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# Co-occurrence of substance use disorders and other mental disorders in people undergoing specific treatment for any of them in Spain

## Concurrencia de trastorno por consumo de sustancias y de otro trastorno mental en personas en tratamiento por alguno de ellos en España

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## Abstract

The co-occurrence of substance use disorders (SUD) and other mental disorders (OMD) is assumed to be high but is, in fact, unknown in Spain; and it is approached from different healthcare networks. The objective of the present study was to know the prevalence of this co-occurrence, both in specific addiction treatment networks and in mental health networks, in Spain. An observational, multicenter cross study, with a randomized sample, of patients under treatment for SUD or OMD in different Autonomous Communities of Spain was carried out (N=1,783). A specific *ad hoc* online questionnaire collecting sociodemographic variables, substance use and diagnoses of SUD and OMD was completed. The data obtained in the survey show a significant concurrence of SUD and OMD diagnoses (in more than 60% of the patients). A high prevalence of OMD was found in those patients receiving treatment for their SUD (71%), and also of diagnoses of any SUD (68.9%) and active substance use (50%, except tobacco) in people receiving treatment for diagnoses of OMD. Also were found significant relationships between addiction to certain substances and specific mental disorders: personality disorders with all SUDs; psychotic disorders with cannabis use disorder, but not cocaine use disorder; affective disorders with cocaine use disorder, and anxiety disorders with cannabis use disorder. This study provides preliminary information about the high coexistence in routine clinical practice of addictive disorders and other mental disorders in different treatment settings in Spain.

*Keywords:* prevalence, comorbidity, substance use disorder, mental disorder, substance use

## Resumen

La concurrencia de trastornos por consumo de sustancias (TUS) y de otros trastornos mentales (OTM) es desconocida en su conjunto en España, y su abordaje se hace desde diferentes redes asistenciales. El objetivo del presente estudio era conocer la prevalencia de esta comorbilidad tanto en las redes de tratamiento de las adicciones como en las de salud mental. Se diseñó un estudio observacional, transversal, multicéntrico, con una muestra aleatorizada de pacientes en tratamiento por TUS u OTM en diferentes Comunidades Autónomas (N=1.783). Se completó un cuestionario ad hoc *on-line* recogiendo variables sociodemográficas, sobre uso de sustancias, y de diagnósticos de TUS y de OTM. Los datos obtenidos en la encuesta arrojan una importante concurrencia de diagnósticos TUS y OTM. Se encontró una elevada prevalencia de OTM en aquellos en tratamiento en redes de adicciones por su TUS (71%) y también tanto de diagnósticos de T.U. de cualquier sustancia (68,9%) como de consumo activo de sustancias (50%, exceptuando tabaco) en las personas en tratamiento por diagnósticos de OTM en redes de salud mental. Y, además, relaciones significativas entre la adicción a determinadas sustancias y trastornos mentales concretos: trastorno de personalidad con todos los TUS; trastornos psicóticos con trastorno por uso de cannabis, pero no de cocaína; trastornos afectivos con trastornos por consumo de cocaína, y trastorno por uso de cannabis. Este estudio aporta información preliminar sobre la elevada coexistencia en la práctica clínica habitual de trastornos adictivos y otros trastornos mentales en España, tanto en redes asistenciales de salud mental como específicas de adicciones.

*Palabras clave:* prevalencia, comorbilidad, trastorno por consumo de sustancias, trastorno mental, consumo de sustancias

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Although the high prevalence of psychiatric comorbidity between substance use disorder (SUD) and other mental disorders (OMD) is well known, the precise extent of this co-occurrence is not. Studies provide differing figures, depending on the diagnostic method or whether they involve the general population or those in treatment (Hasin & Grant, 2015; Kessler & Merikangas, 2004; Regier et al., 1990). The importance of this comorbidity lies not only in its high prevalence but also in its clinical and social severity, and the difficulty of managing it (Pascual-Pastor, Fernández-Miranda, Díaz-Fernández & Sala-Añó, 2017; Torrens, Mestre-Pintó & Domingo-Salvany, 2015).

Indeed, it is assumed that the co-occurrence of SUD and OMD in Spain is high, but it is not generally known, and there are no records that could help define how many people might have this dual diagnosis. In addition, as different healthcare networks (specifically focused on addictions and mental health) are involved in treating it, there is a large degree of variability. Although it is important to coordinate strategies for the detection and correct treatment of patients with these comorbid disorders, an important first challenge for the National Health System is to know as precisely as possible what it is actually dealing with in this regard.

