

## Social Isolation and the “Sheltered” Profile in Adolescents with Internet Addiction

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Received date: May 03, 2014, Accepted date: June 06, 2014, Published date: June 11, 2014

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### Abstract

**Background:** Demand for treatment for Internet-related troubles in adolescents is rising. The profiles of patients in a clinical population are not accurately known and we hypothesize motivation could be useful for characterization. We describe a sample of outpatients, differentiate between two groups based on their motivation, and describe the clinical differences found between them.

**Methods:** Outpatients referred to our Adolescent Addiction Unit with “Internet addiction” as a presenting complaint were evaluated using specific criteria for Internet addiction and, if included in the study, also using DSM-IV-TR Axis I and II. They were categorized into two groups: “sheltered,” defined as having high levels of interpersonal problems and motivated to use the Internet as a way to escape, to avoid, to cope, or to feel sheltered; and “non-sheltered,” not showing this motivation. We prospectively assessed qualitative and quantitative data on clinical presentation, Internet applications and use profile, treatment and, progress. We conducted a descriptive analysis of differences.

**Results:** A total of 34 out of 54 subjects met diagnostic criteria for Internet addiction (IA) (mean age 15.38; SD=1.26; 76.5% male). Seventeen subjects (50%) reported using the Internet as a shelter. Diagnoses were mainly internalizing in the sheltered group and externalizing and behavioral in the non-sheltered. Sheltered subjects were significantly younger, had more comorbid disorders, more previous interpersonal problems and an increased loss of contact with friends, used the Internet more often to cope with interpersonal problems, had received prior treatment more frequently, and more often required a combined approach to treatment. Moreover, their motivation was less likely to be a feeling of offline boredom or recreational and they had greater massively multiplayer online role-playing game (MMORPG) use and night-time use and increased school failure and loss of contact with peers.

**Conclusions:** We found two IA adolescent profiles that could be defined by using the Internet as a shelter, showing high levels of social isolation and having differences in presentation, Internet use characteristics, comorbidity, treatment and progress.

**Keywords:** Adolescent; Technologies; Outpatients; Diagnoses; Internet

### Introduction

We are witnessing the generalization of information and communication technologies in all population strata, represented by the Internet, with especially high penetration in adolescents. A growing number of voices are alerting to the potential risks of excessive use of the Internet[1]. A large disparity has been found in the prevalence of IA diagnosis –from 3 to 7% in the United States, to 5.9% of students in Taiwan, to 10.6% of Chinese students[2-3]. In Spain, 74% of adolescents aged 15 to 19 use the Internet almost every day, while 7% spend more than 3 hours per day [4]. There is special concern for the consequences of excessive Internet use in adolescents, which is reflected in a rise in the number of requests for specific treatment. Parents are faced with the question of whether or not their children

have an addiction and of what the repercussions of excessive use may be.

Risk factors for IA described in research are being young and having affective instability, low self-esteem, an insecure personality, shyness, anxiety, family deficits and low supervision [5,6]. Mental health professionals question whether IA consists of a disorder in and of itself or whether it is a manifestation of an underlying disorder, given the high frequency of comorbidity. Comorbidity has been found between IA and depression, Attention Deficit and Hyperactivity Disorder, social phobia and hostility[7], and IA has been associated with the clinical worsening of obsessive-compulsive symptoms, interpersonal skill deficits, feelings of loneliness, hostility, isolation and, in particular, depression severity [2,8-10].

The relationship between depression and IA is well established [7,11]. Depression has been associated with excessive Internet use as a risk, a comorbid and prognostic factor and a potential consequence. Internet addicts show high rates of emotional loneliness and lower

rates of social loneliness<sup>12</sup>. Caplan<sup>13</sup> reported that social anxiety was related to a preference for online interaction, an aspect which has been found to be associated with negative outcomes. Using the Internet to alter mood was found to lack influence on outcomes and not necessarily lead to negative consequences<sup>14</sup>.

The relationship between mental disorders, mainly depression, and social isolation is well established too<sup>15</sup> and shows that loneliness and little social support predict poorer outcome for depressed patients. Along the same lines, several studies have focused on loneliness and Internet use, concluding that Internet helps to improve social and communication skills, whereas other studies suggest that immersion in Internet use exacerbates feelings of loneliness<sup>16</sup>. In addition, Sander's study found that high levels of Internet use is related to weaker social ties<sup>17</sup>.

