

Adolescents and Dual Diagnosis in a Psychiatric Emergency Service

Adolescentes y Diagnóstico Dual en el Servicio de Urgencias Psiquiátricas

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Abstract

In recent years, both the prevalence of drug use and related child and adolescent psychiatric emergencies have risen sharply. There are few studies about the impact on child and adolescent emergency services. This study has a twofold aim. The first is to describe the prevalence of substance use disorders, mental disorders and dual diagnosis (substance use problems plus mental disorder) in adolescents in psychiatric emergency service. The second is to analyze clinical and healthcare differences between patients with dual diagnosis and patients with a mental disorder without substance use disorder.

We retrospectively reviewed 4012 discharge forms for emergencies treated at the psychiatric emergency department during the period 2007-2009. We obtained a sample of 1795 visits. This sample was divided into two groups: the dual diagnosis group (n = 477) and the psychiatric disorder group (n = 1318).

The dual diagnosis group accounted for 26.5% of psychiatric emergencies analyzed. Compared to the psychiatric disorder group, the dual diagnosis group had significantly more conduct disorders, social problems, involuntariness in the visit, less hospital admissions and less connection with the healthcare network.

Adolescents with a dual diagnosis account for a high percentage of visits at child and adolescent psychiatric emergency services. This patient group requires specialized care both at emergency services and in specific units. Accordingly, these units should play a triple role when handling dual diagnosis: detection, brief treatment and referral to a specialised unit.

Keywords: Adolescent, Substance use, Dual disorder, Emergency Department.

Resumen

En los últimos años, la prevalencia del consumo de drogas y las urgencias psiquiátricas relacionadas han incrementado notablemente en los adolescentes. Pocos estudios han examinado el impacto en los servicios de urgencias psiquiátricos infantojuveniles.

Este estudio tiene un doble objetivo. Primero, describir la prevalencia del consumo de sustancias y de otros trastornos mentales comórbidos en una muestra de adolescentes que consultan a un servicio de urgencias psiquiátricas. Segundo, analizar las diferencias clínicas y asistenciales entre el grupo de pacientes con patología dual (comorbilidad de trastorno mental y trastorno por uso de sustancias) y el grupo de pacientes con trastorno mental sin consumo.

Se revisaron 4012 historias de adolescentes que acudieron a un servicio de urgencias de psiquiatría durante los años 2007-2009, obteniéndose una muestra de 1795 visitas. La muestra se dividió en dos grupos: el grupo de patología dual (n = 477) y el grupo de patología psiquiátrica (n = 1318).

El grupo con patología dual representó el 26,5% de las urgencias analizadas. En comparación con el grupo de pacientes psiquiátricos, presentaba significativamente más trastornos de conducta, patología social, involuntariedad en las visitas, más ingresos y menor vinculación a la red asistencial.

Los adolescentes con una patología dual generan un elevado impacto en los Servicios de Urgencia psiquiátricos infantojuveniles. Este grupo requiere de una atención especializada tanto en los servicios de urgencias como en unidades específicas. En consecuencia, los servicios de urgencias deben cumplir una triple función en el abordaje de pacientes con patología dual: la detección, la intervención breve y la derivación a unidades especializadas.

Palabras clave: Adolescente, Uso de sustancias, Trastorno dual, Servicio de Urgencias.

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Surveys on substance use in the school-aged population conducted in the recent years show an increase in the prevalence of drug use (Observatorio Español sobre Drogas, 2013) and in the psychiatric emergencies related to it (Mahajan et al., 2009; Soto et al., 2009; Nogué et al., 2014), although the exact reasons are not known (Goldstein & Horwitz, 2006). In this regard, it has been observed that psychoactive substance use is one of the most common reasons for visiting a child and adolescent emergency service, with cannabis and alcohol as the substances most often related to these visits (Chun et al., 2010; Sindelar-Manning, Lewander, Chun, Barnett, & Spirito, 2008). Other prevalent diagnoses observed in this population have been depressive disorders, conduct disorders, anxiety disorders and self-harm attempts (Dorfman, Trokel, Lincoln, & Mehta, 2010; Goldstein, Frosch, Davarya, & Leaf, 2007; Goldstein & Horwitz, 2006; Grupp-Phelan et al., 2009; Mahajan et al., 2009; Soto et al., 2009). Furthermore, adolescents who use psychoactive substances have a high degree of comorbidity with other mental disorders (Roberts, Roberts, & Xing, 2007), being the presence of an externalizing disorder plus substance use as the most common comorbidity (Chi, Sterling, & Weisner, 2006). This condition in adolescents was associated with poorer treatment outcomes, higher costs, recidivism, higher relapse rates, and poorer access to both medical and psychiatric services (Whitmore & Riggs, 2006).

