A pilot study of Internet usage patterns in a group of Italian university students

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ABSTRACT

BACKGROUND: despite growing interest in Internet Addiction Disorder (IAD) among the high school population, very little is known about the potential risks of the use of the Internet for university students. The present survey aimed to collect information on Internet usage patterns in a group of Italian university students.

METHODS: the sample comprised 600 Italian university students enrolled in various faculties, in two different Universities: Catania (n=300; 150 males and 150 females) and Palermo (n=300; 150 males and 150 females). The Diagnostic Questionnaire for IAD based on 8 criteria was used to categorize the Internet users. In order to better describe students' Internet usage patterns, 4 other criteria were added. Chi-square test (P<0.05) was applied to examine differences between the two groups of students (Catania *versus* Palermo), and for comparisons between male and female students.

RESULTS: respondents were 'minimal' (82.5%) or 'moderate' (17.5%) Internet users. None of the enrolled university students met the criteria of definite IAD, although a fairly high level of at-risk Internet attitudes and behaviors was found. Finally, some gender differences in Internet attitudes and behaviors were found.

CONCLUSIONS: the implications drawn from this study, including the adequacy of the available measurement instruments for IAD, are discussed.

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INTRODUCTION

The use of the Internet has increased considerably over the last few years. Data from the Italian Network Information Centre (1), as of February 28th, 2010, estimated that 22 million people are connected on-line, or maybe even close to 23 million, if we include people who use the Internet occasionally. For several years, there had been more use of the Internet in work settings rather than from home, but the trend seems to have changed since the year 2000, with a growth of on-line activity at home. In particular, the number of people connecting from home at least 'once a week' has increased from 5 million in January 2001 to 20 million in January 2011. Among people connecting from home, about 20% are thought to be aged 18-24 years old.

According to the literature (2, 3), the Internet, as a medium of information and communication, has an important place in social and academic life of university students in many societies. However,

while the Internet provides these functions to university students, who are often nowadays labeled as the 'net generation' (4), the number of excessive Internet users among this group has also grown remarkably (2, 3, 5-7). Unfortunately, although several models and related questionnaires have been elaborated for the assessment of the Internet Addiction Disorder (IAD), the disorder is not yet recognized officially in the diagnostic classification system because we cannot find a solid pathological predictor for it (8, 9). In all probability, some pathological traits may trigger IAD, and some authors question if this should be considered as an independent disorder (10, 11). On the contrary, in people showing patterns of problematic use of the Internet, significantly high scores have been observed for the dimensions of depression, anxiety, hostility, interpersonal sensitivity, and psychoticism, suggesting that these are outcomes of IAD (12). Other researchers have proposed the term Problematic Internet Use (PIU) instead of IAD, mainly because it is not yet clear what being over-users or heavy users means in terms of risk of becoming 'addicted' (11).

A growing body of research has investigated the nature of PIU among university students (7, 13, 14). In particular, with regard to the negative consequences of late night Internet use for social networking purposes, Kubey et al. (2001) (15) revealed that social uses of the Internet (e.g., chat) hold students captive, especially late at night, and cause them to get less sleep, and miss classes. Thus, the numbers of Italian Internet home users aged 18-24 years reported above (1) might indicate that the excessive use of the Internet could become a serious public health problem for young people in Italy.

As far as we know, despite growing interest in IAD among the Italian high school population (16-18), very little is known about the potential risks of Internet use for Italian university students (19). Thus, the present survey aimed to collect information about Internet usage patterns among a group of Italian university students. Specifically, the study focused on whether there were any differences in the students' levels of Internet usage according to city of origin and gender.

METHODS

The sample and the questionnaire

The study was reviewed and approved by the ethics panels of the University of Catania and the University of Palermo. The survey was conducted from March to April 2011. 600 volunteering Italian students, enrolled in the first year of various faculties of the Universities of Catania (n=300; 150 males and 150 females) and Palermo (n=300; 150 males and 150 females) participated in the study. In order to avoid a possible bias inherent to scholar interests or due to Internet use attitudes of the students, only the following scientific or mathematical and non-scientific disciplines were considered: Medicine, Economics, Engineering, Education Science, and Law (60 students, 30 males and 30 females, each).

