CONTRIBUTION OF ANXIETY IN EARLY PHASE OF INTERNET DEPENDENCE

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ABSTRACT

Background: Internet dependency has been associated to many harmful health effects to the modern life. Objective: This commentary briefly aims to identify the influence of anxiety in early phase of internet dependence of college students, and possible sociodemographic characteristics associated to this issue. Methods: We classified the internet dependency and anxiety levels of 293 college students by the Internet Addiction Test (IAT) and adapted Hamilton scale (HAM-D). Results: Anxiety increase 1.56 times the chance to be internet dependent. Students living in families with lower number of members are more dependent than students with more family members. Also, men were more anxious than women, which might deserve further attention. Discussion: Among other mental conditions anxiety might be treated in college students preventing the increase in internet abuse in this vulnerable population. It might be especially important, since currently, the world is handling with social isolation for COVID-19 prevention.

Keywords: Internet. Anxiety. Dependency. Mental disorders.

INTRODUCTION

Although the utility of internet in modern life is unquestionable, this tool can also be used to facilitate crime, stimulate addiction, and the abuse of internet usage lead to harmful effects to human life (ALLISON et al., 2006). Currently the world is facing a remarkable crisis caused by COVID-19 pandemic, and the rate of isolation is just increasing, accelerating the use of virtual tools to keep social connections.

The harmful effects of internet abuse are very diverse. Shapira et. al. (SHAPIRA et al., 2000) reported personal distress, failure in college and decreased productivity that could even reach worst consequences such as job loss, financial damages and legal issues. Some physical consequences such as damage to vision, sleep deprivation, eating disorders, fatigue, and musculoskeletal
discomfort are described in the literature (ANDERSON, 2001; NALWA; ANAND, 2003; YOUNG, Kimberly S; RODGERS, 1998; YOUNG KS, 1998). Furthermore, the main psychosocial impacts are depression, impaired interpersonal relationships, lonely and reduction in social communication activities (ANDERSON, 2001; CHAN; RABINOWITZ, 2006; HA et al., 2007; LO; WANG; FANG, 2005; NALWA; ANAND, 2003; SHAPIRA et al., 2000; YOUNG, Kimberly S; RODGERS, 1998; YOUNG KS, 1998).

The internet abuse is more prevalent in college students compared to general population (OLIVEIRA; MELO; PADOVANI, 2013) and usually the abusers already has previous psychiatric conditions such as depression, anxiety disorder, and chronic low self-esteem (YOUNG, Kimberly S; RODGERS, 1998). Although triggers are not known, we speculate that a security feeling supported by the internet anonymity could be a strategy initially efficient to “increase socialization” but a long time, the preference for this sole form of communication reduces the social contact in real life, becoming a breeding ground for the manifestation of other pathologies.

In this way, improve our understanding of the causes of internet abuse is fundamental to develop efficient therapies and strategies to support the health of these abusers.

**METHODS**

We evaluate 293 medical students from a Brazilian university (FAMENE), in Nova Esperança. Each participant was informed about the research and they were required to sign the informed consent form whether they agree to participate as a volunteer in this research, or ask for their parents’ authorization when they were under age. The study was performed according to the ethics committee from FAMENE CAAE: 58181316.9.0000.5179). Data collection was performed in September 2016.

The socio-demographic profile of the students was self-reported by a questionnaire, and the internet addiction and anxiety were assessed by properly validated questionnaires as follows. Internet dependence was assessed through the Internet Addiction Test (IAT)(CONTI et al., 2012), in which the level of dependence and its consequent issues are measured. The questionnaire has 20 items based on Likert scale of 5 points, leading to a total score that ranges from 0 to 100. The higher score means higher internet dependence and the classification of total IAT score was dichotomized for analysis. Any light level of IAT were considered dependent (≥31) while the lower scores were addressed as non-dependent (≤ 30). For anxiety assessments we applied and adapted Hamilton scale (HAM-D), which quantitatively evaluates anxiety symptoms, including physical and psychological symptoms. In brief, the scores from 0 to 4 quantify the
intensity of symptoms, and the sum of these values from each question lead to the anxiety state score that ranges from 0 to 56. The final classification suggests until 17 points there is normal anxiety, and this group was treated as non-anxious, while the other categories above 18 were considered anxious.

We run a logistic regression to test whether anxiety was a risk factor for internet dependency, considering significant p-value < 0.05. Furthermore, we run an exploratory regression analysis, to identify predictors of different levels of anxiety or dependency. The predictor variables tested were: age, sex, financial income, marital status, work time load, religion, reading habits, number of siblings and familiar arrangement.

