponsible use may cause serious problems such as theft of personal information, pornography and internet addiction. This new form of dependency causes great concern to the scientific community not only because of tendency to rise, but also because of its interference in the user's daily functioning. The main objective of this research was the investigation and the extent of this phenomenon in the high school students of Cyprus. The investigation of possible differentiation in internet addiction, between students from urban and rural areas was also subject to investigation.

**Method:** This is a quantitative survey, which involved 303 high school students of the third grade, nationwide. The sampling was proportional stratified, random sampling. The data was collected using a questionnaire which consisted of three parts: The first part dealt with demographic characteristics and the second part had to do with internet use, in order to outline the respondents' profiling. The third part includes the Teen Addiction Scale to Computers and the Kimberly Young's eight diagnostic criteria.

**Results:** Ninety nine percent of the respondents in this study declare that they are Internet users, while 97.4% have access to it, both from home and from their mobile phone. A differentiation was observed in the hours of daily use, between the two study groups: Students from Rural areas spent 1-2 hours daily, compared to students from urban areas that spent 2-5 hours daily. Both groups of students said they remain online longer than they had originally intended. The percentage of addiction was 9.6 % of the studied population.

**Conclusions:** Our findings indicate the need for qualified health professionals and the creation of interdisciplinary teams, for addiction prevention as well as for rational and prudent use of the internet.

### Key words:

### Background

The internet as a concept was born during the Cold War, in the beginning of 1969 with the name ARPANET (Advanced Research Projects

Agency) of the US Department of Defense and was used exclusively for military purposes (Gibbs and Smith 1995; Zeri 2006).The format of the Internet as we know it today was created in the late 1970s, when its use was expanded and

was released in universities and research institutes.

Two of the main objectives of the internet are communication and finding information. The Internet not only excels in this ability but also has surpassed all expectations (Hoffman 1994, Kourtis 2003, Friedman & Seal, 2011). Also the entertainment it offers is a stimulus because many users prefer to simply surf on the Net, while many games can be obtained or be played in the internet at no cost (Graham 1999).

Despite of the benefits mentioned above, Internet users can be confronted with serious risks, such as theft of data and personal information (Siomos 2008). Abuse of pornography is also considered a threat of the mental health of children and adolescents and is becoming a serious issue regarding internet use. There are thousands of pornographic sites on the Internet, easily accessible, which may be a negative factor when children use the Internet without control (Griffiths 2001).

One of the most serious risks involving the use of the Internet is the addiction to it. Generally the term "addiction" means a subject's attraction towards a satisfactory feeling. (Kaliofouti 2013). Addiction is a disease when is followed by biological, psychological or social dysfunction of the addicted person.

Internet addiction is a relatively new form of dependency and is defined as "Occupying one's time with the internet in order to absorb a sense of satisfaction which is accompanied by increasing the time one spends to pump this feeling" (Uneri & Tanidir 2011). Excessive use of the computer (PC) and the Internet can be both addictive and pathological. This excessive use is categorized in that of a technological addiction, a non- chemical addiction that includes the human-machine interaction (Siomos et al. 2012).

This phenomenon is due to the fact that the Internet has the ability to meet specific psychological needs, while there are no direct consequences of the user's operations, since many times identity is not required (Papadopoulou 2008).

The basic characteristics of internet dependence are excessive consumption of time and money for various online activities; user's impaired functionality on a social and personal level, as well as reduced school performance and inability of self-control (Young 1996).

Internet addiction is classified under five subtypes which are: addiction to cyber-sex, online relationships, compulsive online gambling, excessive information inquiries and addiction to computers (Young et al. 2000).

Apart from the most proven effect on the users' physical health and strong impact on their mental health, internet addiction may lead to depression, false self-esteem and may become a host of many other problems (Papanis 2004).

Nowadays our living in a new digital era, where new technologies have invaded in people's lives, using the Internet should not be considered negligible. The embodiment of internet use in children's lives should be done in a rational and safe manner.

## Methods

### Date Sampling

This quantitative survey conducted in nine high schools in Cyprus in 2013 with a final sample of 303 final year high school students. As far as the sampling method, stratified proportional random sampling used, so differences between students living in urban and rural can be examined. In accordance to the Ministry of Education and the National Statistical Service of Cyprus, a total of 7,728 3<sup>rd</sup> year grade high school students were the yearly total count of students in Cyprus. A proportional sample was selected for each of the five districts of the island, specifically 144 for Nicosia, 120 for Limassol, 66 for Larnaca, 48 for Paphos and 22 for Famagusta. The nine high schools were randomly selected by lottery, one urban and one rural school per district, except for Famagusta District, where there is only on high school. For achieving the randomness of the sample, different 3<sup>rd</sup> year groups of students were selected randomly in each school.

