Problematic online experiences among Spanish college students: Associations with Internet use characteristics and clinical symptoms

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Abstract

Internet access is almost universal among Spanish young people, and university students appear particularly vulnerable to developing problematic use patterns. This study examined the prevalence of a broad range of problematic online experiences in this population, and their associations with diverse Internet use characteristics and clinical symptoms. A sample of 493 students completed an online survey including the Index of Problematic Online Experiences (I-POE) by Mitchell, Sabina, Finkelhor, and Wells (2009), five subscales of the Trauma Symptom Inventory, and questions regarding Internet use characteristics. One in ten participants met criteria for problematic online use. Boys showed higher levels of problems in most I-POE domains. Spending more hours a day online predicted more problems related to overuse, daily obligations, and interactions with people online, whereas using dating websites predicted more problems with online behavior (e.g., identity deception). Higher concerns about own Internet use predicted higher levels of most clinical symptoms. In conclusion, although a minority of students may be considered problematic Internet users, this should be cause for concern and encourage preventative measures. Consistently with the cognitive-behavioral model (Davis, 2001) maladaptive cognitions seem to play a relevant role in the understanding of problematic Internet use. Besides, this study supports the utility of the I-POE as a quick assessment tool to identify problematic online experiences.

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1. Introduction

Nowadays, the number of online users in Spain have reached 68% of households (Instituto Nacional de Estadística., 2012), which evidences that the Internet is already an essential medium of information and communication in this country that “permeates our lives at home, school, and work” (Young, 2004, p. 402). Doubtless, this technology is generally beneficial for users, but its problematic use may nonetheless have negative effects on personal relationships, health, psychological well-being, job, education, hobbies, etc. (Widyanto & Griffith, 2011). In Spain, 5.4–14.7% of Internet users have decreased the time spent in sleeping, sports, studying, working, or staying with friends or family because of their Internet use (Asociación para la Investigación en Medios de Comunicación, 2012). Moreover, 18.5% of 12–25 year-old consider themselves Internet addicted (Graner, Beranuy, Sánchez-Carbonell, Chamorro, & Castellana, 2007).

Indeed, Internet has been deemed potentially “addictive” because of its anonymity, accessibility, low cost, instant gratification, controllability, synchronous elements, the possibility of identity construction, etc. (Beranuy, Chamorro, Graner, & Carbonell, 2009; Torrecilla et al., 2008). By using Pathological Gambling referenced in the DSM-IV (American Psychiatric Association, 1994) as a model, Internet addiction (IA) has been defined as an impulse-control disorder which does not involve an intoxicant (Young, 2004). Its inclusion as a new psychopathology in the upcoming DSM-V, however, has been refused because of the insufficient research data available (American Psychiatric Association, 2010). In fact, “there is no universal agreement as to the specific diagnostic criteria for IA, whether it is a discrete mental disorder, or, indeed, whether it is a disorder at all” (Pies, 2009, p. 33). Across studies, authors have thus used alternative terms such as Pathological Internet Use (Davis, 2001) or Problematic Internet Use (Caplan, 2002), and diverse theoretical perspectives. Remarkably, the cognitive-behavioral model (Davis, 2001) asserts that this phenomenon is not a mere addiction, and emphasizes the role of maladaptive cognitions as the proximal sufficient causes of the affective and behavioral symptoms of pathological Internet use.

Furthermore, there are currently no diagnostic instruments that show adequate reliability and validity across countries (Weinstein & Lejoyeux, 2010). Most scales developed in Spain are based on criteria for substance dependence and/or pathological gambling, e.g., Internet Over-Use Scale (Jenaro, Flores, Gómez-Vela, González-Gil, & Caballo, 2007), Use and Abuse of Internet questionnaire (García del Castillo et al., 2008), Questionnaire of Experiences Related to Internet (Beranuy et al., 2009). Recent data obtained from Spanish students, nevertheless, suggest that pathological Internet use may...
constitute a separate diagnosis label, not included in the impulse control or addiction disorders (Jenaro et al., 2007). The term “ Problematic Internet Use” (PIU) is thus here adopted to avoid the controversial connotations of “addiction” and “pathology.”