The questionnaire used to collect information on Internet usage patterns and on Internet attitudes and behaviors consisted of 12 questions with possible responses being 'never', 'rarely', 'sometimes', 'often' or 'always'. In particular, the Diagnostic Questionnaire for Internet Addiction (YDQ1) (20) based on 8 criteria was used as a tool to categorize the type of Internet users ('minimal' users, 'moderate' users, 'excessive' users). The YDQ1 (20) criteria were the following: 1) preoccupation with the Internet, 2) staying on-line longer than anticipated, 3) irritability, depression, or moodiness when Internet use is limited, 4) putting a relationship in jeopardy in order to use Internet, 5) a need for increased time spent on-line to achieve the same amount of satisfaction, 6) repeated efforts to curtail Internet use, 7) lying to others about how much time is spent on-line, and 8) using the Internet as a means of escaping from problems of life and for regulating mood. Moreover, in order to better describe the Internet usage patterns, students' Internet attitudes and behaviors were also collected using 4 other criteria proposed by Cantelmi *et al* (21) as follows: 1) a need to check e-mail before doing something else, 2) fear that life without the Internet would be boring, empty and joyless, 3) preferring the Internet to their partner, and 4) parents' complaints for the amount of time spent on-line.

Participants were selected by disciplines, using a randomized stratified selection method. Each student completed the questionnaire during lectures and was given 20 minutes to complete it. Participants were assured of the anonymity and confidentiality of their responses. In order to avoid possible biases related to students' academic or professional interests in the Internet (e.g., students majoring in software, computer information and related field) they were reminded, when answering, to consider only the time they spent on-line for non-academic or non-job related purposes. Participants were also told that no monetary benefits or academic credit would be given for compilation of the questionnaire, and that they should respond as honestly as possible.

Statistics

Data were analyzed using SPSS for Windows v. 15.0. Preliminary analyses consisted of examining descriptive statistics (e.g., frequency for qualitative variables and mean and standard deviation for quantitative ones). Chi-square test was applied to examine differences between the two groups of students (Catania *versus* Palermo), and for comparisons between male and female students. A significance threshold of P<0.05 was chosen.

RESULTS

All the participants compiled the questionnaire (response rate 100%). Their mean age was 20.5 (SD=1.8). All students declared to use the Internet for a mean average of 19 hours per week. According to YDQ1, the sample was distributed in 2 groups: 'minimal' users 82.5% (0-2 positive criteria in YDQ) and 'moderate' users 17.5% (3-4 positive criteria in YDQ). None of the university students met the criteria of definite IAD.

Attitudes and behaviors towards the Internet

There were no statistically significant differences in attitudes and behaviors towards the Internet between the students of the University of Catania and those of the University of Palermo.

Although 82.5% of the respondents were categorized as 'minimal' Internet users, non-negligible percentages of all the enrolled students showed intense preoccupation with using the Internet. In particular, respondents declared to be in pressing need of using the Internet (10.0% *'often'* and 4.5% *'always'*), so that they could check their e-mail before doing something else (14.3% *'often'* and 1.4% *'always'*). Difficulty in managing the time spent on the Internet was admitted by the enrolled students, who declared to find themselves saying *'just a few more minutes'* when on-line (8.4% *'often'* and 1.6% *'always'*). Frequent feelings concerning that the world outside of the Internet is boring, empty and joyless (10.5% *'often'* and 0.5% *'always'*), together with feelings of depression, moodiness or nervousness if not on-line (6.7% *'often'* and 2.0% *'always'*) were stated by the students. Moreover, students admitted to use the Internet as a way of escaping from problems of 'real life' or for relieving feelings of helplessness, anxiety or depression (8.8% *'often'* and 1.5% *'always'*).