Typical characteristics of adolescence, such as little planning, curiosity or desire to fit in among others, may predispose them to the substance use. Moreover, adolescent users are not normally aware of the seriousness of use and tend to normalize substance use or minimize its consequences (Matalí Costa et al., 2009); which could be minimized the reported prevalence of dual disorders. Taking in consideration the above mentioned characteristics of adolescence, the concern about the increase of prevalence, the complexity and difficulty in detecting dual diagnosis (Roberts et al., 2007), child and adolescent psychiatric emergency services provide an opportunity to detect and steer this problem. (Sanz Marcos et al., 2009).

Therefore, child and adolescent psychiatric emergency services could play a key part in managing adolescent dual diagnosis patients by fulfilling three functions. First, by detecting changes in drugs consumption tendency before other healthcare services do it. As has been extended recognized, change in consumption patterns may constitute an early indicator of the health consequences of substance use (Chung, Colby, O'Leary, Barnett, & Monti, 2003). Second, they allow for "in situ" treatment to be conducted. These early intervention has shown to reduce future conduct problems and has shown to decrease the amount and frequency of drug use (Spirito et al., 2004). Third, child and adolescent psychiatric emergency services can serve to facilitate access to specialized healthcare units in those not treating cases (Velasco Arnaiz et al., 2010).

As mentioned previously, the child and adolescent psychiatric emergency services could help to detect and treat adolescent with dual diagnosis with both problems drug consumption and mental disorders. However, few studies have been conducted to analyze the clinical and healthcare implications of dual diagnosis adolescents who consult in child and adolescent psychiatric emergency services. Consequently, this study has the following aims: first of all, to describe the prevalence of substance use disorders and their comorbidity with other mental disorders in a sample of adolescents treated in a child and adolescent psychiatric emergency service; second, to study whether there are differences in the clinical profile and the healthcare management between the dual diagnosis patients and patients treated for another psychiatric disorder. Finally, we were interested in study if any of the studied variables could detect those patients who presented a higher severity and those new cases.

Method

Participants

To conduct this study, we reviewed the discharge forms for emergency patients treated in the child and adolescent (1-18 years old) psychiatric emergency service of Child and Adolescents University Hospital from 2007 to 2009. The discharge forms were reviewed by two professionals in the Addictive Behavior Unit of the Child and Adolescent Psychiatry and Psychology Department of this hospital.

