

## A comparison of severity of symptoms of Internet addiction in students from Poland, Taiwan and the USA

Porównanie nasilenia objawów uzależnienia od Internetu u studentów z Polski, Tajwanu i z USA

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### Abstract

The aim of this work was to verify the hypothesis that there are statistically significant differences among students from Poland, Taiwan and the USA in the severity of symptoms of Internet addiction, as measured using Pawłowska and Potembska's Internet Addiction Assessment Questionnaire.

Material and methods: A total of 147 medical students from the Medical University of Lublin were surveyed, including 83 Polish, 31 Taiwanese and 33 American students with a mean age of 21 years. The following instruments were used in this study: an inquiry form and the Internet Addiction Assessment Questionnaire by Potembska and Pawłowska.

Results and conclusions: Based on the results obtained in the study, the following conclusions have been formulated:

1. The students from Taiwan have significantly more severe symptoms of Internet addiction than the students from Poland and the USA.
2. The students from the USA have significantly more severe symptoms of Internet addiction than the Poles.
3. The criteria for the risk of Internet addiction have been met by more Taiwanese students (65%) than American (31%) and Polish (17%) students.
4. Taiwanese students significantly more often as compared to Polish and American students play violent computer games and they believe that only online interactions can ensure acceptance, understanding and the possibility to express true feelings and views.
5. As compared to Polish students, the students from Taiwan and the USA significantly more often use web pornography.

*Keywords:* Internet addiction, epidemiology

### Streszczenie

Celem pracy była weryfikacja hipotezy zakładającej występowanie istotnych statystycznie różnic między studentami z Polski, Tajwanu i USA w zakresie nasilenia objawów uzależnienia od Internetu, mierzonego Kwestionariuszem do Badania Uzależnienia od Internetu Pawłowskiej i Potembskiej.

Materiał i metody: Przebadano łącznie 147 studentów medycyny Uniwersytetu Medycznego w Lublinie: 83 Polaków, 31 Tajwańczyków i 33 studentów ze Stanów Zjednoczonych, których średni wiek wynosił 21 lat. W pracy zastosowano następujące metody badawcze: Ankietę oraz Kwestionariusz do Badania Uzależnienia od Internetu Pawłowskiej i Potembskiej.

Wyniki i wnioski: Na podstawie otrzymanych wyników badań sformułowano następujące wnioski:

1. Studenci z Tajwanu mają znacząco bardziej nasilone objawy uzależnienia od Internetu niż studenci z USA i z Polski.
2. Studenci z USA mają znacząco bardziej nasilone objawy uzależnienia od Internetu niż Polacy.
3. Kryteria zagrożenia uzależnieniem od Internetu spełnia więcej studentów z Tajwanu (65%) niż studentów z USA (31%) i z Polski (17%).
4. Studenci z Tajwanu istotnie częściej niż studenci z Polski i z USA grają w gry internetowe, w których dominuje przemoc oraz są przekonani, że jedynie w kontaktach nawiązywanych przez Internet można otrzymać akceptację, zrozumienie i wyrażać autentyczne uczucia i poglądy.
5. Studenci z Tajwanu i z USA istotnie częściej niż studenci z Polski korzystają z pornografii internetowej.

*Słowa kluczowe:* uzależnienie od Internetu, epidemiologia

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### Introduction

The problem of Internet addiction and the risk of Internet addiction as well as the prevalence of this phenomenon among young people more and more often becomes the subject of research carried out in numerous countries in Europe Finland, Norway, Italy, and Greece, Asia Korea, Taiwan, and China, and the United States.