In Spain, although studies on the occurrence of SUD and OMD have been published since the late 1990s, these have generally been carried out on populations undergoing treatment, with very specific diagnoses in almost all of them, and in specific autonomous communities, with different models of care (Arias, Ochoa & López-Ibor, 1996; Arias et al., 2013a; Fernández-Miranda, García-Portilla González, Sáiz Martínez, Gutiérrez-Cienfuegos & Bobes García, 2001; Lana, Fernández San Martín, Sánchez Gil & Bonet, 2008; Martínez-Gras et al., 2016; Pedrero-Pérez, 2018; Pereiro, Pino, Flórez, Arrojo & Becoña, 2013; Rodríguez-Llera et al., 2006; Roncero et al., 2011; Sánchez-Peña, Alvarez-Cotoli & Rodríguez-Solano, 2012), the exception perhaps being the study by Gual (2007). In other words, there has been no study to date on the global prevalence of this comorbidity, with clear characteristics, at the national level and in both treatment networks.

In order to reach an understanding of the co-occurrence prevalence of SUD with other mental disorders in Spain at the healthcare level, a study was designed focussing on people undergoing treatment in mental health or addiction networks in the different autonomous communities and in each of the networks within the various treatment resources for SUDs or other MDs. The objectives of the study were to discover the use of substances among patients treated both in specific addiction and mental health networks, the diagnoses of OMD in addition to SUD and the diagnoses of SUD concomitant with OMD (comorbidity between disorders), as well as the relationships existing between the diagnoses of use disorders (UD) of different substances and the specific OMDs.

## Method

This was an observational, cross-sectional, multicentre study, with a randomized sample of patients undergoing treatment for addictive disorders or other mental disorders throughout Spain (N = 1,783). A group of health professionals completed an online questionnaire, specifically designed by the study authors, on substance use and their patients' diagnoses in specific addiction and mental health treatment networks (detoxification units, outpatient programs, hospitals/day centres, acute psychiatric units, therapeutic communities, medium-stay and rehabilitation units, mental health units/centres, prisons). The Socidrogalcohol website hosted the ad hoc survey where professionals could enter each patient's data (see Table 1 for variables collected), always guaranteeing highest levels of confidentiality and anonymity. The patients were anonymized from the start.

The study population was people receiving treatment in mental health or addiction care networks in Spain who were aged over 18 years and had a diagnosis of substance use or other mental disorder at the time of the survey. Non-probabilistic, convenience, and consecutive sampling was used. Randomization was carried out by conducting the survey on the same day each week for four consecutive weeks on all patients attending the professional's office that day.

The variables studied were: Sociodemographic (age, sex, employment status, coexistence), related to somatic pathologies (HBV, HCV, HIV), substance use, and diagnoses of both substance use disorder and other mental disorders made by the professionals who carried out the survey (Table 1). Data collection was carried out between May 2019 and May 2020 in fifteen autonomous communities.

Descriptive and inferential statistics were performed. Pearson's chi-square (bilateral asymptotic significance) was used for the latter, with Fisher's exact test (bilateral exact significance) for qualitative and dichotomized quantitative variables. The confidence interval was set at 95%. The SPSS program (version v. 23) was used for data processing.

The study was carried out in accordance with the ethical principles of the Declaration of Helsinki.

## Results

A total of 1,783 correctly completed surveys were obtained, out of 2,000 planned, carried out by 61 professionals in all autonomous communities except Cantabria and Navarra. Of these, 322 came from mental health network resources (13 professionals) and the rest from addictive disorders care resources (48 professionals) (Table 2).

**Table 1**
*Variables studied*

| |
|---|
| **Treatment resource:** |
| Addictions network: Specific centre for attention to addictions/ Association of affected persons/ Prisons. |
| Mental health network: *Outpatient Mental Health Unit/ Hospital Unit / Association of affected persons.* |
| **Sociodemographic:** Sex, age, marital status, coexistence, employment situation. |
| **Other somatic pathologies:** *Hepatitis C-Hepatitis B. HIV. Neurological diseases.* |
| **Substances used in the last month/ Substances used, but not in the last month:** Tobacco/Alcohol/Cannabis/Cocaine/Stimulants/Heroin/ Opioid prescription/Others. |
| **Mental disorders due to substance use - last twelve months/ more than 12 months ago:** |
| F10. Alcohol use disorder |
| F11. Opioid use disorder |
| F12. Cannabinoid use disorder |
| F13. Sedative or Hypnotic use disorder |
| F14. Cocaine use disorder |
| F15. Other Stimulant use disorder |
| F16. Hallucinogen use disorder |
| F17. Tobacco use disorder |
| F18. Volatile solvent use disorder |
| F19. Multi-drug or other psychotropic substance use disorder |
| **Other mental disorders (grouped):** |
| F00-09 (Organic disorders) |
| F20-29 (Psychotic disorders) |
| F30-39 (Affective disorders) |
| F40-49 (Anxiety disorders) |
| F50-59 (Eating and sleeping disorders) |
| F60-69 (Personality disorders) |
| F70-99 (Other disorders) |

