

Adolescents with Internet Gaming Disorder (IGD): profiles and treatment response

Adolescentes con Trastorno por juego en Internet (IGD): perfiles y respuesta al tratamiento

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Abstract

Demand for treatment for problems related to the use of video games have increased significantly in adolescents. Most cases have a comorbid mental disorder that jeopardises both pathologies. The aim of this study is to describe profiles of adolescents with Internet Gaming Disorder (IGD) according to comorbidity and analyze treatment response at 3 and 6 months. A sample of 86 patients which consulted in the Addictive Behavior Unit of a hospital was assessed with diagnostic criteria for IGD, the interview K-SADS-PL for mental disorders and the Clinical Global Impression (CGI) to treatment progress. Of the initial sample, 68,6% (n = 59) met diagnostic criteria for IGD. Of these, the 45,76% matched an internalizing profile, presenting comorbidity with Mood Disorders (44,4%), Anxiety Disorders (44,4%) and Personality Disorders (11,1%). The externalizing profile would comprise 52,54% of the sample presenting Disruptive Behavior Disorder (48,4%), ADHD (29%) and Disruptive Behavior Disorders not otherwise specified (22,6%). Unlike externalizing, the internalizing patients had a family history of psychiatric problems (63%), difficulties in social relationships (77,8%) and seemed to use video games preferably to escape discomfort (66,7%). After 3 months the externalizing profile showed improvements. Comorbid disorders allow the discrimination of two IGD profiles in adolescents and these could influence treatment response. Therefore, it is important to assess comorbidities to design a more accurate intervention focused on the specificities of each profile.

Keywords: Adolescents; Video games; IGD; Comorbid disorders; Treatment.

Resumen

Las demandas de tratamiento de adolescentes con problemas relacionados con el uso de videojuegos han incrementado significativamente. La mayoría de casos presentan un trastorno mental comórbido que compromete ambas patologías. El objetivo del presente estudio es describir los perfiles de adolescentes con Trastorno por Juego en Internet (IGD) según la comorbilidad y analizar la respuesta al tratamiento a los 3 y 6 meses. Se ha valorado una muestra de 86 pacientes que han consultado en la Unidad de Conductas Adictivas de un hospital mediante los criterios del IGD, la entrevista semiestructurada K-SADS-PL para los trastornos mentales y la Impresión Clínica Global (ICG) para la evolución del tratamiento. Del total de pacientes, un 68,6% (n = 59) cumplían criterios para el IGD. De estos, el 45,76% corresponderían a un perfil internalizante, presentando comorbilidades con Trastornos Afectivos (44,4%), Trastornos de Ansiedad (44,4%) y Trastornos de Personalidad (11,1%). El perfil externalizante englobaría al 52,54% de la muestra, presentando Trastorno del Comportamiento Perturbador (48,4%), TDAH (29%) y Trastorno del Comportamiento Perturbador no especificado (22,6%). A diferencia de los externalizantes, los pacientes internalizantes tienen más antecedentes psiquiátricos familiares (63%), dificultades con las relaciones sociales (77,8%) y parecen utilizar los videojuegos preferentemente para escapar del malestar (66,7%). A los 3 meses el perfil externalizante muestra mejorías. Se pueden discriminar dos perfiles de adolescentes con IGD en función de los trastornos comórbidos y esto puede influir en la respuesta al tratamiento. Por ello, resulta clave valorar las comorbilidades para realizar un planteamiento más eficaz del abordaje psicoterapéutico enfocado a las especificidades de cada perfil.

Palabras clave: Adolescentes; Videojuegos; IGD; Trastornos comórbidos; Tratamiento.

Received: November 2015; Accepted: March 2016.

