

Gender differences in addiction severity

Diferencias de género en la gravedad de la adicción

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Abstract

Gender has been associated with substance use disorders (SUD). However, there are few studies that have evaluated gender differences in a global and a standardized way, and with a large sample of patients with SUD. Our goal is to analyze the role of gender in addiction severity throughout multiple life domains, using the Addiction Severity Index-6 (ASI-6). A naturalistic, multicenter and prospective study was conducted. A total of 221 patients with SUD (80.1% men) were interviewed with the ASI-6. Our results indicate that the Recent Summary Scores (RSSs) of men and women are similar, with the exception of Psychiatric and Partner- Problems, where women showed higher severity ($p = .017$ and $p = .013$, respectively). Statistically significant gender differences were found in certain aspects of the ASI-6 domains: men have more problems of physical health, legal issues, and alcohol and other substance use; and woman score higher in problems of mental health, social network, subjective evaluations of SUD consequences, and treatment needs. These results should be taken into account to improve the identification, prevention, and treatment of SUD.

Keywords: Addiction severity; Gender differences; ASI-6; Substance use disorder.

Resumen

Se ha descrito que el género es un factor que condiciona los trastornos por uso de sustancias (TUS). Sin embargo, hay pocos estudios que hayan evaluado esas diferencias de género de manera global, estandarizada y en una muestra amplia de pacientes con TUS. Nuestro objetivo es analizar el rol del género en la gravedad de la adicción a través de los diversos dominios de vida mediante el Addiction Severity Index-6 (ASI-6). Se llevó a cabo un estudio naturalístico, multicéntrico y prospectivo con una muestra compuesta por 221 pacientes con TUS (80,1% hombres). Los participantes fueron entrevistados con el ASI-6. Los resultados han mostrado que las Puntuaciones Sumarias Recientes (PSRs) son similares entre hombres y mujeres a excepción de las correspondientes a Salud mental y Pareja- Problemas, donde las mujeres presentan mayor gravedad ($p = 0,017$ y $p = 0,013$, respectivamente). Por otra parte, se han encontrado diferencias estadísticamente significativas en diversos aspectos concretos de las áreas contempladas por el ASI-6, que indican que los hombres presentan más problemas en cuanto a salud física, cuestiones legales y uso de alcohol y drogas, y la mujeres en salud mental, red social y la valoración subjetiva sobre las consecuencias del TUS y la necesidad de tratamiento. Estos resultados deben tenerse en cuenta a la hora de implementar una mejora en la identificación, prevención y tratamiento de los TUS.

Palabras clave: Gravedad de la adicción; Diferencias de género; ASI-6; Trastorno por uso de sustancias.

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Previous data have shown that the gender can modulate the different clinical aspects of substance use disorders (SUD), including prevalence, expression of symptoms, comorbidity, clinical course, severity, choice of treatment, and prognosis (Grella & Lovinger, 2012; Miquel, Roncero, López Ortiz, & Casas, 2011). Thus, women begin consuming at lower doses than men, but their evolution towards abuse and dependence is faster (“telescoping effect”) (Alvanzo et al., 2011) and they have greater chances of relapse during withdrawal (Becker & Hu, 2008). On another hand, as noted by Miquel et al. (2011), although there are more men than women with dual pathology (87.5% vs. 12.5%, respectively) in general psychiatry units, the proportion is reversed in drug units (47.5% of women had dual pathology compared to 30.3% of men). In addition, in men, the most prevalent comorbid diagnoses are psychotic and bipolar disorders, whereas in women, they are anxiety and affective disorders (Miquel et al., 2011). This comorbidity of SUD may be predictive of low performance, family difficulties, therapeutic non-compliance, legal issues, etc. (Miquel et al., 2011; Najt, Fusar-Poli, & Brambilla, 2011; Schwinn, Schinke, & Trent, 2010). In terms of physical health problems, female consumers have poorer general health, report more chronic problems, receive more prescriptions and take more medication than men (Green, Grimes Serrano, Licari, Budman, & Butler, 2009; Grella & Lovinger, 2012).