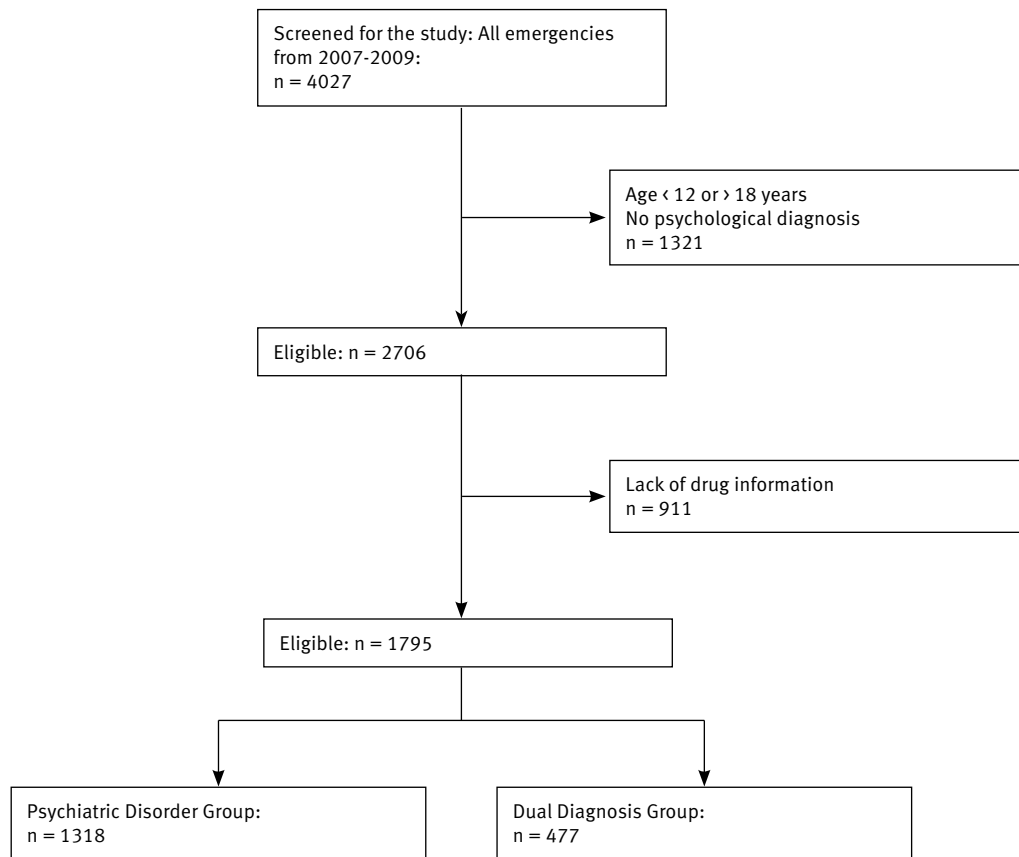
Instruments and procedure

We recorded the following variables for each emergency: age, sex, reason for the visit, time of the visit, family history of psychiatric disorders and the psychiatric diagnosis. We also noted whether or not the visit was voluntary, defined as whether the patient came to the emergency room by choice or by ambulance. We recorded whether the patient, at the time of the visit, was being treated at a mental health unit (outpatient center, hospital or privately), if he/she was at a youth center, if a toxicological screening was performed during the emergency (and if so, for which substances),

Based on the recorded data, other variables were defined. A new case was defined as a patient who at the time of the emergency visit was not undergoing treatment at a mental health unit, and upon discharge was referred to a healthcare unit. Youth center case was defined as a patient who was living at a residential state-certified i.e., who was separated from his/her family and whose legal guardian was the state, and in these cases we understand that exist a social problems. A critical case was defined as a patient who, following an assessment in the emergency service, was admitted to a psychiatric unit.

To obtain the study sample, we screened the entire sample (see Fig. 1) of psychiatric emergency visits made during the period 2007-2009 (n = 4027). From these, we excluded pa-

Fig.1. Algorithm to Conduct Study



tients who did not have a psychiatric diagnosis and patients under 12 years old (1321 patients). We chose this cutoff age taking in consideration the minimum age of onset of drug use in the Spanish population and the fact that the age of onset of drug use tends to be earlier in a clinical population than in the general population (Observatorio Español sobre Drogas, 2013). Likewise, and given the aim of the study, we excluded from the sample those patients in which a substance use clinical evaluation and urine test screening had not been conducted or were not recorded (911 patients). We hence obtained a final sample of 1795 patients. The dual diagnosis group (DDG) was defined as patients who at the time of the emergency had a psychiatric disorder and substances use disorder diagnosed by the psychiatrist on call (who made the clinical interview with parents and patient) and had a positive urine test for drug screening. The psychiatric disorder group (PDG) was defined as patients who at the time of the emergency only had one psychiatric disorder. Dual diagnosis group consisting of 477 patients; and psychiatric disorder group consisting of 1318.

Statistical analysis

The main study variables were compared between groups (DDG vs PDG) using the chi-square test or Fisher’s exact test

depending on the criteria met to apply these tests. Because it was an exploratory study, significance levels of the univariate analysis were not adjusted using the sequential Bonferroni test (Bender & Lange, 2001). However, Bonferroni correction was used to determine which variables (p-value of 0,05/25; $p < 0.002$) were entered into a multivariate logistic regression model in order to study predictors of severity and the detection of new cases. We used the step-forward method to explore the introduction of variables in the two models presented.

Results

In the total psychiatric patients sample (n = 1795), 43.7% (n = 784) were boys and 56.3% (n = 1011) were girls, and the average age was 15.4 years (SD = 1.6). Principally, patients visited the emergency department from 5:00 pm to 11:59 pm (43.5%, n = 782); from 9:00 am to 4:59 pm (42.1%, n = 757), and the lower frequency was observed from midnight to 8:00 am (14.4%, n = 257).