The addiction network had more men and more young people. Patients undergoing treatment in the addiction network also more frequently had jobs and previous treatments, and were more frequently diagnosed with infectious diseases (HIV, HCV). Alcohol use was linked to HBV and the presence of neurological disease; opioids and cannabis to hepatitis C, B and HIV; tobacco to hepatitis C and neurological diseases; cocaine to HCV; and the use of anxiolytics with HCV and HIV.

**Table 2**
*Number of surveys by Autonomous Community [Total (mental health)]*

| Autonomous community | Number (mental health) | Percentage |
|---|---|---|
| Galicia | 281 (44) | 15.8 |
| C. Valenciana | 265 (20) | 14.9 |
| Baleares | 242 (11) | 13.6 |
| Asturias | 191 (91) | 10.7 |
| Madrid | 185 (95) | 10.4 |
| Castilla y León | 165 (26) | 9.3 |
| Andalucía | 110 (8) | 6.2 |
| Cataluña | 99 (19) | 5.6 |
| Aragón | 92 | 5.2 |
| Canarias | 89 | 5.0 |
| Castilla-La Mancha | 34 (6) | 1.9 |
| País Vasco | 11 (2) | .6 |
| Extremadura | 7 | .4 |
| Murcia | 7 | .4 |
| Rioja | 5 | .3 |
| **TOTAL** | **1,783** | **100.0** |

The most commonly used substances were, in this order: Alcohol, tobacco, cannabis, cocaine and opioids. There was a higher percentage of active and past (abstinent) users in the addiction network, and a high percentage of patients with substance use in the mental health network. All substances were more commonly used in the addiction network except for alcohol, which was the same in both networks. Although not reflected in Table 4, polydrug use was found in many cases, the most common being tobacco and alcohol (19.3% of subjects) and tobacco and cannabis (6.8%).

In the mental health network, 68.9% of patients had a current diagnosis of SUD, lower than in the addictions network. The use disorders (UD) of alcohol, tobacco, cocaine and cannabis stand out in the total. In the addiction network, alcohol, tobacco and cocaine UDs were the most common, while in the mental health network these were tobacco, alcohol and cannabis UDs. Furthermore, and not specified in Table 5, there was a significant co-occurrence of several current diagnoses for substance use, the most frequent being those tobacco and alcohol UDs (10.6%) and cocaine and alcohol UDs (5.3%).

There was a very high prevalence of comorbid diagnoses in the addiction network, especially involving affective and personality disorders; in the mental health network, psychotic and affective disorders were the most commonly diagnosed. A significant difference in diagnosis between both networks was found in regard to psychotic disorders.

The relationships found between the UD of specific substances and the different most relevant specific mental

**Table 3**
*Sociodemographic and clinical (somatic) characteristics of the sample*

| | TOTAL N= 1783 | MENTAL H. N=322 | ADDICTIONS N=1461 | Values of F; $\chi^2$, p |
|---|---|---|---|---|
| Sex (male) | 1310 (73.6%) | 216 (67.3%) | 1094 (75%) | 7.67;0.005 |
| Age* | 47.54 ± 1.38 | 48.30 ± 12.17 | 43.11 ± 11.21 | 1.79; 0.04 |
| Living arrangements (own family+alone) | 1049 (33+25.9 %) | 34.5+27.3 % | 25.5+32.6 % | 1.08; 0.75 |
| Work situation (active+OD) | 591 (29.3%) | 89 (20.8%) | 462 (31.2%) | 5.38;<.0001 |
| Marital status (single) | 908 (50.9%) | 168 (52.2%) | 740 (50.7%) | 1.51; 0.624 |
| HVC | 292 (16.4%) | 27 (8.4%) | 265 (18.1%) | 4.97; <.0001 |
| HVB | 65 (3.6%) | 7 (2.2%) | 58 (4%) | 1.05; 0.120 |
| HIV | 89 (5%) | 5 (1.6%) | 84 (5.7%) | 8.12; 0.002 |
| Neurological disease | 71 (4%) | 15 (4.7%) | 56 (3.8%) | 0.07; 0.493 |

*Note\**: Mean, standard deviation.  OD: Occupational disability.