Substance use has been associated with criminal behavior, both in men and women (Green et al., 2009; Palmer, Jinks, & Hatcher, 2010). Traditionally, men show higher rates of violence and crimes against property than women (Castillo-Carniglia, Pizarro, Luengo, & Soto-Brandt, 2014; McMurrin, Riemsma, Manning, Misso, & Kleijnen, 2011). However, for several years, the rates of women with legal problems resulting from substance abuse have been increasing significantly (Messina, Grella, Cartier, & Torres, 2010; Palmer et al., 2010).

The study of the relationship between employment and gender in people with SUD has revealed differences that may be mediated by different social roles such as parenthood, child care, the division of homework, etc. (Huang, Evans, Hara, Weiss, & Hser, 2011; Thompson & Petrovic, 2009). For example, male consumers have a longer history of working life and are more predisposed to work than women (Hogue, Dauber, Dasaro, & Morgenstern, 2010).

Moreover, the family may constitute a significant source of protection against substance abuse, and family factors related to substance use may be different for men and women (Kopak, Chen, Haas, & Gillmore, 2012). Women with SUD report more family conflicts, tend to live with their children, and are more likely to be divorced or widowed than are men (Green et al., 2009).

But as seen above, the literature reports gender differences in specific problems caused by SUD, and, to our knowledge, there are no studies that have evaluated these differences globally and comprehensively, with a standardized

instrument allowing the determination of possible differences in the severity of these problems in a sample of patients with SUD. Taking the literature reports into account, we hypothesized that there will be gender differences in specific aspects of different life areas of people with SUD, but this is not sufficient to have an impact on the severity profile of the different life domains. Our goal is to examine the impact of gender on addiction severity in the different life domains through the Addiction Severity Index-6 (ASI-6).

Method

Participants

The total sample was made up of 221 patients, of whom 177 (80.1%) were men and 44 (19.9%) women, who presented a SUD (dependence) and who were receiving treatment in one of the 8 centers participating in the project (Unidad de Tratamiento de Conductas Adictivas, SERGAS, Orense; Clínica Asturias, Gijón; Hospital Ramón & Cajal, Madrid; Hospital Sant Pau, Barcelona; Unidad Asistencial de Drogodependencias, Carballo-La Coruña; Centro de Atención a Drogodependencias San Juan de Dios, Palencia; Centro de Salud Mental Retiro, Madrid; Centro de Salud Mental Teatinos, Oviedo). The inclusion criteria were: (a) being of age, (b) having a main diagnosis of SUD (dependence) according to the International Classification of Diseases ([ICD-10], World Health Organization, 1992) criteria, (c) initiating or changing treatment, and (d) signing the informed consent form. The only exclusion criterion was not signing the informed consent form.

Assessments

Four assessments were performed in the study. The first was performed when including the patient, after he or she had signed the informed consent, and follow-ups were performed at 1, 3, and 6 months. This work only shows the data from the baseline assessment. All patients were administered the Spanish version of the Addiction Severity Index (ASI-6) (Cacciola, Alterman, Habing, & McLellan, 2011; Díaz Mesa et al., 2010).

Addiction Severity Index (ASI-6)

The ASI-6 is a semi-structured and hetero-applied interview that multi-dimensionally assesses addiction severity understood as need for treatment. It consists of 257 items that collect demographic information and data about housing, and assess seven problem areas: physical health, employment and resources, alcohol and drugs, legal status, family and social relationships, and psychiatric area. These problem areas have a similar structure: firstly, objective items to describe the patient's situation in that area and to identify and quantify possible problems; and secondly, subjective items about the patients' appraisal of their life situation in the last 30 days and the importance to them of treatment to solve those situations (rated as none, slight, moderate, substantial or extreme).

The ASI-6 provides a severity profile of the last 30 days made up of the Recent Summary Scores (RSSs) in the 9 primary and 6 secondary scales. These scores are obtained using a mathematical algorithm that only uses some of the items (objective and subjective) that constitute each problem area. The RSSs have a theoretical range from 0 to 100, such that the higher the score, the greater the severity, although the feasible range is specific to each score (see Table 1).

Design

Data for this article were taken from a naturalistic, multicenter, longitudinal, prospective study with a 6-month follow-up. The design features are described in more detail in Casares et al. (2011). The study was approved by the Ethics Committee for the Research Clinic of the Central University Hospital of Asturias (ref. nr. 45/2005) and follows the guidelines of the Helsinki Declaration of 1975, revised in 1983. We obtained informed consent for participation in the study from all the participants and/or their legal representatives before inclusion in the study.