A non-t negligible level of decreased social interactions with 'real' people was reported by the students, who declared to choose to spend more time on-line over going out with the others (9.2% *'often'* and 3.3% *'always'*), and to prefer the excitement of the Internet to the intimacy with their partner (8.2% *'often'* and 4.3% *'always'*).

Students declared to feel the need to use the Internet with increasing amounts of time in order to achieve satisfaction (3.4% *'often'* and 0.2% *'always'*), causing their parents to complain (8.4% *'often'* and 2.8% *'always'*). They also admitted to lie to their family members and to conceal the extent of their involvement with the Internet (8.6% *'often'* and 2.5% *'always'*). Finally, a low but non-t negligible percentage of students stated they had repeatedly made unsuccessful efforts to control, cut back, or stop Internet use (3.4% *'often'* and 0.7% *'always'*).

Gender differences

As shown in Table 1, boys, more often than girls, considered the Internet as a way of escaping from real life (x^2=15.453, P=0.004), and thus they lied to their family members in order to conceal the extent of their involvement with the Internet (x^2=17.733, P=0.001), and were more likely to be in pressing need of using the Internet (x^2=13.869, P=0.008), and to cause their parents' complaints (x^2=15.299, P=0.004) in order to connect to the cyber world.

DISCUSSION

This study explored the Internet usage patterns of students at two Italian universities.

Recent studies on IAD among adolescents, carried out on Iranian and Greek adolescent students, have reported prevalence rates of IAD ranging between 3.8% and 8.2%, respectively (22, 23). Intermediate prevalence of Internet addiction (5.4%) has been reported in an Italian high school population (16). Moreover, there is evidence that PIU is prevalent among Greek university students (34.7%) (7). In our study, none of the enrolled students met the criteria of definite IAD, although a fairly high level of at-risk Internet attitudes and behaviors was found.

In our opinion, the lack of well-defined criteria for describing the syndrome could be the main presumptive explanation for the above results. In fact, although IAD is a problem that has been investigated worldwide, most of the studies conducted in the field so far have presented varying degrees of

TABLE 1

STATISTICALLY SIGNIFICANT DIFFERENCES IN ATTITUDES AND BEHAVIORS TOWARDS THE INTERNET BY GENDER					
AGE (YEARS) QUESTION	TOTAL N= 600 ABSOLUTE VALUE (%)	BOYS N= 300 ABSOLUTE VALUE (%)	GIRLS N= 300 ABSOLUTE VALUE (%)	X^2	P VALUE
Considering the Internet as a way of escaping from real life				15.453	0.004
- Never - Rarely - Sometimes - Often - Always	249 (41.5) 162 (27.0) 127 (21.2) 53 (8.8) 9 (1.5)	109 (36.4) 78 (26.0) 80 (26.7) 26 (8.6) 7 (2.3)	140 (46.7) 84 (28.0) 47 (15.7) 27 (9.0) 2 (0.6)		
Considering the Internet as a way of escaping from real life				17.733	0.001
- Never - Rarely - Sometimes - Often - Always	220 (36.7) 168 (28.0) 145 (24.2) 52 (8.6) 15 (2.5)	88 (29.3) 86 (28.7) 84 (28.0) 31 (10.3) 11 (3.7)	132 (44.0) 82 (27.4) 61 (20.3) 21 (7.0) 4 (1.3)		
Being in pressing need of using the Internet?				13.869	0.008
- Never - Rarely - Sometimes - Often - Always	218 (36.3) 151 (25.2) 144 (24.0) 60 (10.0) 27 (4.5)	96 (32.0) 76 (25.4) 71 (23.6) 36 (12.0) 21 (7.0)	122 (40.6) 75 (25.0) 73 (24.4) 24 (8.0) 6 (2.0)		
Parents' complaints				15.299	0.004
- Never - Rarely - Sometimes - Often - Always	279 (46.5) 159 (26.5) 95 (15.8) 50 (8.4) 17 (2.8)	118 (39.4) 88 (29.4) 50 (16.6) 33 (11.0) 11 (3.6)	161 (53.7) 71 (23.7) 45 (15.0) 17 (5.6) 6 (2.0)		