### Research Tool

The tool used to conduct the qualitative research was the K.E.EF.Y. questionnaire, a Greek validated scale on assessing the addiction of adolescents using a PC (Siomos 2008). The tool consists of three parts, the first two parts include questions about the demographic data and the use of Internet, and so the "profile" of each student concerning the use of internet could be outlined. The third and main part included 20 closed-ended questions that answered by using a five-point Likert scale (1 = none, 2 = rarely, 3 =

occasionally, 4 = often, 5 = always) and the Young Diagnostic Questionnaire.

Based on the rating scale, the users were classified in three categories, the first category with a score between 20 and 49 regards to normal internet users, the second category with a score between 50 and 79 regards to internet users with mid addiction and finally the third category, with a score between 80 and 100 regards to internet users with severe addiction. Additionally eight diagnostic criteria were included in accordance to the internet use. (Siomos 2008).

According to the scale, normal internet users (20-49 pts) are users who have absolute control over the use of the internet and their engagement with it is perfectly normal. The second classification of the scale, internet users with mild addiction (50-79 pts), refers to users who have mildly frequent internet related issues but have not yet been addicted and there are ways of self-improvement. Finally the third classification of the scale, internet users with severe addiction (80-100 pts), refers to pathologically addicted internet users who are already addicted and develop severe dysfunctional online behaviour. In this case there are no ways of self-improvement and the help of specialists in this field is considered necessary and necessary (Siomos 2008; Siomos et al. 2012).

#### **Data Collection and Data Analysis:**

The questionnaires were given to the students and collected by the researchers in allocated collection boxes in each school. For the data processing the SPSS statistical program was used. The significance level was set at  $p < 0.05$ . For the description of the sample characteristics the percentage of the frequency distribution was applied. Parametric t-test and Pearson chi square test ( $\chi^2$ ) were applied for the statistical analysis.

#### **Bioethics and Deontology:**

This study was approved by the National Bioethics Committee of Cyprus and proper authorisation ensured from the Ministry of Health, and the Ministry of Education and Culture for the conduction of the research. An informed consent approval was ensured by the students' parents / guardians prior the research.

#### **Results:**

The sample consisted of 303 students, of which 162 students (53.5%) were living in urban areas and 141 students (46.5%) were living in rural

areas. Of the population sample studied, there were 180 girls (59.4 %) and 123 boys (40.6 %). (Table 1)

From the total of the sample, 300 of the students declared to be internet users. Of these responders, 97.4 % declared to have internet access both from their home and their portable electronic devices.

As for the daily hours of internet use, the majority of participants living in rural areas were using the internet for 2-5 hours daily (52.2 %), while the majority of the students living in urban areas were using the internet 1-2 hours daily (43%). Also 20 students (12.3%) living in urban areas and 11 students (7.8%) living in rural areas, reported using the internet more than 5 hours daily, with the students living in urban areas having twice incidence than students living in rural areas,  $p=0.000$ . (Table 2)

As far as, for the intention of the population remaining logged in on their computer or portable devices. Overall 165 students (54.5%) stayed online more time than the initially intended. Specifically 111 participants from the total of the sample stated that they often stay connected to the internet for longer than initially intended and 54 participants stated that they always spent more time online than the originally planned. Only a small percentage of the sample (3.3%) stated that they 'never' exceed the predetermined time online. Concerning the differences in between urban and rural areas, no statistical significant difference between the responses in urban and rural areas was found,  $p = 0.888$ .

When asked whether their involvement with the Internet affects their academic performance, 69.6% gave a negative answer. To the question whether they stay connected for a longer period than they had originally planned, the majority replied positively (68.6%). Through the analysis of the results it was found that the students' environment rarely complains about their children's involvement with the internet.

Analyzing the data extracted from the Young's Diagnostic Questionnaire (YDQ) for Internet Addiction, 69.8% of students living in urban areas and 67.4% of students living in rural areas stated that they access the internet longer than they originally intended. A great percentage (50%) both in students from urban and rural area stated that withdrawal symptoms such as anger,

depression anxiety, boredom etc., were developed within days to months after reduction or cessation of internet use.