The results of those studies demonstrate that the number of adolescents addicted to the net in Norway is around 1–2% [1], 5.4% in Italy [2], 5.9% in Greece [3], 7.5% in Taiwan [4], 8.1% in the United States [5], and 11% in China [6]. Kim et al. [7] have found that in Korea 1.6% of adolescents meet the criteria for Internet addiction and about 38% of them are in the group of persons at

risk of this addiction. Augustynek [8], based on a study of 1 411 first and third year students of Polish nationality from AGH University of Science and Technology in Kraków, found in 2001 that the prevalence of Internet addiction among the students was about 0.5%, with more men being affected than women. Poprawa [9], on the basis of a study from 2006 which comprised 4900 persons, showed that 23% of people in Poland meet the criteria for the risk of Internet addiction and about 1% are addicted to the net. Results of studies conducted in the years 2010–2011 by Pawłowska and Potembska [10] on a group of 514 young Polish people aged 13–24 years demonstrated that 3.5% of those people met the criteria for Internet addiction and 34% for the risk of Internet addiction.

The aim of this work was to verify the hypothesis that there are statistically significant differences among students from Poland, Taiwan, and the USA in the severity of symptoms of Internet addiction as measured using Pawłowska and Potembska's Internet Addiction Assessment Questionnaire.

## Material and methods

A total of 147 medical students from the Medical University of Lublin were surveyed, including 83 Polish, 31 Taiwanese, and 33 American students with a mean age of 21 years.

The following instruments were used in this study: an inquiry form and the Internet Addiction Assessment Questionnaire by Pawłowska and Potembska [11].

## Results

In the first stage of the study, persons were selected from the group of Polish, Taiwanese and American students, whose scores on the global scale of KBUI were between 51 and 109 points, thus indicating a risk of In-

ternet addiction [10]. Among the Polish students, 17% (14 persons) met the criterion for the risk of Internet addiction, among Taiwanese students – 65% (20 persons), and among American students – 31% (10 persons). None of the participants met the criterion for Internet addiction as no participant scored over 110 points on the full KBUI scale.

The largest number of persons at risk of Internet addiction was identified among the Taiwanese students (65%) and the smallest number among the Polish students (17%).

The criteria for Internet addiction adopted for KBUI had been developed on the basis of a study of 514 participants aged 13 to 24 years. A score on KBUI of over two standard deviations from the mean, i.e. 110 points or higher, was adopted as the criterion of Internet addiction. Persons whose score on the full KBUI scale was within the range of 51 to 109 points were considered to be at risk of Internet addiction [10].

In the next stage of the analyses, a t-test was used to compare the scores obtained on the global KBUI scale and subscales by students from Poland, the USA, and Taiwan (Tables 1, 2, and 3).

As compared to Polish students, the students from Taiwan achieve significantly higher scores in the global KBUI scale and the subscales: Acceptance, Games, Internet Addiction and Pornography (tab. 1). The achieved results inform us that Taiwanese students, as compared to Polish students, look for acceptance, understanding exclusively in the online interactions, they think that it is only online that they can disclose their true feelings, views, they more often play violent online games and more often use web pornography. Taiwanese students show significantly more intensified Internet addiction symptoms as compared to Polish students.

The most significant differences between Polish and Taiwanese students concern looking for acceptance, understanding and support exclusively in online interactions.

Table 1. Comparison of scores obtained on the global KBUI scale and subscales by students from Poland and Taiwan

KBUI	Poland		Taiwan		t	p
	M	SD	M	SD		
Global scale score	35.05	16.69	60.03	24.74	-5.20	0.0001
Acceptance	0.36	0.45	1.05	0.62	-6.56	0.001
Games	0.41	0.59	0.99	0.71	-4.41	0.001
Practical Application	2.30	0.58	2.22	0.75	0.58	ns
Internet Addiction	0.65	0.53	1.27	0.66	-5.17	0.001
Pornography	0.12	0.23	0.67	0.75	-4.02	0.001

Table 2. Comparison of scores obtained on the global KBUI scale and subscales by students from Poland and the USA

KBUI	Poland		USA		t	p
	M	SD	M	SD		
Global scale score	35.05	16.69	47.66	22.73	-2.86	0.01
Acceptance	0.36	0.45	0.48	0.51	-1.28	ns
Games	0.41	0.59	0.55	0.59	-1.11	ns
Practical Application	2.30	0.58	2.43	0.92	-0.73	ns
Internet Addiction	0.65	0.53	1.05	0.69	-3.33	0.001
Pornography	0.12	0.23	0.40	0.55	-2.81	0.01