differences and conflicting results. It has been suggested that it seems premature at this stage to use a single label for the concept (24, 25). There is also evidence that if IAD does indeed exist, it affects only a relatively small percentage of the on-line population, and that most of the individuals who use the Internet excessively are not addicted to the Internet itself, but use it as a medium to fuel other addictions or conflicts (26). Moreover, it has been confirmed that the typically 'addicted' user is a lonely, low self-esteem teenager, with little or no social life (27). Accordingly, Ferraro *et al* (17), when administering the Italian version of the Young's Internet Addiction Test to a sample of Italian chatters, revealed that young users that perceived a compromised social and individual quality of life were those subjects

more at-risk of addiction. Excluding selection bias, we can assume that our findings could depend on the fact that the personality characteristics of university students are quite different from those of high school students. However, because there is no literature supporting this idea at this moment, we advocate future research of the perceived auto-efficacy in university students in order to support the above hypothesis.

Finally, there is evidence that PIU is significantly associated with male gender (13,28) probably because Internet surfing for boys provides opportunities for adventure, exploration, competition, and satisfaction of curiosity (22, 28, 29), and some gender differences in Internet attitudes and behaviors were found in our study.

Obviously, caution should be exercised in applying the results of this study at least for three main reasons. First of all, their applicability to all Italian university students could be limited by the fact that data was collected at only two Universities. Secondly, in order to better describe the response pattern, it would have probably been more useful to collect other socio-demographic information beyond sex and age (i.e., commuting/non-commuting to university, type of high school, educational level of parents, and others). However, because all university students in Italy are given equal opportunities to use and learn computing facilities at university and at home (1), and because there is evidence that regional differences in Internet usage patterns in our country are minimal for people under 34 years (30), it is reasonable to assume a certain homogeneity in attitudes and behaviors towards the Internet. Thirdly, we did not investigate psychological predictors for IAD, and thus results from the national and international literature have not been replicated in the present research. However, we did not collect information on specific traits of student's personality because we were mainly interested in their Internet usage pattern.

The Internet is an extremely important social tool that has changed our daily lives both at home and at work. Obviously, it is entirely predictable that any major new technology should be associated with a variety of human responses, some good, and some not so good. There is no doubt that research about the effects of the Internet is 'still' at the dawning, but this should not prevent the scientific community from considering it as a possible serious emerging problem. There is evidence that some Internet users could develop problematic behaviors. Most of these are probably vulnerable young people who often have a history of impulse control and addictive disorders, and whose abnormal behavior is a response to specific on-line activities. However, in the past, Hansen (31) cautioned that it may not be practical to label students as 'Internet addicts' based purely on the excessive use, as it is often necessary for them to use the Internet to do their schoolwork. Thus, from a public health perspective, proper categorization of the disorder has substantial implications for the development of improved prevention and treatment strategies.

In conclusion, our findings do not provide sufficient information to make definitive statements about the risk for IAD or PIU among Italian university students. Nonetheless, in our opinion, the implications drawn from the results of the present study could provide a good basis for future research in order to better understand which types of Internet usage pose the greatest risk of becoming 'addicted' or what behaviors can aggravate a problematic Internet usage pattern. It could, probably, be important not merely to consider the amount of time that students spend on-line, but 'how' this time is spent (32). Moreover, it could be interesting to understand if our students report academic or health problems as a result of increased Internet usage, and whether students who report these problems are more likely to use the Internet for social networking (e.g., Facebook) purposes or not (2). Finally, future research could focus on predictive factors that influence PIU levels in male and female students, as this study hints that some gender differences may be present.

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