The 34.3% (n = 616) of the sample reported the presence of a family history of psychiatric disorders and that 64.2% (n = 1152) of patients were in treatment at the time of their emergency visit; primarily at child and adolescent men-

Table 1. Patient Characteristics, Clinical Profiles and Flow in Dual Diagnosis Group (DDG) and Psychiatric Disorder Group (PDG)

	DDG	PDG	P
Gender	% (n)	% (n)	
Male	50,9 (243)	41 (541)	<0,001**
Female	49,1 (234)	59 (777)	
Family History of Psychiatric Disorders	% (n)	% (n)	
Yes	27,5 (131)	36,7 (484)	<0,001**
Age	% (n)	% (n)	
12-14 years	25,8 (123)	43,0 (567)	<0,001**
15-16 years	45,5 (217)	39,6 (522)	
17-18 years	28,7 (137)	17,4 (229)	
Time of Visit	% (n)	% (n)	
0:00 - 8:59 am	19,3 (92)	12,5 (165)	0,001**
9:00 am - 4:59 pm	41,1 (196)	42,6 (561)	
5:00 pm - 11:59 pm	39,6 (189)	44,9 (592)	
Diagnosis	% (n)	% (n)	
Conduct Disorder	43,8 (209)	30,4 (400)	<0,001**
Psychotic Disorder	10,3 (49)	7,7 (191)	0,82
Affective Disorder	14,3 (68)	24,9 (328)	<0,001**
Anxiety Disorder	10,3 (49)	21,5 (283)	<0,001**
Adjustment Disorder	2,7 (13)	5,4 (71)	0,016
Autism Disorder	0 (0)	2,7 (35)	<0,001**
Pharmacological Treatment	% (n)	% (n)	
Antipsychotics	23,3 (111)	17,5 (231)	0,008
Anxiolytics	15,1 (72)	28,2 (371)	<0,001**
Antidepressants	5 (24)	11,2 (148)	<0,001**
Other	3,4 (16)	6 (79)	0,031
Arrival at Hospital	% (n)	% (n)	
Ambulance (serious case)	47,8 (228)	38,7 (510)	<0,001**
On own	34,2 (163)	47,3 (623)	
Other	5,7 (27)	1,5 (20)	
In Prior Treatment	% (n)	% (n)	
Child and Adolescent Mental Health Center	38,2 (182)	47,1 (621)	0,001**
Hospital	7,5 (36)	9,4 (124)	0,26
Private	7,8 (37)	7,3 (96)	0,76
Youth Center	6,5 (31)	1,9 (25)	<0,001**
Referral	% (n)	% (n)	
Admitted	37,9 (181)	28,4 (374)	<0,001**
Child and Adolescent Mental Health Center	38,4 (183)	44,6 (588)	0,020
Specific Program	9,6 (46)	9,6 (127)	1
Youth Center	2,5 (12)	0,5 (7)	0,001**
Number of Emergencies	% (n)	% (n)	
Has come once	44,4 (212)	44,5 (587)	0,914
Has come twice	20,4 (97)	19,5 (257)	
Has come more than twice	35,2 (168)	36 (474)	
New Case	% (n)	% (n)	
New case	35,4 (169)	29,6 (390)	0,021

tal health centers (44.8%, n = 804). In terms of diagnosis, 33.9% (n = 609) had conduct disorder, 22% (n = 396) had affective disorder and 18.5% (n = 333) had anxiety disorder. We also observed that 44.5% of the patients (n = 799) had gone to the emergency room once before, 19.7% (n = 354) twice before and 35.8% (n = 642) more than twice before.

The analysis of the Information about referral upon discharge indicated that 93.4% (n = 1684) of all the patients were referred to some type of psychiatric care. Of these, 43% (n = 772) were referred to a child and adolescent mental health center, 30.9% (n = 555) were admitted to a psychiatric unit, 11.3% (n = 203) were sent for an emergency outpatient visit, 9.6% (n = 173) were referred to specific hospital programs, and 11.4% (n = 204) were other referrals.