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Internet has become an essential tool in daily life, especially among the younger population (Buil, Solé & García, 2015; Ko, Yen, Chen, Chen & Yen, 2012; Yau & Potenza, 2014), where it is used to access a great range of content via multiple devices, principally for social relationships, entertainment, and learning (Cho et al., 2014; Marco & Chóliz, 2014). At the same time, it has been noted that inappropriate or excessive use of Internet impacts negatively on everyday life, family and interpersonal relationships, and emotional stability, which has given rise to a growing number of studies on Internet addiction (Griffiths & Meredith, 2009; Ko et al., 2012; Kuss, Van Rooij, Shorter, Griffiths & Van de Mheen, 2013; Vallejos & Capa, 2010; Yau & Potenza, 2014). These studies have revealed that the rates of Internet addiction among adolescents range from 1.7% to 10% (Kuss, et al., 2013; Matalí-Costa, Serrano-Troncoso, Pardo, Villar & San, 2014; Petry et al., 2014; Yau & Potenza, 2014). A review carried out by Ferguson et al. came to the conclusion that at around 3.1% the estimates of very problematic use appeared to be lower than those described in some studies (Ferguson, Coulson & Barnett, 2011; Van Rooij, Kuss, Griffiths, Shorter, Schoenmakers & Van de Mheen, 2014), with other authors reporting between 2% and 5% (Kuss et al., 2013; Rehbein, Kliem, Baier, Mößle & Petry, 2015). There is greater consensus regarding age, with the adolescent population presenting the most problematic Internet use and/or abuse (Carbonell, 2014; Buil, Solé & García, 2015; Ferguson et al., 2011; Kuss et al., 2013). Gender differences can be observed in terms of video game use, with men having a greater propensity to play than women (Fernández-Villa et al., 2015; Király, Nagygyörgy, Griffiths & Demetrovics, 2014; Kuss et al., 2013; Lemos, De Abreu & Sougey, 2014).

In its latest edition (DSM-5), the Diagnostic and Statistical Manual of Mental Disorders states that while Internet addiction is not sufficiently severe to warrant the label disorder, Internet gaming disorder (IGD) does exist, although it requires further research (American Psychiatric Association, 2013; Carbonell, 2014; Petry & O'Brien, 2013). A variety of subsequent studies (Lopez-Fernandez, Honrubia-Serrano, Baguley & Griffiths, 2014) has provided sufficient evidence that disproportionate use of video games is a potentially problematic activity. With regard to game type, the massively multiplayer online role-playing games (MMORGP) are those with the greatest repercussions and would appear to have a greater addictive capacity, given that they offer an activity lacking a previously established outcome and with numerous possibilities for action where players create their own avatars and advance by forming clans with other players. On completion of each mission, players receive a reward in the form of an ability or some information which puts them in a new position for continuing the game (Carbonell, 2014). These factors make it difficult to give up playing and to control one's time when

taking part in a game (Griffiths & Meredith, 2009; Marco & Chóliz, 2014).

Patients with IGD have high comorbidity rates with other mental disorders (Yen, Ko, Yen, Wu & Yang, 2007), the most frequent of which are mood disorders, generalized anxiety disorder, panic disorder, social fear, obsessive-compulsive disorder, substance use disorder, attention deficit and hyperactivity disorder, behavioural disorders, personality disorders and psychotic disorders (Echeburúa & Corral Gargallo, 2010; Ko et al., 2012; Marco & Chóliz, 2014; Van Rooij et al., 2014; Yau & Potenza, 2014; Yen et al., 2007). The controversy or difficulty in differential diagnosis lies in the question whether the maladaptive use of video games is a disorder in itself or whether, given the high frequency of comorbidity (Echeburúa & Corral Gargallo, 2010; Yen et al., 2007), and as is the case with other addictions (Király et al., 2014; Matalí-Costa et al., 2014), it is a symptom of another mental disorder. A good assessment is essential in order to understand how the maladaptive pattern managed to establish itself and to determine the most suitable treatment for the patient (Yen et al., 2007).

In recent years, the demand for treatment for problems involving the use of video games among minors has grown, (Matalí-Costa et al., 2014). However, there is not a great deal of evidence about the best type of approach for IDG (Griffiths & Meredith, 2009; Marco & Chóliz, 2014). According to the literature, cognitive behavioural therapy is most effective in identifying the problems relating to video games, and modifying or substituting such behaviour with more adaptive patterns (Echeburúa & Corral Gargallo, 2010; Petry et al., 2014; Young, 2007). Some of the treatments which have been proposed for Internet addiction could be of great use in the treatment of IGD currently. There is a consensus in all studies in that the main aim of IDG treatment is to achieve the controlled and adaptive use of video games (Arias Rodríguez, Gallego Pañeda, Rodríguez Nistal, & Del Pozo López, 2012; Echeburúa & Corral Gargallo, 2010; King & Delfabbro, 2014; Yau & Potenza, 2014).