**Table 4**
*Prevalence of substances used (total, mental health network and addiction network [N (%)]*

| | TOTAL N= 1783 | MENTAL H. N=322 | ADDICTIONS N=1461 | Values of $\chi^2$; p |
|---|---|---|---|---|
| Any previously | 1287 (72.2%) | 251 (78%) | 1036 (70.9%) * | **3.85; 0.011** |
| Any previously except tobacco | 1258 (70.6%) | 237 (73.6%) | 1021 (69.9%) | 1.06; 0.185 |
| Any current | 1482 (83.1%) | 250 (77.6%) | 1232 (84.3%) | **7.67; 0.004** |
| Any current except tobacco | 1044 (58.6%) | 161 (50%) | 883 (60.4%) | **9.03; 0.001** |
| ***Substances consumed last month*** | | | | |
| Tobacco | 1195 (89.1%) | 215 (80.2%) | 980 (91.3%) | **10.03; <.0001** |
| Alcohol | 693 (50.3%) | 129 (48.7%) | 564 (50.6%) | *0.08; 0.568* |
| Cannabis | 413 (45.3%) | 49 (31.6%) | 364 (48.1%) | **16.78; <.0001** |
| Cocaine | 331 (33.6%) | 27 (20%) | 304 (35.8%) | **12.11; <.0001** |
| Stimulants (amphetamines) | 31 (1.7%) | 12 (3.7%) | 19 (1.3%) | **7.97; 0.003** |
| Heroin | 117 (8.5%) | 4 (1.5%) | 113 (10.1%) | **25.64; <.0001** |
| Prescription opioids | 191 (9.3%) | 5 (1.4%) | 186 (18.3%) | **10.06; 0.002** |
| ***Substances consumed, but not in the last month (quit)*** | | | | |
| Tobacco | 146 (10.9%) | 53 (19.8%) | 9 (8.7%) | **11.93; <.0001** |
| Alcohol | 686 (49.7%) | 136 (51.3%) | 550 (49.4%) | 1.16; 0.158 |
| Cannabis | 498 (54.7%) | 106 (68.4%) | 392 (51.9%) | **13.76; <.0001** |
| Cocaine | 654 (66.4%) | 108 (80%) | 546 (64.2%) | **9.89; <.0001** |
| Stimulants (amphetamines) | 260 (14.6%) | 73 (22.7%) | 187 (12.8%) | **19.31; <.0001** |
| Heroin | 253 (18.3%) | 24 (9.1%) | 229 (20.6%) | **20.08; <.0001** |
| Prescription opioids | 44 (18.7%) | 6 (54.5%) | 38 (17%) | **22.13; <.0001** |

*Note \*: Rest not specified or not answered.*

disorders are the following: Alcohol UD with affective disorder; opioid UD with personality disorder; cannabinoid UD with psychotic disorder, TP and anxiety disorder; UD sedatives with personality disorder, anxiety disorder and sleep disorder; cocaine UD with affective disorder and personality disorder, not related to psychotic disorders; stimulant UD (amphetamines) with psychotic disorder and personality disorder; and tobacco UD with psychotic disorder and personality disorder.

With regard to non-SUD mental disorders, the most significant relationships are: Psychotic disorders with cannabis, other stimulants and tobacco UDs, and to a lesser extent with alcohol UD; affective disorder especially with cocaine UD and less with alcohol UD; anxiety disorder with cannabis UD and less significantly with sedative UD. Personality disorders are related to all UDs, but especially opioid UD, cannabis UD, sedative UD, cocaine UD and tobacco UD.