1.1. PIU among college students: prevalence and associated factors

Currently, Internet use is almost ubiquitous among young people. In Spain, 97.8% of 16–24-year-olds has ever gone online, and the majority (85.3%) connects at least five days per week (Instituto Nacional de Estadística, 2012). Given these high rates, research on the scope and correlates of PIU has remarkably increased in the last 15 years, generally focusing on adolescents and young adults. Likewise, college students have increasingly been targeted by researchers, as they seem to be more vulnerable to developing problematic use patterns due to their high rate of Internet access, huge blocks of unstructured time, newly experienced freedom from parental control (Young, 2004), developmental dynamics related to identity and intimacy (Kandell, 1998), etc.

Overall, previous prevalence research suggests that most university students have no or low levels of PIU yet a group with problematic use patterns is also identifiable. Concretely, the most recent rates observed in Spain range from no students (García del Castillo et al., 2008), 0.7% (Ruiz-Olivares, Lucena, Pino, & Herrero, 2010), 2.2% (Carbonell et al., 2012), 3.8% (Fernández, Llorca, & Delgado, 2012), 6.2% (Jenaro et al., 2007), to up to 9.9% (Muñoz-Rivas, Fernández, & Gámez-Guadix, 2010) meeting criteria for PIU. Similarly, rates vary widely across countries without being clear whether it is due to cultural differences or to diverse approaches in the conceptualization and assessment, e.g. 0% of students in Italy (Coniglio, Sidoti, Pignato, Giammanco, & Marranzano, 2012), 4% in the United States of America (Christakis, Moreno, Jelenchick, Myaing, & Zhou, 2011), 15.3% in Taiwan (Lin, Ko, & Wu, 2011), 18.3% in the United Kingdom (Niemz, Griffiths, & Buzlu, 2005), and 34.7% in Greece (Frangos, Frangos, & Sotropoulos, 2011).

In addition, previous findings inconsistently indicate the existence of gender and age differences in prevalence rates. Generally, male college students are found to be more problematic Internet users (Fernández et al., 2012; Frangos et al., 2011; Lin et al., 2011; Niemz et al., 2005; Ruiz-Olivares et al., 2010; Özcan & Buzlu, 2007), although some studies observe no significant gender differences (Beranuy et al., 2009; Carbonell et al., 2012; Jenaro et al., 2007). Likewise, some researchers disagree on whether older (Muñoz-Rivas et al., 2010) or younger (Fernández et al., 2012) students show higher PIU levels, whereas others find no significant differences by age (Ruiz-Olivares et al., 2010).

Regarding behavioral factors associated to PIU, the literature suggests that some Internet use characteristics such as amount of use and type of use are significantly related to PIU in the college population. Concretely, findings indicate that students who spend more time online (García del Castillo et al., 2008; Kim & Davis, 2009; Lin et al., 2011; Muñoz-Rivas et al., 2010; Niemz et al., 2005), and/or are more intense users of games, chat-rooms (Ceyhan, 2011; Frangos et al., 2011; Muñoz-Rivas et al., 2010; Özcan & Buzlu, 2007) and pornographic sites (Frangos et al., 2011; Özcan & Buzlu, 2007) show higher levels of PIU.

Finally, college students’ PIU has also been linked to psychosocial and mental health variables such as anxiety (Coniglio et al., 2012; Jenaro et al., 2007; Kim & Davis, 2009), depression (Caplan, 2002; Chen, 2012; Christakis et al., 2011; Coniglio et al., 2012; Jenaro et al., 2007; Lin et al., 2011; Özcan & Buzlu, 2007), low self-esteem (Caplan, 2002; Chen, 2012; Kim & Davis, 2009; Niemz et al., 2005; Widyananto & Griffith, 2011) and loneliness (Caplan, 2002; Chen, 2012; Kim, LaRose, & Peng, 2009; Özcan & Buzlu, 2007), without being clear whether PIU leads to these symptoms or vice versa because studies have examined associations rather than causal relationships (Byun et al., 2009).

1.2. I-POE: an index to broadly assess PIU based on mental health professionals’ perspective

Beyond above-mentioned discrepancies on the appropriate terminology, criteria and measurement approach to PIU, there is evidence that most mental health professionals are exposed to clients with problematic online experiences (Wells, Mitchell, Finkelhor, & Becker-Blease, 2006). According to some authors, these professionals thus may have “the most advanced clinical knowledge on PIU” (Acier & Kern, 2011) and shed light on aspects not revealed from a population-based perspective (Mitchell, Becker-Blease, & Finkelhor, 2005).