Research to develop more effective treatment for Internet addiction has increased. One of the major motives driving individuals' Internet use is to relieve psychosocial problems<sup>18</sup>. In adolescents with drug addiction, noteworthy research seeks to understand the motivations to use<sup>19</sup>. Motivational models of substance use suggest that behavior is mediated by different motives, and these motives are important for understanding the circumstances and context of such behavior<sup>20</sup>. Regarding cannabis use, understanding the motives why it is used and the relationship between use and abuse/dependence may be important aspects to assess for developing effective interventions<sup>21,22</sup>.

Some authors have tried to define subtypes of IA. Griffiths<sup>23</sup> claimed that IA patients looked for a way “to cope and counteract other inadequacies and used the Internet mainly for social contact.” Wydanto and Griffiths<sup>1</sup> describe two commonly reported patient groups which both suffer from the negative consequences of excessive Internet use: a) subjects for whom the Internet is a way to engage in a behavior such as gaming or gambling; b) subjects addicted to specific behaviors only available on the Internet. Meanwhile, Young<sup>24</sup> focused her study of IA subtypes on the specific aspect of the Internet that causes engagement.

Our daily clinical practice with IA adolescents shows us that there may be different Internet use profiles and consequences related to the type of comorbid condition and the motive for using the Internet. We hypothesized that assessment of an attitude of avoiding or escaping social isolation, which we called “sheltering” could be useful in characterizing this population. We designed a prospective study with the following objectives: a) to describe our outpatient clinical sample of adolescents with IA; and b) to explore clinical differences found between the two groups we propose –sheltered and non-sheltered– based on their different motives for using the Internet, related to pleasure or coping (to cope with their social isolation and loneliness).

## Materials and Methods

### Participants and Procedures

We evaluated all consecutive subjects referred to the Adolescent Addictions Unit of the Department of Child and Adolescent Psychiatry and Psychology at Sant Joan de Déu Hospital, Barcelona, for Internet addiction problems as a presenting complaint from January 2010 to July 2011. The diagnosis was clinical. We evaluated children and their parents. We evaluated for Axis I and II disorders using DSM-IV-TR criteria and for IA disorder based on the clinical diagnostic criteria for adolescents proposed by Ko et al.<sup>25</sup>. These authors proposed that Internet addiction must include preoccupation, uncontrolled impulse,

usage more than intended, tolerance, withdrawal, impairment of control, excessive time and effort spent on the Internet, and impairment of decision-making ability. We deemed that patients needed to present six or more criteria in criterion A, functional impairment (criterion B) and criterion C (The Internet addictive behavior is not better accounted for by psychotic disorder or bipolar I disorder)<sup>25</sup>. Inclusion criteria consisted of being under 18 years old and meeting Ko's IA criteria. We collected baseline and prospective clinical data through clinical interviews in the therapeutic process. We recorded demographic data (gender and age) and clinical data (diagnosis of Axis I and II, the fact of having more than one diagnosis, the existence of family psychiatric history and previous treatments). The following psychosocial factors were described: existence of bullying or other (e.g. house moving, school change, etc.), drugs use, and primary support group problems. We also recorded a loss of contact with the group of friends (no significant friends) and changes in school performance (unchanged, fail or drop out). With regard to Internet use, we recorded the type of application (general online games, multimedia multi-player online role playing games [MMORPG]) and social networks (including chat rooms, messaging applications, forums, Facebook®, and the like). Subjects were also asked about the following behavioral characteristics: a preference for night-time playing, a feeling of boredom when offline, a feeling of not being able to cope when offline, and the existence or absence of a recreational motivation for playing. We categorized subjects' underlying disorders into “behavioral disorders” and “other mental disorders.”

After inclusion, we divided the subjects into two groups, “sheltered” and “non-sheltered,” depending on the main motivation for Internet use expressed by the patient. Sheltered subjects were defined as patients whose main motivation for Internet use is coping, as a way to escape, to avoid, to cope with or to seek a virtual refuge or shelter from their situations, conflicts or responsibilities, related to their social isolation, loneliness and history of loss of contact with peers, regardless of whether or not there is physical seclusion. Non-sheltered subjects were patients who did not express these motivations.

All included subjects were treated as usually done in the Adolescent Addictions Unit, which includes individualized treatment based on a psychotherapeutic approach and psychopharmacological treatment if needed, following the model for behavioral addictions proposed by Echeburua<sup>26</sup>. We recorded the need for acute hospital admission or partial hospitalization, the type of intervention (psychotherapeutic or combined with psychopharmacological treatment) and, as an outcome variable, the Clinical Global Impression - Improvement scale (CGI-I), considering “improvement at three months” as a score of 6 or 7.