**Table 5**
*Diagnosis of substance use disorder (total, mental health network and addiction network [N (%)]*

| | TOTAL N= 1783 | MENTAL H. N=322 | ADDICTIONS N=1461 | Values $\chi^2$; p |
|---|---|---|---|---|
| Any previously | 1431 (80.3%) | 215 (66.8%) | 1216 (83.2%) * | **16.07; < .0001** |
| Any current | 1036 (58.1%) | 222 (68.9%) | 814 (55.7%) | **14.21; < .0001** |
| Any previously (except tobacco UD) | 875 (49.1%) | 190 (59%) | 685 (46.9%) | **11.96; < .0001** |
| Any current (except tobacco UD) | 643 (36.1%) | 142 (44.1%) | 501 (34.3%) | **8.68; 0 .002** |
| ***Substance use disorder in the past 12 months*** | | | | |
| Alcohol | 744 (41.7%) | 80 (24.8%) | 664 (45.4%) | **18.32; <.0001** |
| Opioids | 370 (20.8%) | 12 (3.7%) | 358 (24.5%) | **28.93; <.0001** |
| Cannabinoids | 416 (23.3%) | 41 (12.7%) | 375 (25.7%) | **13.11; <.0001** |
| Sedatives/ Hypnotics | 116 (6.5%) | 10 (3.1%) | 106 (7.3%) | **15.07; <.0001** |
| Cocaine | 521 (29.2%) | 33 (10.2%) | 488 (33.4%) | **18.81; <.0001** |
| Stimulants (amph.) | 45 (2.5%) | 12 (3.7%) | 33 (2.3%) | 1.02; 0.128 |
| Hallucinogens | 5 (0.3%) | 0 | 5 (0.3%) | 0.96; 0.293 |
| Tobacco | 643 (36.1%) | 142 (44.1%) | 501 (34.3%) | **8.98; 0.001** |
| Multiple drugs | 36 (2%) | 6 (1.9%) | 30 (2.1%) | 1.91; 0.826 |
| ***Substance use disorder prior to last 12 months (currently abstinent)*** | | | | |
| Alcohol | 498 (27.9%) | 93 (28.9%) | 405 (27.7%) | 1.52; 0.674 |
| Opioids | 305 (17.1%) | 22 (6.8%) | 283 (19.4%) | **18.75; <.0001** |
| Cannabinoids | 355 (19.9%) | 71 (22%) | 284 (19.4%) | 0.66; 0.288 |
| Sedatives/ Hypnotics | 109 (6.1%) | 6 (1.9%) | 103 (7%) | **22.91; <.0001** |
| Cocaine | 505 (28.3%) | 66 (20.5%) | 439 (30%) | **6.99; 0.001** |
| Stimulants (Amp.) | 81 (4.5%) | 26 (8.1%) | 55 (3.8%) | **10.87; 0.001** |
| Hallucinogens | 23 (1.3%) | 1 (0.3%) | 22 (1.5%) | 3.48; 0.085 |
| Tobacco | 347 (19.5%) | 98 (30.4%) | 249 (17%) | **10.16; <.0001** |
| Multiple drugs | 45 (2.5%) | 16 (5%) | 29 (2%) | **8.49; 0.002** |

*Note \*: Rest not specified or not answered.*

**Table 6**
*Diagnosis of other mental disorders (not F 10-19) (total, mental health network and addiction network [N (%)]*

| | TOTAL N= 1783 | MENTAL H. N=322 | ADDICTIONS N=1461 | Values of $\chi^2$; p |
|---|---|---|---|---|
| ANY | 1334 (74.8%) | 297 (92.2%) * | 1037 (71.0%) | **10.06; <.0001** |
| PSYCHOTICS (F 20-29) | 315 (17.7%) | 113 (35.1%) | 202 (13.8%) | **14.02; <.0001** |
| AFFECTIVE (F 30-39) | 580 (32.5%) | 108 (33.5%) | 472 (32.3%) | 0.06; 0.669 |
| ANXIETY (F 40-49) | 296 (16.6%) | 43 (13.4%) | 253 (17.3%) | 1.21; 0.084 |
| EAT and SLEEP (F 50-59) | 70 (3.9%) | 10 (3.1%) | 60 (4.1%) | 0.09; 0.402 |
| PERSONALITY (F60-69) | 459 (25.7%) | 71 (22%) | 388 (26.6%) | 1.16; 0.094 |
| OTHERS (F 00-09, 70-99) | 75 (4.2%) | 7 (2.1%) | 68 (4.7%) | **3.08; 0.042** |

*Note \*: Rest not specified or not answered.*

The results are summarized in Tables 3 to 7 (P values < .05 in bold). The sociodemographic and somatic clinical characteristics are summarized in Table 3, while Table 4 shows the substances used both by patients in the mental health network and the addiction network, with SUDs in Table 5. The diagnoses of mental disorders not due to substance use are summarized in Table 6. Finally, the relationships found between disorders due to the use of different substances and other mental disorder diagnoses, grouped by major syndromes, are shown in Table 7 (these are not shown in function of the healthcare network as no significant differences were found).