As expected, conduct disorders [39.9% (306), p = 0.001] and psychotic disorders [10.3% (81), p = 0.05] and pervasive development disorder [3.6 (28), p = 0.001] were significantly more prevalent in boys than girls, (see Table 1), while affective disorders [24.3% (246), p = 0.001], adjustment disorders [5.7% (58), p = 0.01], anxiety disorders [20.4% (206), p = 0.02] were significantly more common in girls. Along these lines, we observed that boys used more cannabis [25.0% (196) vs. 19.3% (195), p = 0.004] and more inhalants [5.1% (40) vs. (0.4) (4), p < 0.001] than girls. However, there were no gender differences in prior treatment, in referral upon discharge, or in the time of the visit (p > 0.10).

Dual diagnosis Group (DDG, n = 477)

Dual diagnosis group accounted for 26.5% (477) of psychiatric emergencies studied (see Figure 1). Principally, patients in this group were in the range of 15-16 year age range (45.5%) with a mean of 15.4 years old (SD = 1.6). There was more girls in treatment at child and adolescent mental health centers than boys [42.2%, (n = 101) vs. 33.3% (n = 81); p = 0.003]. Moreover, principally a higher frequency of girls was observed at the range of 12-14 year range [32.9%, (n = 77) vs. 18.9%, (n = 46); p > 0.001], and there were more boys in the 15-16 year range [52.7%, (n = 128) vs. 30%, (n = 89); p < 0.001], while no differences were observed in the 17-18 range.

The reported most frequent drug used by dual diagnosis patients (prior month) was cannabis 82% (n = 391), followed by alcohol 20.1% (n = 96), cocaine 16.8% (n = 80), inhalants 9.2% (n = 44), ecstasy 4.4% (n = 21), benzodiazepines 4% (n = 19), ketamine 2.3% (n = 11), and heroine 0.4% (n = 2). Between gender differences didn't show significant differences in the type of substance, except for inhalants, which were more commonly used by boys [16.5%, (n = 40) vs. 1.7%, (n = 4); p < 0.001].

The most common comorbid mental disorder in the DDG was conduct disorders (43.8%, n = 209), followed by affective disorders (14.3%, n = 68), psychotic disorders (10.3%, n = 49) and anxiety disorders (10.3%, n = 49). Only a higher rate of personality disorders [4.1%, (n = 10) vs.

8.5%, (n = 20); p = 0.05], and eating disorders [0.4%, (n = 1) vs. 3.4%, (n = 8); p = 0.02] were found for girls.

Over half of the patients in the dual diagnosis group (59.9%, n = 286) were being treated at some sort of mental health unit (whether hospital or outpatient) and the most prevalent health resource was a child and adolescent mental health center (38.2%, n = 182). A total of 47.8% (n = 228) of patients were critical cases. Patients were principally referred on discharge to a hospitalization unit 37.9% (n = 182) and only 9.6% (n = 46) were referred to specialized addiction treatment units.

One hundred sixty nine patients (35.4%) were not in treatment at the time of the emergency visit. Since these cases were referred to a healthcare unit on discharge, they are considered new cases for the healthcare network.

Psychiatric Disorder Group (PDG, n = 1318)

The Psychiatric Disorder Group accounted for 73.5% (1318) of all psychiatric emergencies studied (see Figure 1). There was an average age of 15.3 years (SD = 1.6) in this group, with the 12-14 year age range (43.0% n = 567) as the most prevalent, and a greater frequency of girls (59.0%, n = 777). There was more girls in treatment at child and adolescent mental health centers than boys [42.2%, (n = 101) vs. 33.3% (n = 81); p = 0.003]. Moreover, principally a higher frequency of girls was observed at the range of 12-14 year range [32.9%, (n = 77) vs. 18.9%, (n = 46); p > 0.001], and there were more boys in the 15-16 year range [52.7%, (n = 128) vs. 30%, (n = 89); p < 0.001], while no differences were observed in the 17-18 range.

As in the dual diagnoses group, the most prevalent disorder in the psychiatric group was conduct disorders (30.3%), followed by affective disorders (24.9%), anxiety disorders (21.5%), eating disorders (7.9%) and psychotic disorders (7.7%).

At the time of the emergency visit, the 65.3% (n = 861) of patients in were in treatment at some sort of mental health unit (whether hospital or outpatient), being the most common a child and adolescent mental health center (47.1%, n = 621). A total of 38.7% (n = 510) of patients were critical cases. Of all the patients, 83.1% (n = 1096) were referred to a healthcare unit following the emergency visit, including 28.4% (n = 364) who were admitted to a psychiatric unit. A total of 390 new cases were detected in the psychiatric disorder group, accounting for 29.6% of all patients treated.