RESULTS AND DISCUSSION

Among the participants the majority were between 18 to 25 years old (69.3 %), were women (63.8%), with high family income, single, living with parents, in houses with ≤ 2 people, having ≤ 2 siblings. The majority of the 293 students were dependent of internet at some level (Table 1). Despite most of the students were not anxious at all, the majority of the anxious group were classified as internet dependent (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>Dependent</th>
<th>Non-dependent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious</td>
<td>56 (31.8%)</td>
<td>18 (15.4%)</td>
<td>74 (25.3%)</td>
</tr>
<tr>
<td>Non-anxious</td>
<td>120 (68.2%)</td>
<td>99 (84.6%)</td>
<td>219 (74.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>176 (100%)</td>
<td>117 (100%)</td>
<td>293 (100%)</td>
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The higher prevalence of internet addiction in our sample (60.1%) compared to other studies could be due to different tools and methods of analysis in other studies, such as virtual or presential questionnaires or also due to the known higher prevalence in college students (YOUNG, Kimberly S; YUE; LI, 2010). Likely, their accessibility to internet make it more common in this population. Another study in Brazil, estimated that college students expend between 4 to 5h on internet daily using Apps such as Facebook, WhatsApp and Tinder which, besides the harmful consequences of the addiction, reduces studding time and impairs the academic
performance per se (NAGATA et al., 2014). Even though the prevalence of internet addiction could be lower in other places, considering the current pandemic scenario of COVID-19, the number of people using internet in excess is expected to largely increase everywhere.

Our main finding was assessed by logistic regression to test whether anxiety was a risk factor for internet dependency, considering significant p-value < 0.05. The analysis showed 1.56 times higher chance of the anxious students to be internet dependent, than the non-anxious ones (OR 2.56, CI95% 1.41 – 4.64, p=0.002). Thus, reduce anxiety levels could be an important therapy to prevent internet dependence. According to Caplan, individuals who prefer virtual social interactions use such form of communication to reduce the anxiety caused by face to face interactions, facilitating their deficient self-regulation, reinforcing this method as a predictor of negative consequences of internet use (CAPLAN, 2002).

We run an exploratory regression analysis, to identify predictors of different levels of anxiety or dependency. Among all the predictor variables tested (age, sex, financial income, marital status, work time load, religion, reading habits, number of siblings, familiar arrangement), only the number of people in the family was predictor of internet dependency ($X^2 = 156.40$, p<0.0001) and tended ($X^2 =19.11$, p=0.085) to influence anxiety. Light dependent students (IAT: 31-49) live in families with 3 to 4 members while moderate dependent students (IAR: 50-79) live in families between 1 and 2 members. Frequently, individuals who excessively uses internet have a limited familiar communication, reduced circle of friends and use to be anxious, lonely and depressed (BREZING; DEREVENSKY; POTENZA, 2010).

As we showed earlier, the internet abuse also further depression, impaired interpersonal relationships, lonely and reduction in social communication activities (ANDERSON, 2001; CHAN; RABINOWITZ, 2006; HA et al., 2007; LO; WANG; FANG, 2005; NALWA; ANAND, 2003; SHAPIRA et al., 2000; YOUNG, Kimberly S; RODGERS, 1998; YOUNG KS, 1998), leading to a positive feedback loop.

We also noticed higher frequency of anxiety in men (10.4 (SD 6.44)) than women (7.34 (SD 7.34)), confirmed by a Student T test comparison (p < 0.001). Berner et al. (BERNER G; SANTANDER T, 2012) showed the low self-steem and different social coping strategies between men and women were associated to internet abuse. Men struggle with social anxiety, concerns about overweight and ruminating thoughts about future, while women face depression, introversion and stress (BERNER G; SANTANDER T, 2012). Unfortunately, individuals suffering with low self-steem feeling uneasy and lonely, can use internet to feel well with themselves and their life circumstances. The anonymity of virtual relationships is comfortable, as the detection of disapproval and judgments signals are reduced in comparison with face to face relationships (YOUNG, K.S.; ABREU, 2011).
We are aware the properly internet dependency diagnostic has to be done in a clinical setting, based on a detailed interview, including the assessment of mental conditions, behavior and the patient environment, instead of just a questionaries’ classification. Despite it was a limitation of our study, the questionnaire allowed to a large number of individuals to be analyzed, becoming a good representation of the population.

We highlight the importance to handle comorbidities and symptoms (such anxiety, depression, loneliness and stress) associated to internet dependence, since in many cases it is a relief tool that can not be simple removed from one’s life. There is a need to create efficient support the associated difficulties while the reduction of internet use is chased, avoiding the potentiation of the whole case. Specifically, we showed anxiety is a considerable target to be treated in college students to prevent internet abuse and its consequences. Furthermore, as we found such associations in college students with mainly light to moderate dependency, we can suggest the anxiety is a contributor to early phase internet dependence, reinforcing the likelihood of prevention in this initial scenario.

REFERENCES


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Os autores declararam não haver qualquer potencial conflito de interesses referente a este artigo.