Table 7
*Substance use disorder and other mental disorder (p-values)*

| *N=1783* | F-10 ALCOHOL | F-11 OPIOIDS | F-12 CANNABIS | F-13 SEDATIVES | F-14 COCAINE | F-15 OTH ESTIM. | F-16,18,19 OTH DRGS. | F17 TOBACCO |
|---|---|---|---|---|---|---|---|---|
| F0-9. ORGANIC Ds | 0.468 | 0.716 | 0.435 | 0.803 | 0.090 | **0.020** | 0.821 | 0.216 |
| F20-29. PSYCHOTIC Ds | **0.012** | 0.188 | **0.000** | 0.594 | 0.739 | **0.000** | 0.866 | **0.000** |
| F30-39. AFFECTIVE Ds | **0.001** | 0.112 | 0.276 | 0.079 | **0.000** | 0.079 | 0.562 | 0.161 |
| F 40-49. ANXIETY Ds | 0.633 | 0.093 | **0.006** | **0.013** | 0.693 | 0.736 | 0.880 | 0.424 |
| F 50-59. EAT & SLEEP Ds | 0.638 | 0.609 | 0.170 | 0.541 | **0.046** | 0.164 | 0.100 | **0.044** |
| F 60-69. PERSONALITY Ds | **0.033** | **0.000** | **0.000** | **0.000** | **0.000** | **0.031** | 0.757 | **0.000** |
| F 70-99. OTHER MDs | 0.597 | 0.079 | **0.036** | 0.690 | **0.019** | 0.129 | 0.831 | **0.009** |

*Note.* (G.L.=1; values of $\chi^2$ Pearson between 0.03 and 20.66).

# Discussion

## Knowledge of the problem in Spain

It is estimated that more than a third of people diagnosed with a mental disorder abuse or are dependent on psychoactive substances, especially alcohol, and among substance-dependent patients at least a similar percentage have other mental disorders (Conway, Compton, Stinson & Grant, 2006; Grant et al., 2004; Hasin & Grant, 2015; Hunt, Large, Cleary, Lai & Saunders, 2018; Kessler & Merikangas, 2004; Lev-Ran, Imtiaz, Rehm & Le Foll, 2013; Regier et al., 1990). The prevalence of comorbidity is different in the general population compared to people in treatment, being higher in the latter (Pascual-Pastor et al., 2017; Torrens et al., 2015). Numerous studies point to high rates of dual diagnosis in patients undergoing treatment in mental health and addiction networks (Compton, Thomas, Stinson & Grant, 2007; Hunt et al., 2018; Lev-Ran et al., 2013; Pascual-Pastor et al., 2017).

In Spain, Arias et al. (1996) studied personality disorders (PD) in opioid dependents under treatment with naltrexone; Fernández-Miranda et al. (2001) explored the influence of psychiatric disorders on the effectiveness of a methadone maintenance program; Haro, Bolinches & De Vicente (2001) studied the influence of PD on the evolution of addictive behaviour and associated psychopathology, as did Fernández-Miranda & Gutiérrez-Cienfuegos (2005). Rodríguez-Llera et al. (2006) revealed the prevalence of co-occurring mental disorders in heroin users. Other research has focused on specific mental disorders, especially personality disorders and their concomitance with addictive disorders (Fernández-Miranda, 2002; Lana et al., 2008; Pedrero-Pérez, 2018). Herrero, Domingo-Salvany, Torrens & Brugal (2008) determined psychiatric comorbidity in cocaine users, as did Martínez-Gras et al. (2016). Roncero et al. (2011) studied psychiatric comorbidities in patients receiving methadone treatment in various Autonomous

Communities. In the study by Gual (2007) involving 2,361 patients with SUD being treated in addiction networks in various autonomous communities, 33.8% had a dual diagnosis. Depression was the most prevalent disorder (21.6%), followed by anxiety disorders (11.7%). Alcohol dependents who also abused other drugs presented the highest level of comorbidity (48.5%) and those addicted to opioids the lowest (27.4%).

In the study by Arias et al. (2013a), 61.8% of the patients had a current diagnosis of a mental disorder other than SUD. In that of Pereiro et al. (2013), it was found that 56.3% of SUD patients also had a diagnosis of another mental disorder. Specifically, Cuenca-Royo et al. (2013) and Comín et al. (2016) studied psychiatric comorbidity in cannabis users and cocaine dependents, while Araos et al. (2017) did the same with cocaine use disorder patients. All found important prevalences.