The literature shows that there are different Internet use profiles and therefore the response to treatment may be conditioned (Matalí-Costa et al., 2014). The present study suggests that, taking into account the different comorbidities found in IGD, profiles could be created in which the response to treatment is different. To test this proposition, a study was designed with two main objectives. First, profiles were established in a clinical sample of adolescent patients diagnosed with IGD according to the type of internalising and externalising comorbid disorders, and describing the clinical characteristics and the pattern of video games use in both profiles. Subsequently, the response to treatment was analysed by profile at three and six months, with an assessment of both the type and intensity of treatment applied.

Method

This study employed a transversal design.

Sample

The initial sample consisted of a total of 86 outpatients referred to the addictive behaviour unit of the department for child and adolescent psychiatry and psychology from 2009 to 2015 with problems relating to the use of Internet or video games.

Inclusion criteria were being under 18 years of age at the time of the first visit, presenting a maladaptive use of Internet or video games and meeting the DSM-5 criteria for IGD, applied retrospectively. A total of 27 patients were excluded for not meeting the above criteria, leaving a final sample of 59 adolescents.

Ethical aspects

The approval of the hospital ethics committee was obtained for the present research, taking into consideration internal ethics regulations as well as those of the World Medical Association and the 1995 Helsinki Declaration and its subsequent amendments. All participants gave their verbal consent after being informed about the study and its aims.

Procedure

This research was carried out entirely in the addictive behaviour unit attached to the department for child and adolescent psychiatry and psychology. The hospital's clinical records provided the data to be included in the study: sociodemographic and clinical data, data relating to the pattern of game playing, the treatment received and its progress at three and six months.

A clinical interview was carried out in the first assessment session with the young patients. The information was used to evaluate their potential problems related to Internet or video games, the presence of IGD (according to DSM-5), and whether an associated mental disorder was present. The following variables were recorded for all patients who met the inclusion criteria:

- *Sociodemographic data*: gender, age and current school year.
- *Clinical variables*: criteria proposed in DSM-5 were used in the diagnosis for IGD, and when checking for the existence of comorbid mental disorders the semi structured *Kiddie-sads-present & Lifetime* interview (Kaufman et al., 1997; Ulloa et al., 2006) was used. This is based on DSM-IV-TR criteria and was created to investigate psychopathologies in children and adolescents aged between 6 and 17. Reliability coefficients of the Spanish version of the scale range from .76 for the depression disorder to values close to 1 for antisocial disorder. In addition, they were asked about whether

they had received previous treatment or more than one diagnosis, and whether there was any family history of psychiatric issues.

- *Psychosocial variables*: patients were asked about whether they were experiencing problems with their primary support group (family) or group of friends, whether they had experienced bullying at school or the loss of contact (prior to the current problem) with the group of friends due to a change of school or address, changes in academic performance and the consumption of drugs.
- *Variables related to the pattern of game playing*: we recorded when games were played, preferences for gaming in the afternoons or evenings, the type of applications used (online games, MMORPG and/or chats), the main reason for using video games and how patients felt when they were taken away (bored or helpless).
- *Treatment and progress*: information regarding treatment intensity (outpatient visits, full or partial hospitalization) and type (psychotherapeutic, pharmacological or combined) was registered. Progress was assessed at three and six months using the Global Clinical Impression scale (CGI-I). This scale has a scoring range of 0-7, with 1-3 representing an improvement in the patient's condition, 4 equivalent to no change and 5-7 indicating that symptoms have worsened.

All participants in the study received personalised treatment with a psychotherapeutic approach which followed the behavioural addiction model proposed by Echeburúa (Echeburúa & Corral Gargallo, 2010). Pharmacological treatment was applied where necessary.

In creating the profiles we followed the criteria used in the Matalí-Costa study (Matalí-Costa et al., 2014), in which the sample was divided into two groups differentiated according to the Achenbach classification of mental disorders: internalizing and externalizing (Achenbach & Edelbrock, 1984; Matalí-Costa et al., 2014). Thus, profiles were created according to the adolescents' comorbidity diagnosis. Members of the group with an externalizing profile suffered from an imbalance in their control of aggression, impulsivity, negativity or hyperactivity, and displayed disruptive behaviour disorders, ADHD and non-specific disruptive behaviour disorder. The problems or difficulties of the internalizing group, on the other hand, materialised through inhibition, unease, avoidance or timidity. These patients suffered from depressive, anxiety and personality (Cluster C) disorders (Achenbach & Edelbrock, 1984).

Statistical analysis

Descriptive analyses were carried out using frequencies and percentages for the categorical variables, and means and standard deviations for quantitative variables. To measure the differences between the proposed profiles we

used chi-square, Fisher's z and Student t tests as appropriate. SPSS 18.8 (IBM Corp.) was used to run the statistical analyses. The level of statistical significance for all tests was set at 5% probability or lower, with the exact SPSS figure always indicated.