Table 3. Comparison of scores obtained on the global KBUI scale and subscales by students from Taiwan and the USA

KBUI	Taiwan		USA		t	p
	M	SD	M	SD		
Global scale score	60.03	24.74	47.66	22.73	2.07	0.04
Acceptance	1.05	0.62	0.48	0.51	4.02	0.001
Games	0.99	0.71	0.55	0.59	2.74	0.01
Practical Application	2.22	0.75	2.43	0.92	-0.96	ns
Internet Addiction	1.27	0.66	1.05	0.69	1.31	ns
Pornography	0.67	0.75	0.40	0.55	1.64	ns

As compared to Poles, the American students are characterised by statistically significant higher results in the global KBUI scale and in the Pornography subscale, which means that they show significantly more intensified Internet addiction symptoms and they significantly more often use web pornography, watch pornographic films and pictures on the Internet and get involved in erotic conversations online (tab. 2). The most significant differences between the students from Poland and the USA occurred in the Internet Addiction subscale.

As compared to the American students, the Taiwanese students obtained significantly higher scores in the global KBUI scale and the following subscales: Acceptance and Games (tab. 3). These results show that the students from Taiwan show significantly more intensified Internet addiction symptoms as compared to the students from the USA and significantly more often play violent video (online) games as well as more often express the view that they can get acceptance, understanding and show their true emotions and views only in online interactions (tab. 3). The most significant differences between the Taiwanese and the American students concern the Acceptance scale.

## Discussion

The results of the study confirmed the hypothesis formulated at the beginning of this article that there are statistically significant differences among students from Poland, Taiwan, and the USA in the severity of symptoms of Internet addiction as measured using Pawłowska and Potembska's Internet Addiction Assessment Questionnaire.

These results demonstrated a significantly higher prevalence and severity of symptoms of the risk of Internet addiction among the Taiwanese students (65%) than among the American (31%) and the Polish (17%) students. It should simultaneously be emphasized that the students from the USA were characterized by a significantly higher severity of symptoms of the risk of addiction to the net than the Poles. Compared to the Polish students, almost four times as many Taiwanese students and twice as many American students met the criteria for the risk of Internet addiction.

The differences described here among students coming from Taiwan, the USA, and Poland are undoubtedly

ly conditioned by the degree of development of new technologies in their home countries. It should be emphasized that technological development may be one of many factors favoring the development of Internet addiction, among which an equally important role in the genesis of this disorder is played by personality, social, and cultural predispositions, which are the subject of further, more detailed studies of the authors of the present article. The results obtained may have been affected significantly by a specific situation of the American and Taiwanese students, who study in a foreign country, with no command of the Polish language. This situation undoubtedly adds to a sense of isolation, separation from friends, family, from their native country and can enhance the need to maintain personal interactions, looking for acceptance, understanding in interactions established and maintained on the Internet.

Based on the results obtained a hypothesis can be formulated that Taiwanese students more often, as compared to their Polish and American peers, satisfy their need for acceptance, understanding, self-disclosure in online interactions and the need for aggression, power and dominance while playing violent online games. At the same time, as compared to Polish students, the students from Taiwan and the USA significantly more often satisfy their sexual needs by using web pornography.

It should be emphasized that technological development may be one of many factors favoring the development of pathological Internet use, however, what plays an equally important role in the origin of this disorder is personality, social, and cultural predispositions, which are the subject of further, more detailed studies of the authors of the present article.

## Conclusions

1. The students from Taiwan have significantly more severe symptoms of Internet addiction than the students from Poland and the USA.
2. The students from the USA have significantly more severe symptoms of Internet addiction than the Poles.
3. Compared to the Polish students (about 17% of at-risk persons), almost four times as many Taiwanese students

(65%) and twice as many American students (31%) meet the criteria for the risk of Internet addiction.

4. Taiwanese students significantly more often as compared to Polish and American students play violent computer games and they believe that only online interactions can ensure acceptance, understanding and the possibility to express true feelings and views.
5. As compared to Polish students, the students from Taiwan and the USA significantly more often use web pornography.

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