Based on this premise, Mitchell et al. (2005) surveyed 1504 mental health professionals and proposed the Inventory of Problematic Internet Experiences, an inventory consisting of 11 types of online experiences deemed problematic because of their negative impact on clients’ lives (e.g. overuse, gaming, harassment, isolative-avoidant use, fraud, etc.). Subsequently, Mitchell, Sabina, Finkelhor, and Wells (2009) defined PIU as “encompassing a broad range of possible online behaviors and experiences that (…) result in a disruption of relationships, values, daily obligations, and/or mental or physical well-being” (p. 707), and created the Index of Problematic Online Experiences (I-POE), a short instrument that aims to broadly assess PIU across several domains, thus overcoming the limitations of instruments which focused on Internet addiction or overuse with limited attention to other Internet related problems.

Founded on the cognitive-behavioral model of PIU (Davis, 2001), the I-POE was supplied with content from the Inventory of Problematic Internet Experiences (Mitchell et al., 2005) in order to add content validity. According to its authors, the variety of items included makes it useful to screen a broad range of problematic Internet use among many types of users (Mitchell et al., 2009). Construct validity was established based on correlations and regressions that showed the relationship of I-POE score with characteristics found to be related to PIU, specifically, with amount of Internet use and trauma symptoms – depression, anger/irritability, sexual concerns, dysfunctional sexual behavior and tension-reduction behavior – (Mitchell et al., 2009).

1.3. The present study

In short, the literature reviewed in Section 1.1 has provided evidence on the non-negligible prevalence of PIU among university students (although encountered rates vary widely both across authors and countries) as well as on the socio-demographic, behavioral and mental health factors that appear to be associated to this problem. In our opinion, these findings are doubtless valuable yet insufficient, since “more research is needed about who is vulnerable to various Internet-related problems and how such problems interact with traditional mental health issues” (Mitchell et al., 2005, p. 507). Moreover, data and conclusions obtained so far in Spain about the prevalence and associated factors of PIU are still limited due to the infancy of this research area.

On the other hand, it is remarkable that the I-POE has been recently proposed as a quick screening index derived from a large study of mental health professionals who indicated commonly cited Internet-related problems faced in their practice. According to its initial testing with 563 college students, this instrument holds promise as a “useful risk marker for problematic Internet experiences that could impact the lives of young adults” (Mitchell et al., 2009, p. 709). The utility of the I-POE, however, needs to be further tested in other populations (Mitchell et al., 2009) and
countries. To our knowledge, it has not been used yet elsewhere since its development in the USA.

Based on these arguments, the present study aimed to replicate and extend Mitchell et al. (2009) research by applying the I-POE to a sample of Spanish university students and examining:

(a) The prevalence of diverse problematic online experiences, and
(b) The associations between such experiences and students’ Internet use characteristics and clinical symptoms.

Taking the above-mentioned findings into account, it was hypothesized that:

- Only a minority of students might be considered problematic Internet users. Based on prior studies in Spain, the expected prevalence rate was up to 10%.
- As in Mitchell et al. (2009), problems related to Internet overuse (e.g. “using the Internet late at night fairly often”) would be the most frequently reported;
- There would be significant gender and age differences in PIU, with boys and older students reporting more problematic online experiences;
- Students’ PIU would be significantly associated to their Internet use characteristics, with those who spend more time online and/or make specific uses of the Internet (e.g. chatting, playing games) reporting more problematic online experiences;
- Students’ PIU would be significantly associated to their clinical symptomatology (e.g. depression), with problematic users showing higher levels of symptoms.

2. Method

2.1. Participants and procedure

Data were collected during spring semester 2009 by applying an online survey.

In a recent meta-analysis, Byun et al. (2009) concluded that studies on Internet addiction most often appropriately use web-based survey methods. Besides, some studies support the psychometric and quality equivalence of Internet and in-person data (Meyerson & Tryon, 2003; Revilla & Saris, 2013) and indicate that surveys involving face to face interactions elicit more socially desirable responses (Heerwegh, 2009).

All students from the University of Salamanca (around 30,000) received a survey request by e-mail distribution list, with the approval of the Vice-Rector for Research. Besides, Psychology students were called to participate in the study by a posting in the virtual campus. All potential participants were asked to log onto the study website and complete the online survey. Both the recruitment email and the study website indicated that the survey included questions about Internet use and took about fifteen minutes to finish. They also highlighted that participation was anonymous and voluntary, and it was possible to skip any questions students did not want to answer. In addition, potential participants were asked to inform other university students about the survey and given information about how to contact the researchers in case of questions.

