ARTICLE ORIGINAL

Anxiety and Problematic Internet Use in Tunisian students

Anxiété et usage problématique de l'internet chez des étudiants Tunisiens

Jaweher Boudabous, Ines Feki, Rim Sellami, Imen Baati, Dorsaf Trigui, Jaweher Masmoudi

CHU Hédi Chaker, Sfax / Faculté de Médecine de Sfax,

RÉSUMÉ

Introduction : Le déroulement de cette présente étude coïncide avec l'augmentation du taux de pénétration du service Internet à travers notre pays. Cependant, il est tout à fait prévisible que toute nouvelle technologie peut être associée à une variété de réponses humaines, parfois nocives, auxquelles les jeunes étudiants semblent être spécifiquement vulnérables.

But : Evaluer l'Usage Problématique de l'Internet chez des étudiants en premier cycle des études médicales et rechercher une comorbidité anxieuse chez eux.

Méthodes: Nous avons mené une étude transversale auprès de 120 étudiants inscrits à la faculté de Médecine de Sax. Nous avons procédé chez ces étudiants à l'autopassation du questionnaire de Young à 8 items et de l'inventaire de l'anxiété Etat et Trait.

Résultats: Un Usage Problématique de l'Internet (UPI) a été noté chez 21.7% des étudiants. L'UPI était corrélé avec le sexe, en faveur d'une fréquence plus élevée chez les étudiants de sexe masculin (p = 0.035). Les étudiants ayant un UPI avaient manifesté significativement plus de traits anxieux en comparaison avec ceux n'ayant pas un UPI (p = 0.002). De même, l'anxiété état était significativement notée chez les étudiants ayant UPI (p = 0.003).

Conclusion: L'Usage Problématique de l'Internet est fréquent dans notre population. Les investigations sur les caractéristiques associés à cet usage aidera certes à déterminer les menaces auxquelles nos étudiants pourraient être exposées. Une association avec d'autres troubles, notamment l'anxiété, doit être recherchée.

Mots clés : addiction, Internet, usage problématique de l'internet, étudiants, anxiété.

SUMMARY

Background: The timing of this study coincides with the growing rate of penetration of Internet service across the country. However, it is predictable that any new technology may be associated with a variety of human responses, sometimes harmfull. The young students seem to be especially vulnerable.

Objective: The purposes of this study were to evaluate Problematic Internet Use among medical undergraduate students and to investigate for associated anxious symptoms.

Methods: We conducted a cross-sectional study on 120 students enrolled in undergraduate medical studies at the University of Medicine of Sfax-Tunisia. The self-administered Young's 8-item questionnaire was used in this survey. The state and trait anxiety inventory was administered to screen for anxiety symptoms.

Results : The results showed that 21.7% of the students have Problematic Internet Use (PIU).The rate of the PIU is greater in male students than infemale students (p=0.035). Anxiety trait was significantly associated in students with PIU compared to those without PIU (p=0.002). Anxiety state was significantly associated in students with PIU compared to those without PIU (p = 0.003).

Conclusion : Problematic Internet Use is frequent in our students population. Asking students about the characteristics of their Internet usage will help to determine the threats to which they might be exposed. Such association with other psychopathologic problems, especially anxiety, should be sought.

Keywords : Internet addiction, Problematic Internet Use, students, anxiety.

Correspondance
Jaweher Boudabous
CHU Hédi Chaker, Sfax
e-mail : boudabous_jaweher@yahoo.fr

INTRODUCTION

Over the last 2 decades, the global internet use has greatly increased around the world. According to the report of the 'Tunisie Sondage' in November 2014, the number of Internet users was estimated at 5.81 million wich represent 53% of the Tunisian population (1). Thereby,Tunisia was ranked 66th in the world and 10th in Africa (1). Such a huge increase of the Internet usage may lead to major threats to the lives of young people. Some young people may develop Internet addiction (2,3).

Internet addiction has been conceptualized as a category of behavioral addiction (4), such *computer addiction*, *impulse-control disorder*, and *pathological Internet use* (3-6). Although the most frequently used term is Internet addiction, the term of Problematic Internet use (PIU) is more accurate in describing this behavior (7). Regardless of the controversy about the specific nomenclature and diagnostic criteria, there are no doubts about the destructive consequences of the PIU (8).

Actually, Internet addiction has caught the attention of many researchers. Prevalence estimates vary widely from 0.9% to 38% (9-11). Tunisia seems to be among the countries showing a high prevalence of PIU according to the studies published since then (10,11).