Results

Of the 86 patients attending the Addictive Behaviours Unit with Internet or video game problems, 59 met the DSM-5 criteria for IGD. The ages of these 59 cases ranged between 12 and 17 ($M = 14.83$; $SD = 1.45$) and 96.6% were male ($n = 57$).

The 59 participants were grouped into the internalizing or externalizing group depending on their comorbid di-

sorders. The internalizing profile was found in 45.76% of the sample ($n = 27$) with a mean age of 15.19 ($SD = 1.62$), while 52.54% of the sample made up the externalizing profile ($n = 31$), with a mean age of 14.48 ($SD = 1.23$). In the internalizing profile the main diagnoses were affective disorders (44.4%; $n = 12$), anxiety disorders (44.4%; $n = 12$), and to a lesser degree, cluster C personality disorders (11.1%; $n = 3$). The disorders found in the externalizing group were disruptive behaviour disorder, (48.4%; $n = 15$), ADHD (29%; $n = 9$) and adaptive disorder (22.6%; $n = 7$). No statistically significant differences were observed in age or gender across the two groups.

Tables 1 and 2 show a comparison between the participants' profiles, both for the clinical variables and those relating to the patterns of video game use.

Table 1. Variables relating to clinical profile variables.

	Internalizing (n=27)		Externalizing (n=31)		p
	%	n	%	n	
Diagnosis					
Affective Disorder	44.4	12	0	0	p < .001
Disruptive Behavior Disorder	0	0	48.4	15	
ADHD	0	0	29	9	
Anxiety Disorder	44.4	12	0	0	
Personality Disorder	11.1	3	0	0	
Non-specific Disruptive Behavior Disorder	0	0	22.6	7	
More than one diagnosis					
Yes	81.5	22	19.4	6	p < .001
No	18.5	5	80.6	25	
Previous treatments					
Yes	85.2	23	48.4	15	p = .003
No	14.8	4	51.6	16	
Family history of psychiatric problems					
Yes	63	17	12.9	4	p < .001
No	37	10	83.9	26	
Bullying / Previous loss of contact					
Yes	77.8	21	45.2	14	p = .011
No	22.2	6	54.8	17	
School level					
Maintaining level	11.1	3	22.6	7	p > .05
Repeating/Dropping levels	66.7	18	67.7	21	
Dropout	22.2	6	9.7	3	
Family exclusion					
Yes	59.3	16	80.6	25	p = .074
No	40.7	11	19.4	6	
Drug use					
Yes	11.1	3	12.9	4	p = .834
No	88.9	24	87.1	27	

Table 2. Variable relating to video game playing patterns.

	Internalizing (n=27)		Externalizing (n=31)		p
	%	n	%	n	
Group of friends maintained					
Yes	18.5	5	61.3	19	p = .001
No	81.5	22	38.7	12	
Complaints when Internet not available					
Boredom	25.9	7	61.3	19	p = .003
Failure	59.3	16	16.1	5	
Both	14.8	4	22.6	7	
Game playing period					
Afternoons	25.9	7	71	22	p < .001
afternoon / evenings	74.1	20	29	9	
Type of application					
Online game	0	0	38.7	12	p < .001
MMORPG	81.5	22	25.8	8	
Chat and MMORPG	11.1	3	29	9	
Chat	3.7	1	6.5	2	
Offline games	3.7	1	0	0	
Main reason for playing games					
Recreational	3.7	1	80.6	25	p < .001
Escape	66.7	18	6.5	2	
Both	29.6	8	6.5	2	
Unknown	18.5	5	9.7	3	

Note: MMORPG = Massively Multiplayer Online Role-Playing Games.

In terms of the clinical variables, it was found that among the internalizing adolescents 81.5% had been given more than one different diagnosis, and in 85.2% of cases had received earlier treatment. This was quite different to the findings in the externalizing group, at 19.4% and 48.4% respectively. Similarly, while 63% of patients in the internalizing group had a family history of psychiatric treatment, this figure was only 12.9% in the externalizing group. At a social level, 77.8% of internalizing participants reported an earlier loss of contact with the group of friends or to have suffered bullying at some point, as opposed to 45.2% of the externalizers. The academic performance, family exclusion and substance use variables did not display significant difference across the two groups.