On the other hand, in a study in a hospital unit of (acute) psychiatry (Rodríguez-Jiménez et al., 2008), 24.9% of the admitted patients presented a co-occurring SUD (excluding nicotine dependence). In a sample of patients from mental health centres, more than 50% of those attending also had an addictive disorder (Sánchez-Peña et al., 2012).

These studies provide data on the situation of co-occurring partial SUD and OMD, but also point to some findings of our research not confirmed by others:

## Sociodemographic and clinical profile and substance use

In terms of the profile of people treated in the addiction network, the sociodemographic characteristics of our sample did not differ greatly from those already known (Arias et al., 2013a; Gual, 2007; Pascual-Pastor et al., 2017; Torrens et al., 2015), thus supporting the representativeness of the sample in this regard. As for the somatic clinical situation, it is logical that a higher prevalence of HCV and

HIV infections were found in the addiction network, and that previous treatments for SUD were more frequent in addiction treatment centres. Hepatitis B and C, and HIV, were more common in men than in women, and may reflect riskier behaviours on the part of men. In the case of hepatitis C and HIV, there was a relationship with heroin, as with prescription opioids and also with cannabis and anxiolytics. This could be explained by polydrug use (Arias et al., 2013a; Fernández-Miranda et al., 2001).

The most commonly used substances in both networks were, in order, alcohol, tobacco, cocaine, cannabis and opioids, which largely corresponds to what is known about populations in treatment. It is not surprising that there was a higher percentage of both active and abstinent users in the addiction network, but there was a high percentage of substance use in the mental health network (almost half, if tobacco is excluded). It also highlights that, while there was obviously greater consumption of all substances in the addiction network, the exception is alcohol, which was the same in both networks. However, this could reflect distortions in the attention paid to alcohol problems compared to other substances of abuse in the addiction network (Arias et al., 2013b; Flórez-Menéndez, Balcells-Oliveró & Uzal-Fernández, 2018; Smith & Randall, 2012).

Except for alcohol, there were more patients who stopped substance use in the mental health network than in the addiction network, which could be a consequence of lower severity of use, or of improvement in their OMD ("self-medication") (Arias et al., 2013a; Torrens et al., 2015).

## SUD and OMD diagnoses. Comorbidity

In our study, it is striking that 66.9% of patients in the mental health network had a current diagnosis of SUD (44.1% if tobacco is excluded), a percentage that is lower in the addiction network (possibly explained by the specific treatments for quitting). The most prevalent disorders were tobacco UD (89.1%), alcohol UD (24.8%), cannabis UD (12.7%) and cocaine UD (10.2%), which does not differ much from other research (Arias et al., 2016; Fernández-Miranda et al., 2001; Ochoa-Mangado, Molins-Pascual & Seijo-Ceballos, 2018; Welsh et al., 2017). There were more diagnoses related to tobacco UD in patients treated in the mental health network than in the addiction network (44.1% vs. 34.3%), although this may not accurately reflect reality and be conditioned by a greater concern for smoking in the mental health network than in the addiction network (Becoña et al., 2006).

With regard to diagnoses for other mental disorders, the fundamental finding is that 71% of patients in the addiction network were diagnosed with a mental disorder other than addiction. This may also show how sensitive the professionals are regarding the problem of the co-occurrence of diagnoses and its widespread detection. The frequent co-occurrence of affective (32.3%), personality (26.6%), anxiety (17.3%) and psychotic disorders (13.8%) is consistent with what is generally shown by some previous studies (Arias et al., 2013a; Farren, Hill & Weiss, 2012; Fernández-Miranda et al., 2001; Grant et al., 2004; Lev-Ran et al., 2013; Nocon, Bergé, Astals, Martín-Santos & Torrens, 2007). It should be noted that, except for psychotic disorders, which were somewhat less frequent, the percentages of the different mental disorders treated were similar to those of the mental health network, thereby strengthening the perception of the addiction network's ability to detect other mental disorders (Arias et al., 2013a; Ochoa-Mangado et al., 2018; Pereiro et al., 2013).