The sample consisted of 493 students, 367 females (74.6%) and 125 males (M = 24 years, SD = 5.6), 77.8% of them undergraduates. The sample distribution by gender and academic degree was similar to the population distribution, as 79.6% of students enrolled in academic year 2010/2011 were undergraduates, and 58.9% of them were females (University of Salamanca, 2011). The higher proportion of females in the sample could be due to the fact that Psychology students, who are predominantly girls, were encouraged to participate by two means (e-mail and virtual campus).

On average, participants first went online at the age of 17 (SD = 4.64) and used Internet 3 h a day (SD = 2.13), generally (75.6%) five or more days a week, to send emails (98.2%) and instant messages (89%). A smaller portion used blogs (27.6%), games (26.6%), chat-rooms (16.4%), or dating sites (11.4%). Boys connected more hours a day (M = 165.740, SD = 3.62, p < .001), had more experience with the Internet (τu = 7.96, p < .001) and were more likely to use chat-rooms ($χ^2$ = 6.921, p < .01) and games ($χ^2$ = 23.562, p < .001).

2.2. Instruments

Replicating Mitchell et al. (2009) study, the following measures were assessed:

2.2.1. Problematic online experiences

The I-POE (Mitchell et al., 2009) is a 26-item, binary response (yes/no) instrument that assesses PIU across six domains: overuse (3 items), problems with family or friends (6 items), problems with daily obligations (6 items), problems related to interactions with people online (4 items), upset or concern about own Internet use (4 items), and online behavior concerns (3 items). Questions ask about experiences and behavior in the past year. Total and domain scores are obtained by summing the affirmative responses. Higher scores indicate greater levels of PIU and lower scores indicate lesser levels. As in Mitchell et al. (2009), however, 16 items endorsed by less than 5% of the sample were weighted with a value of 2 for a positive response because they were likely more indicative of PIU if endorsed. A total score of 42 points was possible using the weighted items. Participants’ mean total score was 1.73 (SD = 2.51; Range: 0–21). The I-POE showed adequate internal consistency reliability in this study (K-R 20 = .69).

2.2.2. Internet use characteristics

Participants were asked about: (a) Age of first Internet use; (b) Internet expertise, or the experience they had using the Internet on a scale of 1–5 (beginner – expert); (c) Importance of Internet, or how relevant the Internet was in their lives on a scale of 1–5 (not at all – extremely); (d) Type of Internet use, or whether they used the Internet for emailing, instant messaging, going to chat-rooms, playing games, keeping on blogs, or using dating sites (yes/no) during the past year; (e) Amount of Internet use, or the number of days in a usual week they used Internet and the number of hours they connected on a typical day.

2.2.3. Clinical symptoms

The Trauma Symptom Inventory (TSI) developed by Briere (1995) is a 100-item test of posttraumatic stress and other psychological sequelae of traumatic event. Each symptom item is rated according to its frequency of occurrence over the prior 6 months using a four point scale ranging from 0 (never happened) to 3 (happened often). As in Mitchell et al. (2009), only five subscales (38 items) were included in this study:

- Depression (D), in terms of both mood state and depressive cognitive distortions.
- Anger/irritability (AI), that is, angry mood and irritable affect.
- Sexual concerns (SC), such as sexual dissatisfaction, confusion regarding sexual issues, sexual problems in relationships or unwanted sexual preoccupation.
- Dysfunctional sexual behavior (DSB) or sexual behavior that is indiscriminant, potentially self-harmful or inappropriately used to accomplish non-sexual goals.
– Tension reduction behavior (TRB) or tendency to turn to external methods of reducing distress (e.g., manipulative behavior, angry outbursts).

The TSI has demonstrated high internal consistency, with alpha coefficients ranging from .74 (TRB) to .91 (D), and mean alpha of .86 (Briere, 1995). On average, the five selected subscales showed good internal consistency in this study (mean \( \alpha = .76 \)): D \((\alpha = .87)\), AL \((\alpha = .86)\), SC \((\alpha = .76)\), DSB \((\alpha = .70)\), TRB \((\alpha = .60)\). Besides, the TSI has exhibited good concurrent, predictive, and incremental validity (Briere, 1995).