The PIU is becoming a serious problem, besides it is considered as an emerging cause of morbidity (8) including mental health problems (12). It has been found to be associated with a variety of psychiatric disorders such as substance use disorder, depressive disorder, anxiety disorders, and hostility (11,13). Different aspects of anxiety were studied among young poeple who have PIU and many studies have supported the association between anxiety and PIU (14-16).

The purpose of this study was then to evaluate the PIU in medical students and to search for anxious symptoms eventually associated with.

METHODS

Participants and procedure

We conducted a cross-sectional, descriptive and analytical study on 120 students enrolled in undergraduate medical studies (1st and 2nd year) at the Faculty of Medicine of Sfax. This survey was conducted on the 12th January 2015, outside the exams period of the school year 2014-2015. Administering tests took place anonymously in the amphitheater. We first explained to students the purposes of the study and insisted on the voluntary aspect of the participation.

The participants' names and personal details were not included in the data entry.

Measures

The self administered Young's Test

The self administered Young's 8-item questionnaire was used in this survey in the French version (17). It's a 8-item questionnaire, widely used to search for PIU. Young defined pathological Internet use as having five or more of eight characteristic symptoms including preoccupation, tolerance, withdrawal, failure to control, use longer than intended, functional impairment, lying, and escape.

The State Trait Anxiety Inventory of Spielberger

Anxiety was measured with The State Trait Anxiety Inventory of Spielberger (STAI). It was used in the French version (18). It consists of two parts assessing independently trait anxiety (usual anxious temperament of the subject, 20 items) and state anxiety (current anxiety at the time of test passation, 20 items). Items are rated from 1 (not at all) to 4 (very much). Various studies of the STAI have confirmed that it is an appropriate and adequate measure for studying anxiety in research and clinical settings (19). STAI score> 40 was considered as pathological.

Statistical analysis

We used the Statistical Package for Social Sciences, version 20. Statistical evaluations performed were student t-test, Chi-square test Statistical and linear regression analysis. A P value less than 0.05 was considered statistically significant.

RESULTS

Sociodemographic data

The sample was composed of 63.3% girls (n = 76) and 36.7% boys (n = 44), the sex-ratio (H/F) was 0.56. All the students were single. Mean age was 19.33 years (aged from 18 to 21 years). All the students were enrolled in undergraduate medical studies at the Faculty of Medicine of Sfax- Tunisia. Of the participants, 68.3% were first-year students and 31.7% were second-year students. The

majority (91%) had middle socio-economic background. Among these students, 63.3% lived with their families, 25% lived at the university hostels and 11.7% lived alone. A total of 5% of the students presented an alcohol use and 5% smoke tobacco.

Frequency of Problematic internet use

Among the sample, 21.7% were diagnosed as having PIU. PIU was not correlated with socio economic level (p=0.628), habitat (p=0.182) and school failure (p=0.386). The rate of PIU is greater among the male students than the female students (odds ratio [OR] =2.489, 95% confidence interval [CI]: 1.028-6.028; p=0.035). Smoking or drinking alcohol was found in 33% of the students with PIU (p=0.214). Among the students,49.2% got connected to the intrenet several times a day. The average time spent on a connection is more than 5 hours in 19% of cases.

Anxiety

It was found that Problematic Internet users had a high anxiety level trait and state. Anxiety trait was significantly associated in students with PIU compared to those without PIU (odds ratio [OR] =4.912, 95% confidence interval [CI]: 1.805-13.366, p = 0.002). Anxiety state was significantly associated in students with PIU compared to those without PIU (odds ratio [OR] =4.500, 95% confidence interval [CI]: 1.656-12.229, p = 0.003).

To further assess the factors that influence PIU, we used stepwise linear regression. Anxiety trait and gender were responsible for 16.2% of variation in PIU (p = 0.045; p=0.004).

Table 1 summerizes the factors associated with PIU.

Table 1: Evaluation of the socio-demographic and clinical characteristics associated with PIU

Factors associated with PIU		p
Socio-demographic	Gender	0.035
characteristics	Socio-economic level	0.628
	Habitat	0.182
	School failure	0.386
Clinical features	Smoking/drinking alcohol	0.214
	Anxiety Trait	0.002
	Anxiety State	0.003

*= 0,01<p<0,05: significant difference

**= 0,001<p≤0,01: very significant difference

DISCUSSION

The Internet has become an important part of the student's lives.Young people have been considered especially vulnerable to the disadvantages of the internet and their academic performance decrease as they spent more and more time online (3). Our sample involved students (aged between 18 and 21 years) enrolled in undergraduate medical studies. In terms of risky populations, students have been identified for several reasons. They have a natural affinity towards the Internet (20,21). Moreover, they typically have unlimited access and freedom from parental interference (22) and universities expect that they can make use of the technology and even excel in their internet use. Additionally, the students' efforts to establish their own identity, to belong to a group and receive group acceptance make the Internet use attractive for them (14). Such use of the internet seems to have many 'advantages', but the students' use of the internet may easily progress beyond the level of recreational activity to a problematic use.