With regard to the variables related to the use of video games, 80.6% of the externalizing group stated that they were mostly motivated to use them for leisure purposes. The internalizing patients, on the other hand, claimed that 66.7% of the time they used them in order to hide themselves away or avoid discomfort. When faced with the game being taken away from them or not being able to play it, 59.3% of the internalizing adolescents say they felt incapable of dealing with the situation, while externalizers in the same situation said that they were bored 61.3% of the time. Furthermore, it was observed that 74.1% of the internal-

izers had a preference for night-time game playing. In terms of the most frequently used applications, the externalizing group expressed a greater variety of preferences, using online games (38.7%), MMORPG (25.8%), MMORPG together with social networks (29%) and social networks on their own (6.5%). In contrast, the internalizing group had a clear propensity to play mainly MMORPG, doing so in 81.5% of cases. Alongside MMORPG, 11.1% also used social networks, while 3.7% used only social networks, and 3.7% played games offline. A majority of 81.5% of the internalizing adolescents did not maintain friendships.

With regard to the therapeutic approach, Table 2 shows a comparison of the internalizing and externalizing profiles in relation to the intensity of treatment, i.e. whether treatment was outpatient or required full or partial hospitalization. At the same time, the type of treatment employed (psychotherapeutic, pharmacological or combined) is compared as well as the assessment of progress at three and six months.

An analysis of the variables measuring treatment intensity yielded statistically significant differences in terms of full hospitalization, which was necessary for 25.9% of (n = 7) of the internalizing profile, as against 3.2% (n = 1) of the externalizers. Such differences are not apparent in outpatient treatment or partial hospitalization. Neither are

statistically significant differences found across the groups in terms of the treatment recommended.

With regard to the progress of the disorder under treatment at three months, 63% of internalizing patients said that their symptoms had not changed, while 14.8% claimed a worsening and 18.5% were beginning to show improvement. Among the externalizers, symptoms did not change in 41.9% of cases, 3.1% got worse and 48.4% registered an improvement. At six months, no statistically significant differences were found across the two groups.

Discussion

This study compares the profile of adolescents diagnosed with IGD based on their comorbid mental disorder (internalizing vs. externalizing), and highlights the importance of the type of comorbidity in their use of videogames as well as clinical presentation and progress. The aim of the present study is thus of particular relevance given the scarcity of research in this area and the clinical and psychotherapeutic implications which may arise from a correct evaluation of these adolescents.

Firstly, it is worth pointing out that all cases in our study had comorbid disorders alongside IGD. Previous studies have yielded similar results, where, while not in all cases, comorbidity was present in a high number (Chin, Shin & Kim, 2006; Ferguson et al., 2011). The most prevalent comorbidities were depression, social anxiety, ADHD and aggressive behaviours (Fernández-Villa et al., 2015; Ko et al., 2012).

If we focus on the motivation for playing video games, differences could be observed between the profiles depending on comorbidity group (internalizing vs. externalizing). The externalizers showed a tendency towards more recreational play despite the attendant consequences in terms of family and friendships (Ko et al., 2012), which can be partially explained by the fact that the defiant nature of these adolescents is one of the reasons why video game related problems are perpetuated (Holtz & Appel, 2011). The internalizers, on the other hand, used MMORPG, described in the literature as potentially addictive (Carbonell, 2014), as a coping strategy to reduce discomfort caused by their interpersonal problems (Carbonell, 2014; Fernández-Villa et al., 2015; Ko et al., 2012; Matalí-Costa et al.,

Table 3. Variables relating to therapeutic approach.

	Internalizing (n=27)		Externalizing (n=31)		p
	%	n	%	n	
Outpatient					
Yes	100	27	100	27	p>.05
No	0	0	0	0	
Full hospitalization					
Yes	25.9	7	3.2	1	p=.012
No	74.1	20	96.8	30	
Partial hospitalization					
Yes	14.8	4	3.2	1	p=.117
No	85.2	23	96.8	30	
Treatment type					
Psychotherapeutic	48.1	13	64.5	20	p=.209
Pharmacological	0	0	0	0	
Combined	51.9	14	35.5	11	
Progress at 3 months					
Unchanged	63	17	41.9	13	p = .027
Worse	14.8	4	3.2	1	
Better	18.5	5	48.4	15	
Unknown	3.7	1	6.5	2	
Progress at 6 months					
Unchanged	29.6	8	22.6	7	p=.562
Worse	11.1	3	6.5	2	
Better	44.4	12	58.1	18	
Unknown	14.8	4	12.9	4	

2014), while at the same time clearly being a socialization tool (Carbonell, 2014; Király et al., 2014). Studying and understanding the motivation behind video game use is a key aspect for the design of the therapeutic treatment (Matalí-Costa et al., 2014) given that the efficacy of the treatment depends on the specific features of each case.