Opposed to this, only 9.9% of students living in urban areas and 14.1% of students living in rural areas stated that the use of internet is a way to escape from problems or to relieve a dysphoric mood. Throughout the statistical analysis of the YQD there weren't any statistical significant differences between the two groups (urban and rural). (Table 3)

Analyzing the results of the K.E.EF.Y. Questionnaire, 121 students were placed in the normal use category (43 %), while 143 students (47.2 %) had a score of 50-79 placing them in the

moderate use category. Only 29 students (9.7%) were placed in the category of severe use and addiction, with a rating score above 80. These students showed a range of behavioral symptoms that indicate suffering from addiction. No statistical significant differences were found in the tow study groups. Specifically the mean score nationwide was 46.89 (mild), the mean score for students living in urban areas was 46.67 (mild) and for students living in urban areas was 47.14 (mild).

**Table 1: Demographic Data**

		<b>n</b>	<b>%</b>
<b>Gender</b>	<b>Boys</b>	<b>123</b>	<b>40.6</b>
	<b>Girls</b>	<b>180</b>	<b>59.4</b>
<b>Residence</b>	<b>Urban Area</b>	<b>162</b>	<b>53.5</b>
	<b>Rural Area</b>	<b>141</b>	<b>46.5</b>
<b>District</b>	<b>Nicosia</b>	<b>91</b>	<b>30.0</b>
	<b>Limassol</b>	<b>108</b>	<b>35.6</b>
	<b>Larnaca</b>	<b>42</b>	<b>13.9</b>
	<b>Paphos</b>	<b>40</b>	<b>13.2</b>
	<b>Famagusta</b>	<b>22</b>	<b>7.3</b>

**Table 2: Daily Hours of Internet Usage**

Daily Hours of Internet Usage	Students living in Urban Area		Students living in Rural Area		p-value
	n	%	n	%	
No Internet Access	1	0.6	2	1.4	0.000
0-1 hours	15	9.3	21	14.8	
1-2 hours	41	25.5	61	43.0	
2-5 hours	84	52.2	47	33.1	
>5 hours	<b>20</b>	<b>12.4</b>	<b>11</b>	<b>7.7</b>	
Total:	161	100.0	142	100.0	

**Table 3: Young's Diagnostic Questionnaire (YDQ) for Internet Addiction**

Criteria	Urban			Rural			p-value
	Yes (%)	No (%)	n/a (%)	Yes (%)	No (%)	n/a (%)	
1.Preoccupation: Thoughts about previous on-line activity or anticipation of the next on-line session	22.8	75.3	1.9	24.1	74.5	1.9	0.795
2. Tolerance: Needs for increasing amounts of time on the internet to achieve satisfaction.	31.2	68.3	0.5	33.1	66.2	0.7	0.755
3. Repeated, unsuccessful efforts to control, reduce or stop internet use.	26.8	72.7	0.5	28.9	70.4	0.7	0.735
4. Withdrawal symptoms, such as anger, depression, mood swings, anxiety, fear, irritability, sadness, loneliness, boredom, restlessness and procrastination, are developed within days to months after reduction or cessation of internet use.	16.1	82.1	1.8	14.9	83.7	1.4	0.897
5. Access internet longer than originally intended.	69.8	27.7	2.5	67.4	30.5	2.1	0.658
6. Jeopardized or risked loss of significant relationships, job, educational or career opportunities because of internet use.	50.0	53.8	0	50.0	46.1	3.9	0.639
7. Lies to family members, therapists, or others to conceal the extent of involvement with the internet.	10.5	86.1	3.4	13.9	82.6	3.5	0.329
8. Use of the internet is a way to escape from problems or to relieve a dysphoric mood such as feelings of hopelessness, guilty, anxiety, depression, or stress.	9.9	87.7	2.4	14.1	79.6	6.3	0.375

**Discussion:**

Students seemed willing to complete the questionnaires and participated in this survey with a satisfying response rate, reaching 75.8 %. This shows a high degree of representativeness of the sample (Merkouris 2009).

The use of the internet by almost 100% of the participating students is a finding which was expected and at the same time was confirmed by another research done by the Statistical Service of Cyprus in 2012 (CyStat 2012). The same research also concluded that the percentage of households that had a Personal Computer and connection to the Internet reached 71% in 2012 compared to 63.9 % in 2011.

The small differentiation between the two test groups in the duration of daily internet use, comes to agree with a survey conducted by the Media Institute which claimed that the more urbanized a region is, the more its students consider the Internet as a leisure activity (Katerelos and Papadopoulos 2006 ).

The fact that the students remain connected to the Internet longer than they intended, confirms once again the fact that the internet interferes with the daily functioning of the user. According to Gotsi et al. (2010) there are users who spend up to 30 hours in internet cafes, who do not even remember the address of their home while neglecting their personal care and hygiene, when it is time to disconnect from the computers and the internet.