Regarding the relationships found between specific SUDs and specific OMDs, it can be highlighted that psychotic disorders were related to cannabis UD, but not to cocaine UD, although they were related to other stimulants, which is not in line with the usual findings (Arias et al., 2013c; Herrero et al., 2008; Hunt et al., 2018; Martínez-Gras et al., 2016). The relationship with tobacco UD in first place is more common, and to a lesser extent with alcohol (Arias et al., 2013b; Flórez-Menéndez et al., 2018; Pascual-Pastor et al., 2017). Affective disorders were especially related to cocaine UD, which is common especially in bipolar disorders (Araos et al., 2017; Arias et al., 2016; Herrero et al., 2008), although it is less common that there is a weaker link to alcohol UD (Araos et al., 2017; Arias et al., 2013b; Flórez-Menéndez et al., 2018). Regarding anxiety disorders, their relationship with cannabis UD is less clearly explained (Conway et al., 2006; Fatséas, Denis, Lavie & Auriacombe, 2010; Grant et al., 2004; Sáiz Martínez et al., 2014; Smith & Randall, 2012). It is also striking that the relationship was less significant with sedative UD, even though this disorder is conditioned by and overlaps with the prescription of these drugs itself, and it is not possible to clarify the extent to which there was abuse or dependence on them (Fernández-Miranda, Orengo-Caus & Díaz-Fernández, 2019; Guardia-Serecigni & Flórez-Menéndez, 2018; Pereiro et al., 2013; Sáiz Martínez et al., 2014).

It is very clarifying to see how personality disorders were significantly related to all SUDs, especially to opioid UD (Fernández-Miranda & Gutiérrez-Cienfuegos, 2005; Fernández-Miranda et al., 2019), cannabis UD, sedative UD, cocaine UD (Haro et al., 2001; Pedrero-Pérez, 2018) and tobacco UD (Becoña et al., 2006), and to a lesser extent with alcohol UD and other stimulant UD (Arias et al., 2013b; 2013c). The relationship between having a PD and problematic drug use is clearly confirmed in our study. Additionally, this use involved very different substances, although it was not possible to clearly link particular one to this disorder (Arias et al., 2013a; Fernández-Miranda, 2002; Pedrero-Pérez, 2018).

**Strengths and limitations of the study**

This research is the first to be carried out in our country with an objective clearly national in scope, involving almost all the autonomous communities and also reflecting the diversity of healthcare networks. The sample is of significant size and was also subjected to randomization. A descriptive approach and an inclusive definition of comorbidity were used. Given the above, it can be considered representative to a large extent of people with diagnoses of SUD and other concurrent MDs, in routine treatment throughout Spain. In short, the main strengths of this study are the size of the sample, the national scope and the variety of treatment settings to avoid biases as far as possible, thereby ensuring an acceptable level of representativeness.

A possible limitation of this study is that the inclusion of cases was not carried out in a uniform manner and could have resulted in bias in sample collection, especially given the fact that patients treated in the mental health network are less represented than those with addictions. A bias may also result from the heterogeneity of the care structures themselves in the different autonomous communities. Nevertheless, it reflects the reality of care for SUDs (and in part also for mental disorders) in Spain. Another possible limitation could also be the randomization method, details of which have already been mentioned, which was chosen for its ease of application. Additionally, instead of validated questionnaires, the one used was constructed ad hoc, easy to fill out and collected the most relevant variables for the objective of the study.

Finally, it should be noted that comparability with other studies is limited, since, as mentioned, there are hardly any studies of such a general nature in our setting.

## Conclusions

Given the characteristics of its design, which tried to avoid various biases, and despite its limitations, this research can provide indicative and valuable preliminary information on the prevalence of co-occurrence of SUD and OMD diagnoses both in the mental health and especially in the addiction networks throughout the country. However, it must be remembered that there was a lower response to the surveys in the mental health network, possibly reflecting a lower awareness of the problem in this network, which historically and until recent times has been characterized by a low exploration of the addiction disorders that patients treated for another mental disorder in those services may have.

In general, the data obtained show a significant co-occurrence of diagnoses (in more than 60% of the patients). They show the existence of a high prevalence of other mental disorders in those patients undergoing treatment for their addictive disorder and, perhaps more surprisingly, a very high prevalence of both SUD diagnoses

and active substance use in people undergoing treatment for diagnoses of other mental disorders in mental health resources. It also reflects how drug dependencies are clearly related to specific mental disorders, which is relevant for the diagnostic exploration and the design of adequate and personalized treatment.

In conclusion, the study provides updated information on the actual coexistence of addictive disorders and other mental disorders in the Spanish health system, reflecting this comorbidity in routine clinical practice conditions. However, it is a first approximation to the epidemiological-healthcare situation of the problem, and it is clear that more research is needed to deepen our knowledge and thus enable healthcare responses to better adapt to reality, and with greater efficiency.

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## Conflict of interests

This study and its authors have no connection whatsoever with the tobacco, alcohol or pharmaceutical industry and therefore no conflict of interests.

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