Comparison between Groups:

In the group comparisons (see Table 2), we observed a higher frequency of girls in the PDG [59% (n = 777) vs 49.1% (n = 234), p ≤ 0.001]. Patients in PDG were principally at 12-14 year age range (p ≤ 0.001), while patients at DDG were older (17-18 year age range, p ≤ 0.001) than those at the PDG.

A higher frequency of conduct disorders was observed in the DDG [43.8% (n = 209) vs 30.4% (n = 400), p ≤ 0.001],

Tabla 2. Diferencias de sexo en la muestra íntegra (n=1795)

	Male	Female	P
Group	% (n)	% (n)	
Psychiatric Disorder Group	41 (538)	59 (775)	
Dual Diagnosis Group	50,8 (245)	49,2 (237)	0,001**
Diagnosis	% (n)	% (n)	
Conduct Disorder	39,9 (306)	30 (303)	0,001
Psychotic Disorder	10,3 (81)	6,8 (69)	0,05
Affective Disorder	19,2 (150)	24,3 (246)	0,001
Anxiety Disorder	16,2 (127)	20,4 (206)	0,024
Adjustment Disorder	3,3 (26)	5,7 (58)	0,018
Pervasive Development Disorder	3,6 (28)	0,7 (7)	0,001
Substances	% (n)	% (n)	
Cannabis	25 (196)	19,3 (195)	0,004
Alcohol	5,2 (41)	5,4 (55)	0,9
Inhalants	5,1 (40)	0,4 (4)	0,001
Cocaine	4,7 (37)	4,3 (43)	0,06
Ecstasy	1,8 (14)	0,7 (7)	0,045
Benzodiazepines	1,7 (13)	0,6 (6)	0,03
Ketamine	1 (8)	0,3 (3)	0,67

while affective disorders ($p \leq 0.001$), anxiety disorders ($p \leq 0.001$) and autism spectrum disorders ($p \leq 0.001$) were more frequent observed in PDG (see table 2).

Patients in PDG had a previous connection with treatment in child and adolescent mental health centers more frequently than DDG patients [47.1% ($n = 621$) vs 38.2% ($n = 182$), $p=0.001$], whereas there was a lower frequency of adolescents living in youth centers in the PDG than in the DDG [1.9% ($n = 25$) vs 6.5% ($n = 31$), $p < 0.001$]. Moreover, patients in PDG compared with patients in DDG more often arrived to hospital voluntary [47.3% ($n = 623$) vs 34.2% ($n = 163$), $p < 0.001$], were admitted less frequently [28.4% ($n = 374$) vs 37.9% ($n = 181$), $p < 0.001$] and there were a lower number of new cases [29.6% ($n = 390$) vs 35.4% ($n = 169$), $p = 0.021$] (see Table 2).

Regressions analysis for severity and new cases:

Finally, the logistic regressions analyses realized to study predictors of severity and the detection of new cases showed that, cases defined as critical (patients who after being examined in the emergency room were admitted to a psychiatric unit) were significantly younger (OR = 0.933), had more frequently been treated at a child and adolescent mental health center (OR = 1.335), more often lived in youth centers (OR = 1.840), and had more frequent dual diagnosis (OR = 1.574) compared to non-critical cases. New cases were principally predicted by the variables self-harm behavior and comorbid conditions, with an odds ratio of 1.37 and 1.48, respectively (see Table 3).

Discussion

This study describes the prevalence of dual diagnosis between substance use and mental disorders among adolescents treated in a psychiatric emergency service, and it compares the clinical and healthcare characteristics between a dual diagnosis group (DDG) and a group of patients with a single psychiatric disorder (PDG). The results show that dual diagnosis has a high prevalence in psychiatric emergency service. Dual diagnosis patients were found to be a group of critical patients with a high presence of externalizing disorders and social problems, and many of them were not connected with any sort of mental health service. This situation makes them a group that should receive specialized care in emergency services and in subsequent treatment.

Regarding the age of onset of substance use, the data obtained are consistent with the results of longitudinal studies that report that girls show higher use in early adolescence while boys show higher use in later ages (Chen & Jacobson, 2012). Moreover, taking into account that an early age of onset of use is associated with a worse prognosis of developing a substance use disorder (Behrendt, Wittchen, Höfler, Lieb, & Beesdo, 2009), special attention must be paid to the group of young adolescents with mental disorders and especially to young girls.