2.2.4. Social desirability

In order to examine and adjust for social desirability as a response tendency with self-report measures, a 10-item short version of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) was included (Strahan & Gerbasi, 1972). Items are responded to as either true or false, and scores ranges from 0 to 10 (the higher the score, the greater the level of socially desirable responding). This short version’s reliability has shown to be equal to the original, with K-R 20 ranging from .49 to .75 (mean K-R 20 = .62) and its validity is evidenced by high correlations with the full version, ranging from \( r = .80 \) to \( r = .90 \) (Strahan & Gerbasi, 1972). In the current study the K-R 20 was .59.

3. Results

Analyses were conducted with SPSS-20, setting the level of significance at .01.

In order to test our first hypothesis, students with mild and major PIU were located by identifying those whose I-POE total score was between 1 and 2 standard deviation above the mean, or 2 or more standard deviations above the mean, respectively. This analysis indicated that 10.8% of participants showed mild (6.1%) or major (4.7%) PIU.

The second hypothesis was examined by calculating the percentage of participants reporting each of the experiences or behaviors described in I-POE items. As Table 1 shows, the prevalence of the diverse problematic experiences varied from 21.7% of students selecting 125 females. The results turned out to be similar, suggesting that the gender imbalance did not have any undesirable effects on them.

Finally, given the large imbalance between the number of males and females, the regression analyses were repeated with a sample size of 250 participants including all the 125 males and randomly selected 125 females. The results turned out to be similar, suggesting that the gender imbalance did not have any undesirable effects on them.

4. Discussion

4.1. Prevalence of problematic online experiences among Spanish college students

Firstly, this study hypothesized that only a small portion of university students in Spain could be deemed problematic Internet users. Consistently with prior research (Carbonell et al., 2012; Fernández et al., 2012; Jenaro et al., 2007; Muñoz-Rivas et al., 2010; Ruiz-Olivaives et al., 2010) and confirming this hypothesis, findings suggest that most Spanish students make healthy use of the Internet, although a concerning minority (approximately one in ten) may develop problematic use patterns. Moreover, it appears that a broad range of problematic online experiences related to overuse, family or friends, daily obligations, interactions with people online, concerned feelings about own Internet use, and online behavior affect a non-negligible portion of students (7–22%), which corroborates that a wide variety of problems can arise from Internet use beyond merely spending too much time online (Davis, 2001; Mitchell et al., 2009).
Problematic online experiences ordered by domains and endorsement rates (%).

Table 1

<table>
<thead>
<tr>
<th>Problems with daily obligations (Range: 0–7; M = 0.18; SD = 0.73)</th>
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<tr>
<td>Feeling you use the Internet a lot more than most other people</td>
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<tr>
<td>Number of days you pretend to be someone else on the Internet</td>
</tr>
<tr>
<td>Number of days you lose money or other personal property to someone you met on the Internet</td>
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<tr>
<td>Tables 1 and 2 show the results of the multivariate tests for each domain.</td>
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</table>

Secondly, and contrary to this study’s expectations and Mitchell et al. findings, Internet overuse appears not to be the most frequently reported problem by Spanish college students. According to obtained data, being victim of identity deception might be the most prevalent problematic experience affecting one in five students (instead of using the Internet late at night fairly often). Furthermore, one in ten students appears to engage in this behavior. According to previous literature (Torrecilla et al., 2008), characteristics of online communication (anonymity, lack of non-verbal cues, greater control over time and pace of interactions) may contribute to a greater propensity for individuals to deceive on the Internet (Guadagno, Okdie, & Kruse, 2012).

Thirdly, this study expected to find significant differences in the prevalence of PIU as a function of some socio-demographic variables. With regard to gender, our findings indicate that male students report more problematic online experiences than their female mates, which is both consistent with the hypothesis and prior research (e.g. Fernández et al., 2012; Frangos et al., 2011; Lin et al., 2011; Ruiz-Olives et al., 2010). This could be partially explained by the fact that boys have been found to spend
significantly more time online (Carbonell et al., 2012; Muñoz-Rivas et al., 2010) and higher amount of Internet use has shown to predict more PIU, as discussed below. With regard to age, this study finds no remarkable differences in PIU between younger and older students, in contrast to some earlier studies (Fernández et al., 2012; Muñoz-Rivas et al., 2010) but in agreement with others (Ruiz-Olivares et al., 2010). As an exception, younger students seem to be more frequently victims of identity deception (maybe because they are more “naïve” or less aware of the risks of online communication), although caution must be applied as this association was not found to be strong.