### Statistical analysis

We performed descriptive analyses using frequencies and percentages for categorical variables and mean and standard deviation for quantitative variables. To assess differences between the “sheltered” and “non-sheltered” groups, we conducted a chi-square test, Fisher's exact test or Student's t-test for independent samples, as appropriate. P-values less than 0.05 were considered statistically significant. SPSS 18.0 (IBM Corp) was used for analysis.

### Results

Of the 53 patients who complained about possible IA, only 34 inpatients met diagnostic criteria for IA. They were aged 13-17 years (mean=15; SD=1.26) and gender was male in 76.5%. Of the 34

subjects, 17 subjects (50%) reported using the Internet as a way to escape or to seek refuge, and 17 subjects (50%) did not. There were no statistically significant differences in gender ( $p=0.688$ ) between the two groups. Sheltered subjects were significantly older ( $p<0.001$ ) (aged 13-17; mean=16.18; SD=1.13 vs. aged 12-17; mean=14.59; SD=0.8). Diagnosis in the non-sheltered group according to DSM-IV-TR criteria was disruptive behavior disorder not otherwise specified in 94.11% (16

cases) and adaptive reaction with mixed emotions and behavior disorder in 5.89% (1 case). Diagnosis in the sheltered group consisted of affective disorder in 29.4% (5 cases), anxiety disorder in 23.5% (4 cases), Axis II personality disorder in 23.5% (4 cases), adaptive reaction with mixed emotions and behavior disorder in 11.76% (2 cases), ADHD in 5.89% (1 case) and psychotic disorder in 5.89% (1 case).

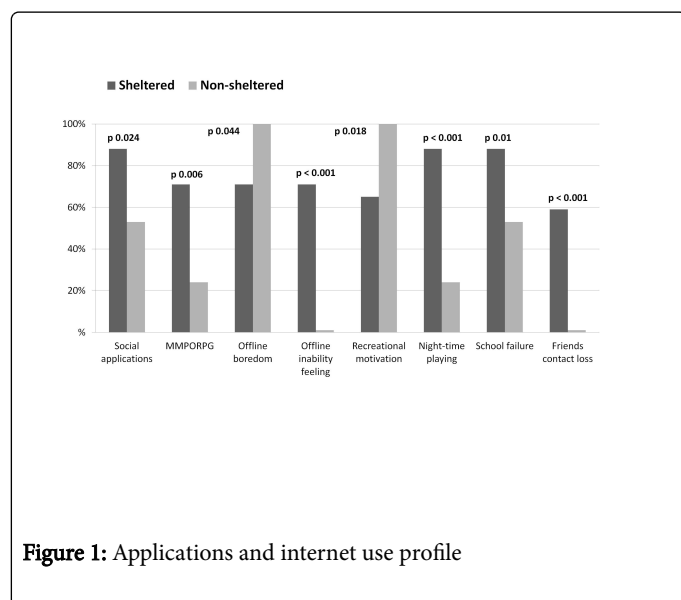
Variable	Sheltered	Non-sheltered	Total	P-value
	(N = 17)	(N = 17)		
Age	16.18 (D=1.13)	14.59 (SD= .80)		<0.001
Gender				0.688
Male	14 (82.4%)	12 (70.6%)	26 (76.5%)	
Female	3 (17.6%)	5 (29.4%)	8 (23.5%)	
Type of disorder				<0.001
Behavioral	2 (11.8%)	17 (100%)	19 (55.9%)	
Other mental disorder	15 (88.2%)	0 (0%)	15 (44.1%)	
More than one diagnosis	12 (70.6%)	1 (5.9%)	12 (38.2%)	<0.001
Previous treatment	15 (44.1%)	3 (17.6%)	18 (52.9%)	<0.001
Drug use	4 (23.5%)	3 (17.6%)	7 (20.6%)	1
Previous bullying/loss of peers	10 (58.8%)	4 (23.5%)	14 (41.2%)	0.037
Family psychiatric history	13 (76.5%)	6 (35.3%)	19 (55.9%)	0.016
Primary support group problems	13 (76.5%)	14 (82.4%)	27 (79.4%)	1