As mentioned previously, those with an internalizing profile tended to use the game as a way of alleviating the discomfort arising from their problems with peer relationships, and frequently displayed high levels of loneliness (Fernández-Villa et al., 2015; Matalí-Costa et al., 2014). This led at times to physical confinement at home, which in turn worsened socio-familial functioning (Teo, 2013). This factor has been described the principal risk factor for the development of IGD (Ferguson et al., 2011; Fernández-Villa et al., 2015; Marco & Chóliz, 2014; Matalí-Costa et al., 2014).

Within both profiles, family issues were highly prevalent and there were also problems in the academic sphere. The literature indicates that family exclusion is a clear risk factor in developing problematic use of video games (Echeburúa-Odrizola, 2012; Fernández-Villa et al., 2015) and in the deterioration of academic performance. This is one of the main alarm signals warning families of the existence of problems with video games (Echeburúa & Corral Gargallo, 2010), with both areas becoming a focus for treatment.

In terms of the preferred time for games playing, patients with an internalizing profile tended to play at night. As described in the literature, sleep-wake inversion has been described as one of the warning signs of a problematic pattern of use (Echeburúa & Corral Gargallo, 2010; Fernández-Villa et al. 2015), and seriously interferes with the daily activities of the young person (Griffiths & Meredith, 2009; Marco & Chóliz, 2014).

With regard to the proposed treatment approaches, the results of this study support the theory that treatment needs to be adapted to suit the profile in question. Patients with an externalizing profile responded better to fewer visits and started showing changes after three months (Matalí-Costa et al., 2014). The majority of cases received outpatient care and treatment was chiefly psychotherapeutic, aimed at changing the patterns of maladaptive games playing (Echeburúa & Corral Gargallo, 2010; King & Delfabbro, 2014). This can be explained by the fact that patients in this profile follow the model proposed for explaining IGDs, where the problematic behaviour is seen as an impulse control disorder (Young, 2007). Therefore, we found that they responded well to limits being set with the help of the family aimed at achieving partial abstinence in order to aid relearning of video games use (Echeburúa & Corral Gargallo, 2010; Grant, Potenza, Weinstein & Gorelick, 2010; King & Delfabbro, 2014). Conversely, patients with an internalizing profile made slower, more sluggish progress, more frequently requiring a combined and compre-

hensive approach (King & Delfabbro, 2014) which prioritizes a focus on the comorbidity, such as problems with social relationships (King & Delfabbro, 2014; Matalí-Costa et al., 2014).

This study is not free from limitations. The first of these concerns the small sample size which may limit the statistical power and the results obtained. Furthermore, the sample being a clinical one the results cannot be generalized to the general population. On the other hand, IGD criteria have only recently been established and the number of studies working with and validating the model empirically is still small. Nevertheless, given the results obtained more empirical research is needed to prove its relevance and explore different IGD profiles with the aim of developing a more efficient and personalised psychotherapy approach.

The present study has proposed that different profiles of adolescents diagnosed with IGD be established according to the comorbid mental disorder (internalizing/externalizing). The results of the study allow the following conclusions to be drawn. Assessing the comorbid mental disorder accompanying the diagnosis of IGD helps to understand the main reasons why the young person plays video games and at times develops maladaptive patterns of use. It can be seen that interpersonal relationship issues or social skills deficits, as well as loneliness, are important in driving adolescents to seclude themselves behind video games. The games of preference in these cases are specifically MMORPG, used as a coping strategy for discomfort as well as a tool for socialization for young people with internalizing comorbid diagnoses.

Thus, it is important to define the profile of the adolescent with IGD because it helps us establish the intervention plan and identify those people which are at risk in order to contribute to prevention. It must be understood that response to treatment can vary according to the profile of the patient and that the approach therefore needs to be planned accordingly, bearing in mind that cases of IGD with an internalizing profile are more complex and generally require the cooperation of different professionals and care resources for psychotherapeutic treatment. Problems with the use of video games generally mask other issues at the interpersonal, emotional and/or cognitive level which require more extensive approaches, focused on individual, family and social aspects.

Conflict of interests

The authors declare no conflict of interests.

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