4.2. Internet use characteristics and clinical symptoms associated to problematic online experiences

On the other hand, this study predicted that those university students who spend more time online and/or use specific applications would report more problematic online experiences. Indeed, and also confirming prior studies (e.g. García del Castillo et al., 2008; Kim & Davis, 2009; Lin et al., 2011; Muñoz-Rivas et al., 2010), findings suggest that higher amount of Internet use predict more PIU. Researchers, however, advise caution when identifying the time spent online as a differential criterion between problematic and non-problematic users, because “people can make considerable use of the Internet without showing significant suffering” (Acier & Kern, 2011, p. 988).

Similarly, this study suggests that chatting or gaming is associated with PIU, what adds support to findings indicating that students who use the Internet for entertainment or social relationships are more problematic users (Ceyhan, 2011). These online activities, nevertheless, lose predictive power when gender is controlled for (as boys are heavier users of chat-rooms and games). Remarkably, students who visit dating websites seem to be more likely to engage in identity deception, what is congruent with findings indicating that some online daters make unrealistic self-presentations of themselves (Guadagno et al., 2012).

Finally, this study hypothesized that problematic users would show higher levels of clinical symptoms. In this regard, although students’ overall PIU is associated with all assessed symptoms, it seems that being concerned about own Internet use (being upset, embarrassed or afraid because of something happened online, feeling guilty and/or going for help about your Internet use) is the only problem that predicts higher levels of most of them, especially depression and tension-reduction behavior. This finding appears consistent with the cognitive-behavioral model indicating that maladaptive cognitions such as self-focused rumination (e.g. constantly thinking about online problems or figuring out why one is oversusing the Internet; talking to friends about oversusing the Internet) are sufficient to cause the symptoms associated with PIU (Davis, 2001). Interestingly, concerns about Internet use are not predicted by Internet use characteristics, what suggests that such thoughts might be related to students’ cognitive style rather than online behaviors.

This study has nonetheless several limitations that need to be considered. Firstly, the use of a convenience sample of students from a single university advises caution in the generalization of the results to the Spanish college population. Secondly, the online collection of data might have caused sampling biases, as it implied that only those students with an Internet connection could be selected. This, however, may not have been a problem in this study.
since the target population was the Spanish college population, where Internet use is universal (BBVA Foundation, 2010). Yet it is possible that the data collection procedure fostered the overestimation of PIU, as more problematic Internet users might have been more willing to complete the survey. Thirdly, the results may not account for most recent changes in students’ access to and uses of this tool (e.g., Internet access from smartphones, use of social networking websites). Finally, the use of a cross-sectional design does not allow causal inferences from the associations encountered.

Future studies on the current topic could thus benefit from recruiting larger samples of students from different universities across Spain, as well as using probability and non-web based sampling techniques to obtain a more representative picture of the Spanish college population. It may also be interesting to examine the associations between Spanish students’ PIU and other factors (e.g., use of social networking websites and/or instant messaging applications for smartphones, health risk behaviors, academic performance, attachment style, interpersonal relationships, etc.). On the other hand, the use of cause-and-effect techniques such as structural equation modeling (Byun et al., 2009) may help better determine the directionality of associations.

In conclusion, this study provides more evidence for the existence of PIU in the college population. Although the prevalence rate observed is not much higher than that previously encountered in Spain and lower than some rates obtained abroad (Frangos et al., 2011; Lin et al., 2011; Niemz et al., 2005), it should be cause for concern and encourage the development of policies that promote the healthy, safe and ethical use of the Internet in this population (e.g., prevention of online identity deception). These policies might benefit from modeling school-based programs that have shown to be effective in reducing problems associated with the use of Internet among Spanish adolescents (Carbonell, Graner, & Quintero, 2010).

Moreover, this study suggests that students who are male and/ or heavier Internet users are more vulnerable to have problematic online experiences, and that those more concerned about their Internet use are more likely to show high levels of clinical symptoms. As Davis (2001) claims, future research and interventions may thus benefit from a deeper analysis of the role of maladaptive cognitions in the development of PIU.

Finally, our findings support the usefulness of the I-POE (Mitchell et al., 2009) as a quick assessment tool to identify young adults who experience a broad range of problematic online experiences and may need more thorough assessments. It is still necessary, however, to assess the utility of this instrument in other populations (e.g., general public, adolescents) and countries, and to test new items that may target more contemporary Internet related problems (Mitchell et al., 2009).

Acknowledgments

The authors thank Kimberly J. Mitchell, Ph.D., Chiara Sabina, Ph.D., David Finkelhor, Ph.D., and Melissa Wells, Ph.D. for encouraging this study.

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