**Table 1:** Clinical Profile

Variable	Sheltered	Non-sheltered	Total	P-value
	(N = 17)	(N = 17)		
Applications with social component	15 (88.2%)	9(52.9%)	24 (70.6%)	0.024
Social networks *	11 (64.7%)	7 (41.2%)	18 (52.9%)	0.169
MMORPG	12 (70.6%)	4 (23.5%)	16 (47.1%)	0.006
Online videogaming **	3 (17.6%)	5 (29.4%)	8 (23.5%)	0.688
Offline boredom	12 (70.6%)	17 (100%)	29 (85.3%)	0.044
Offline feeling of inadequacy	12 (70.6%)	0 (0%)	12 (35.3%)	<0.001
Night-time playing	15 (88.2%)	4 (23.5%)	19 (55.9%)	<0.001
Recreational motivation	11 (64.7%)	17 (100%)	28 (82.4%)	0.018
School performance				0.01
Unchanged	2 (11.8%)	8 (47.1%)	10 (29.4%)	
Failure	6 (35.3%)	7 (41.2%)	13 (38.2%)	
Drop out	9 (52.9%)	2 (11.8%)	11 (32.4%)	

Loss of contact with friends	10 (58.8%)	0 (0%)	10 (29.4%)	<0.001
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**Table 2:** Applications and internet use profile



**Figure 1:** Applications and internet use profile

Variable	Sheltered	Non-sheltered	Total	P-value
	(N = 17)	(N = 17)		
Acute hospitalization admission	7 (41.2%)	1 (5.9%)	8 (23.5%)	0.039
Partial hospitalization admission	7 (41.2%)	0 (0%)	7 (41.2%)	0.007
Improvement at 3 months *	5 (33.3%)	12 (80%)	17 (56.7%)	0.01
Type of treatment				<0.001
Psychotherapeutic	5 (29.4%)	16 (94.1%)	21 (61.8%)	
Combined	12(70.6%)	1 (5.9%)	13 (38.2%)	

\* ICG-I>5

**Table 3:** Type of treatment and outcome

A comparison between both subject groups is shown in Tables 1, 2 and 3. With regard to the clinical profile, we can see that sheltered subjects often received more than one different diagnosis and mostly had disorders other than behavioral disorders, in contrast to non-sheltered subjects (88.2% vs. 11.8%). The sheltered group also had more previous bullying or a significant loss of peers, more family psychiatric history, and had been treated before more frequently. They also had worse school performance (52.9% dropout and 35.3% failing vs. 11.8% and 41.2%, respectively, in the non-sheltered group) and greater loss of contact with the group of friends (58.8% vs. 0%). As for applications and the use habits profile (Table 2 and Figure 1), sheltered subjects reported feeling less offline boredom and greater inability to

cope with inadequacies; they played more at night and used the Internet for recreational purposes less frequently. The sheltered group showed more MMORPG use (70.6% vs. 23.5%); nevertheless, we did not find statistically significant differences in social networks and videogame use. Of the 6 subjects that only used MMORPG as a form of socializing, 4 belonged to the sheltered group. The sheltered group needed more acute hospital admission (41.2% vs. 5.9%) and was the only group that was referred for partial hospitalization (41.2%). Sheltered subjects had fewer improvements at three months than non-sheltered subjects (33.3% vs. 80%). Treatment in the sheltered group consisted of a combined approach in 70.6% of cases and only psychotherapeutic treatment in 29.4% of cases, whereas treatment in the non-sheltered group was 5.9% and 94.1%, respectively. No statistically significant differences were found in the presence of primary support group problems or drugs use.

## Discussion

The results of this study support the previous idea of the importance of the type of mental disorder, the motivations for Internet use and interpersonal relationships to define the existence of two different IA adolescent groups, which we have called “sheltered” and “non-sheltered.” There is a noteworthy frequency of the latter group, mainly consisting of patients with IA and a behavioral disorder, mostly a disruptive behavior disorder, and a recreational motivation for use. In our opinion, non-sheltered subjects seem to be associated with externalizing symptoms and impulse-control disorder, which is one of the models proposed to explain IA27-29. We found these subjects to be characterized by being younger at the time of requesting treatment and by responding well to the implementation of behavioral limits, with initial total abstinence as a goal, in collaboration with family, without having to use drugs and basing the treatment on a behavioral addictions program.

By contrast, adolescents in the sheltered group were older and had different disorders, particularly affective, anxious, and adaptive disorders, often with more than a single diagnosis. The characteristic we used to define this group was the specific motivation for Internet use, which in this case was a way to escape, to cope with inadequacies, to cope with social problems and loneliness, even without engaging in recreation through Internet use, and the fact of having feelings of inadequacy when offline, as we found. This attitude entails self-isolation and not infrequently drives subjects to physical seclusion at home, which could be associated with their more common functioning impairment (worse school performance and loss of contact with friends). They differ from the non-sheltered group in the characteristics of Internet use (Figure 1) and by having more night-time playing (with the resulting difficulties in doing morning activities, mainly academics) and more use of social applications. Our observations show that these subjects are more complex, have fewer social skills and a worse outcome, require a more complex approach to treatment involving a broader range of professionals and resources in order to adequately address their underlying psychopathology and psychosocial conflicts, and have a need for individualized management of the problem based on the characteristics of the Internet use itself.