A remarkable feature in this study is that the percentage of students who responded that they stay on the internet above what they initially intended. It is the only question of the diagnostic part of the questionnaire that had more positive answers than negative in the whole sample. The fact that even non-addicted students admit that they stay connected for longer than originally intended, highlights the interactive nature of the internet as it is difficult to manage the time by the students, which are removed and lost to the popular its activities. For this reason, it can be considered the first sign that the student is at risk of being addicted.

The technological gap between children and their parents, lead their parents to a silence about the long hours their children are being occupied with the internet. This is attributed to the impression the parents have that their children are at home and safe, regardless of their constant use of the computer, rather than them being in the streets and in danger (Peez 2010).

This survey's results come to agree with a similar survey conducted in Cyprus, in Latsia municipality, by Dr. Siomos et al. (2012) who resulted in an addiction rate of 15%.

Comparing Cyprus rate of internet addiction in teenage populations to Norwegian teenage, which is 2%, Cyprus has a greater rate of internet addiction. In a country like Norway, with the highest percentage of internet users (90%) in the world and the lowest percentage of addicted teenagers on the internet can only be explained by the smooth penetration of the internet and a well-coordinated digital literacy program in very young ages. In other words, getting acquainted with the internet was a coordinated learning process through the country's education system, through which students learn to use the internet correctly, knowing the dangers of abuse (Johansson & Gotestam 2004). On the other hand, in Cyprus, Internet engagement is based on the individual engagement of each user, making it easier for the user to become a victim of the addiction.

Dealing with the internet in many cases forces users to neglect home employment and other important activities they need to do, especially when dealing with the internet ends up in addiction and addiction. Occasionally, several incidents came to light and concerned the neglect of basic functions and functions that are necessary for a person's survival, such as feeding.

Students' answers revealed that students in urban areas sometimes neglect homework, as opposed to rural students who rarely neglect other occupations to stay connected to the internet.

According to Gotsi et al. (2010), there are users who spend up to 30 hours on Internet cafes, playing games online. When they decide to "separate" the computer, they do not even remember the address of their home. Their dependence on the internet is so great that they neglect their personal care and hygiene. Gradually they cut the bridges of communication with parents and friends and their only concern is how they will spend more and more time on the internet. They reach the point of living in a room, from which they open a "window" in the digital world but close the door to life.

All of these have, as it follows, serious implications for various areas of the person's functioning. It reduces the time the teen spends with his family, the hobbies and social gatherings are reduced. At the same time, addicted young people neglect their physical hygiene, while they do many absences in school, and even lose classes. In fact, cases of children who had to be admitted to the hospital due to dehydration ("forgotten" on the internet), as well as children who stole money from their parents to go to an internet café.

Also, according to Athanasios et al. (2013), 34% of adolescents spend most of their time on Facebook to "admire" themselves and not to talk to friends, which is the main purpose of this tool. The most concerning result in that study is security, as 63% of adolescents communicate with strangers online.

The results of this research, however, have shown that most young people now rarely create new friendships over the Internet, and this may be due to both the incidents of publicity and fraud and sexual harassment.

It has also been revealed that users of the user's environment rarely complain about their Internet use, and this may be the case either because environmentalists have made the wrong impression, that by working with the internet they spend their time at home and believe That they are not at risk from other serious situations that plague society today, such as drugs, road accidents etc. At the same time, family members can also deal with their own occupations.

According to Dr. Andy Peez (2010) of Bristol University, parents prefer to have their children in the house, addicted to the computer rather than being out on the road and endangering their lives. Parents do this with the logic that "better in and let it be all day on the PC than outside and do not know what it is doing," thinking that their children are safer. On the contrary, cyberspace poses a risk because it is full of strangers, odd material, sites that kids should not have access to, etc.

When students were asked how often they capture themselves while saying that they are "just a few minutes away", there is no particular difference in the responses of the two categories under consideration. It is worth mentioning, however, that 51 pupils from urban areas and 44 from rural areas said that "often" or "always" capture themselves during the connection with the computer "just a few more minutes". Through these replies, these are almost a third of the participants.

### Conclusions:

As a technological achievement, the Internet is a useful tool for people in order to improve their quality of life. However, overuse and addiction overshadows the benefits and leads to major problems such as that of Internet addiction. The results of this research sound the alarm and highlight the need for qualified health professionals to address the problem and to take preventive measures through continuous research activity. Perhaps Cyprus could take as example other countries, such as Norway which holds the highest rate of Internet use worldwide, however owns an addiction rate as low as 2 %. This is attributed to the serious efforts of the Norwegian authorities for proper infiltration of the internet, in a well-coordinated digital literacy program from the very early age thus avoiding the empirical and personal involvement, which can easily lead to addiction.

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