The results, as in other studies conducted in other countries (Chun et al., 2010; Chung et al., 2003; Sindelar-Manning et al., 2008; Stolle, Sack, & Thomasius, 2009) show that, alcohol and cannabis are the most frequently detected substances in child and adolescent emergency services. However, although studies in general population indicate that use patterns have tended to become more uniform (Observatorio Español sobre Drogas, 2013) our results indicate that in clinical population boys, use and visit healthcare units more frequently for illegal drugs (Matalí Costa et al., 2012).

In our study no gender differences in healthcare management were observed. Although, no studies have analyzed this topic in adolescents samples, traditionally has been

Table 3. Logistic Regression to Inpatient Flowchart and New Patients

	P	OR	C.I. 95%
Inpatient Flowchart			
Age	0,001	0,933	(0,924-0,943)
Child and Adolescent Mental Health Center	0,005	1,335	(1,091-1,634)
Youth Center	0,030	1,840	(1,061-3,190)
Dual Diagnosis Group	0,001	1,574	(1,256-1,974)
New Patients			
Dual Diagnosis Group	0,001	1,488	(1,184-1,871)
Conduct Disorder	0,001	0,506	(0,401-0,639)
Psychotic Disorder	0,001	0,439	(0,289-0,668)
Self-harm	0,024	1,372	(1,043-1,804)

considered that adults patients have difficulties in accessing substance use treatment programs, especially among women (Tuchman, 2010). This difference may be due to the characteristics of the sample (Tuchman, 2010) and could be indicating that substance use in adolescent patients is managed differently than in adults patients.

As expected, we found that the most frequent presentation in the dual diagnosis group was the presence of an externalizing disorder and cannabis substance use (Díaz et al., 2011). Moreover, in this group a higher frequency of involuntary visit (arrive by ambulance) and higher rate of admit to inpatient unit was observed compared with psychiatry group. These results could be indicating that dual diagnosis patients requires the use of many resources in order to manage them, indicating the importance of detect the presence and the prevention of substances use in externalizing disorder patients. In the same line, the studies with adult population with dual diagnosis seen at an emergency service (Martín-Santos, 2006) detect a high prevalence of conduct problems and social pathology (Arias Constantí et al., 2010; Christodulu, Lichenstein, Weist, Shafer, & Simone, 2002), highlighting the need for early detection in order to avoid the present of worse consequence in adulthood (Larm, Hodgins, Larsson, Samuelson, & Tengstr6m, 2008).

Like other studies, our results identified the following items as predictors of going to emergency services: dual diagnosis, involuntariness, age, comorbidity with conduct disorders, the presence of violent behavior, and being under the guardianship of the state (Christodulu et al., 2002; Curran et al., 2008; Martín-Santos, 2006). Our study also showed that a visit to the emergency room of a dual diagnosis patient is associated with greater severity and with an opportunity to connect the patient to the mental healthcare network.

In this study, dual diagnosis patients accounted for 26.5% psychiatric emergencies analyzed, which highlights the importance of emergency services in detecting dual diagnosis adolescents. These results are particularly important when taking into account that adolescent users have little contact with general healthcare units (Van Hook et al., 2007). Moreover, many adolescents with a mental disorder are neither diagnosed nor in treatment (Mahajan et al., 2009). It shows the importance of conducting a thorough toxicological screening in adolescents who visit emergency services in order to avoid missing the opportunity to detect them. In fact, in our study, the 22.6% of the total sample were discarded by lack of information about substance abuse, become an important limitation in our study to generalize our data, and make it necessary to interpret the results with caution. Other limitations, as mentioned above, are the difficulty in making a reliable diagnosis in an emergency context and acute symptoms. Another limitation is the retrospective study methodology used because the lack of follow-up on recorded cases makes it impossible to describe how many adolescents who have been referred to a specific outpatient

treatment are connected to the healthcare network. Nevertheless, we believe that the results presented in this study are important, as they show the reality of child and adolescent emergency services. In conclusion, our results indicated the need to conduct specific care procedures for dual diagnosis adolescents in order to improve detection and subsequent referral to a specific resource.

Conflict of interest

The authors declare that they do not have any conflict of interests.

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