Sheltered subjects had substantial MMORPG use, while no differences were found in the use of videogames or other social networks. We deduce that MMORPG may be a specific way of socializing for them, regardless of whether or not they continue to use common social networks. MMORPG is a type of game that provides a virtual world where gamers create their own character. MMORPG users show problematic gaming behavior, depressive tendencies and lower self-esteem more often than users playing other online games<sup>13</sup>. One of the core characteristics of MMORPG is that gamers must establish social relationships in order to improve in the game, thus working as a social network that facilitates interaction. MMORPG users play more hours than common online gamers and tend to prefer virtual relationships<sup>30</sup>. Other studies show that people who feel loneliness usually lack social skills and tend to be alienated from others. They are motivated to chat online to build and maintain social relationships<sup>13</sup>.

Previous clinical experience has shown us that some patients who were using the Internet to cope with problems and as a shelter did not respond well to standard treatment based on a behavioral addiction approach, especially when it came to total computer abstinence. No articles have been published defining a differentiated approach based on IA clinical profiles in adolescents, so we did not have any clear guidelines for treating this patient group. The sheltered group highlights questions concerning the positive and negative effects of Internet use. Some authors have pointed out the positive and protective effects of online social support<sup>31</sup>. Non-communicative uses like online shopping, gaming and research have been associated with fewer social connections<sup>31</sup>, while computer-mediated communications have been associated with less social fear and reduced loneliness and feelings of depression<sup>32</sup> and a decrease in the symptoms of depression<sup>31</sup>. Presumably, these positive effects could be involved in the sheltered attitude; however, the preference for online social interaction found in sheltered subjects is also associated with negative outcomes<sup>10</sup>. Patients’ sheltering attitude encompasses a range of motivations and benefits (to seek social interaction, to calm dysphoria, to change mood, to avoid or cope with their situation, etc.), which makes it difficult to understand at this point the role each motivation and benefit plays in the clinical complexity observed as a whole.

With regard to treatment, there is growing consensus in considering that the most appropriate primary goal in IA is not total abstinence, a strategy that we applied specifically in our sheltered group, as we found that escapers responded more negatively to computer withdrawal. Authors discuss moderate and controlled use<sup>33</sup>, retaining healthy or legitimate uses and purposes as the ultimate goal<sup>24,33-35</sup>. Cognitive behavioral therapy (CBT) integrates strategies derived from classical conditioning, operant and social learning perspectives. This is the most recommended therapy and there is evidence of its effectiveness<sup>35</sup>. Two treatment studies were performed in Chinese adolescents, both of which used different self-designed multimodal treatments<sup>37,38</sup> combining group or individual CBT treatment with family or group counseling, teacher and peer psycho-education, and motivational interviewing. There are currently no studies attempting to define patient subtypes in order to guide treatment; however, Young proposes matching patients to specific treatment based on their needs and underlying contributing factors<sup>34</sup>. Our findings may provide useful information to clinicians for individualizing treatment for IA.

This study highlights the importance of individually assessing the effects and risk behavior associated with Internet use in teenagers, as well as the motives, in order to better understand and control the early

onset of Internet use and its consequences<sup>39</sup>. Understanding the reasons why teenagers start and continue to use the Internet may help identify those at risk and establish prevention and intervention programs.

This study has limitations, which include the fact that there is little consensus in terms of diagnosing Internet addiction and the lack of valid Spanish instruments to assess Internet addiction, thus making it difficult to generalize our findings. As a result, further studies are needed to investigate the different profiles of patients with Internet addiction problems.

## Conclusions

The results of this study support the importance that the type of mental disorder, the motives for Internet use and interpersonal relationships have for defining the existence of two different IA adolescent groups, which we called “sheltered” and “non-sheltered.” The “sheltered” group is comprised of subjects characterized by having coping motives. These subjects were found to be older, to suffer from affective, anxious and adaptive disorders, to use different applications, to have different Internet use profiles with more MMORPG use, a higher prevalence of interpersonal problems, a loss of contact with peers, increased feelings of inadequacy, more night-time playing, worse functioning and outcome, and to require combined treatment with more professionals involved. By contrast, subjects in the “non-sheltered” group were younger and showed behavioral disorders, a recreational motivation, and better functioning and response to behavioral treatment.

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