Prevalence of Problematic Internet Use

Among the sample, 21.7% were diagnosed as having PIU according to Young's test. This finding was similar to that of the Tunisian previous researchs (10,11). However, it is different from that of the European and Asian studies (22,23). Several facts may explain this. First, it is difficult to distinguish between normal but excessive internet users and problematic users by one assessment scale, as a consequence, our prevalence may be over estimated. Second, cultural and economic factors may intervene. In fact, some studies incriminated economic differences between countries, such as in Hong Kong and Taiwan, which are known for the production of netbooks and where the prevalence of PIU is high (23). In our context, political and social movements resulting from the Tunisian revolution, may explain at least in part, the highest prevalence of PIU. We share th findings of Ellouz et al. in Tunisia, which suggest that, during the revolution, the Internet had been widely used both by Tunisian bloggers and citizens to get information in real time (11).

Statistic analysis showed that males were more likely to be addicted to the Internet than females. However, the findings are controversial. Leung found a higher prevalence in women (23). Other authors identified male sex as a risk factor (24,25). Whereas, others studies did not show any correlation (10,12). Previous studies have

reported that males have a greater interest in games, cybersex and gambling than females do (26).

In our sample, smoking or drinking alcohol were found to be elevated in 33% of students who have PIU. This finding was similar to that of the study result of Lam and colleagues who stated that adolescents with alcohol drinking behavior are more likely to have Internet addiction (27). Similarities on neurobiological mechanisms have been suggested (28). Thus, students with vulnerability to substance use disorders would be vulnerable to the Internet addiction.

In the present study, the average time spent on a connection is more than 5 hours in 19% of cases. About half of our students (49.2%) connect to the internet several times a day. Thus the frequency of the internet use per day should be very important in our sample. This frequency has been identified to reflect the degree of internet dependency (14). Moreover, it was included in Goldberg's diagnostic criteria for internet addiction (29). Many studies agree that Internet use of 5 hours a day and more is regarded as problematic (14). So that it becomes alarming in our context, to ask students about their Internet use duration, which will help professionals to identify whom are vulnerable for a problematic use, but it is never a pathognomonic criteria. Therefore, it seemed interesting to ask students how they feel when not using the Internet.

Anxiety

Students with problematic internet use were significantly more anxious than others in the STAI state (p=0.003) and the STAI trait (p=0.002).

Different aspects of anxiety such as social anxiety, general anxiety, communication anxiety and dating anxiety, were studied among young poeple who have PIU (14-16). Ellouz et al. found that 53.5% of students have anxiety symptoms according to Beck anxiety scale (11). Silvia and Stefano identified anxiety as the first reason for psychiatric consultation in subject with Internet addiction, in 13% of cases (9). Moreover, it has been identified that anxiety levels increase with addiction severity levels (30).

We found that Students with PIU were anxious in 16.6% of cases. Previous studies noted that most of the anxiety symptoms appear among cyberaddicted students (11). In fact, there is an evidence that anxious individuals are more likely to use the internet to connect with others online (16). Anxious individuals are more likely to use social networking sites to reduce their anxiousness by connecting with others online rather than attempting to connect with the same individuals in face-to-face settings (14). Such internet use seems to have an adaptive and positive aspect. We share the idea that first year university students who also felt alone are more likely to have a PIU (15). Therefore, longitudinal research studies are required to better clarify when and for whom such use becomes problematic.

Finally, our study has some limits. In fact, the use of one assessment scale to search for PIU as well as the lack of valid and adaptated instruments to our population represent a critical shortage for our study. Moreover, due to the small sample size of our study our results cannot be generalized. Studies with larger and representative samples, multiple anxiety and internet addiction measures appear warranted.

CONCLUSIONS

Problematic Internet Use is frequent among our students. Individual, social and economic factors are intricated in such a problematic use. Asking students about the characteristic of their Internet usage, in general, will help to determine the threats to which they might be exposed. An important step for a preventive intervention is to ask for some predisposal factors to a lesser adaptive internet use such as the internet use duration and anxious traits, which will certainly help to identify students who are more vulnerable to a Problematic Internet Use. Higher anxiety in subjects with PIU support the need of screening and treatment of anxiety disorders in young Internet users.

Therefore, professionals working with young students must be made aware of the harmful Internet use. For this reason, seminars and educational activities should be held. In addition, precautionary measures should be taken to ensure the students' use of the Internet in the academic activities for educational purposes. However, the misuse of the Internet should not lead to avoiding this medium.

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