Data analysis

Descriptive analysis (distribution of means and frequencies as a function of the nature of the variables) was carried out to establish the characteristics and profile of the total sample and differentiated by gender. Subsequently, statisti-

cally significant differences were established as a function of gender using bivariate analyses (Chi-square with Yates' correction and Fisher's exact test, and Student's t for independent samples). To perform the most appropriate analyses, the five response options of the subjective items were recoded according to their frequency distributions as: None (none and slight), Moderate (moderate) and Extreme (considerable and extreme). We established a 95% confidence level and used the statistical package for Social Sciences SPSS-15.

Results

Sample profile

The mean age of the sample was 41.4 years (SD = 11.5). In terms of marital status, 43.0% were married or living as a couple. In the last 30 days, 61.4% had been in hospital, in a hospitalization unit for alcohol or drugs or a psychiatric unit, prison, a therapeutic community, or a protected flat. Concerning education, 49.3% had compulsory studies (elementary, primary, and secondary). Regarding employment status, 47.3% was active either part-time or full-time. Alcohol was the main substance of reference in the treatment for 54.3% of the participants. Table 2 presents the socio-demographic and consumption data of the patients differentiated by gender. We found no statistically significant gender differences in any of them.

Table 1. Structure and Scores of the Addiction Severity Index v. 6.o (ASI-6).

Assessed problem areas	Scales - 9 primary scales (1.1 to 1.9) - 6 secondary scales (2.1 to 2.6)*	Feasible RSS range
1. Physical health	1.1. Physical health	29 – 78
2. Employment and resources	1.2. Employment	21 – 53
3. Alcohol use	1.3. Alcohol	38 – 77
4. Drug use	1.4. Drugs	31 – 77
5. Legal situation	1.5. Legal	43 – 79
6. Family and social relationships	1.6. Family - Children	48 – 79
	1.7. Family/Social network - Support	27 – 73
	1.8. Family/Social network - Problems	36 – 78
	2.1. Partner - Support	32 – 57
7. Psychiatric	2.2. Partner - Problems	47 – 77
	2.3. Adult relatives - Support	41 – 68
	2.4. Adult relatives - Problems	44 – 67
	2.5. Friends - Support	37 – 59
	2.6. Friends - Problems	46 – 70
	P 1.9. Psychiatric	31 – 79

Note. RSS: Recent Score Summary; P: Primary

* Secondary scales and their scoring ranges are shaded in gray.

Table 2. Socio-demographic and Consumer Profile according to Gender.

	Men (n = 177)	Women (n = 44)	p
Mean Age – years (SD)	41.9 (DT= 11.7)	39.6 (DT = 10.9)	0.242
Civil status - n (%)			0.162
Married / Living as a couple	77(43.5)	18 (40.9)	
Divorced / Separated	30 (16.9)	4 (9.1)	
Single	67 (37.9)	19 (43.2)	
Widowers	3 (1.7)	3 (6.8)	
Housing in the last 30 days - n (%)			
Alone	28 (90.3)	3 (9.7)	
Spouse/Partner	71 (81.6)	16 (18.4)	
Children < 18 years	28 (73.7)	10 (26.3)	
Parents	58 (85.3)	10 (14.7)	
Other adult relatives	28 (71.8)	11 (28.2)	
Other non-adult relatives	7 (77.8)	2 (22.2)	
Hospital Unit (drugs)	6 (66.7)	1 (100)	0.490
Prison	3 (33.3)	1 (100)	0.197
Restricted or supervised housing	5 (83.3)	1 (16.7)	0.346
Hostel/street	7 (58.3)	0 (0)	0.261
Studies achieved [n (%)]			0.313
Compulsory (Elementary, Primary, Secondary)	85 (48.3)	23 (53.5)	
High school /Vocational training	69 (39.2)	14 (32.6)	
University (Degree/Postgraduate)	18 (10.2)	6 (14.0)	
None	4 (2.3)	0 (0.0)	
Work situation n (%)			0.315
Full-time/part-time	79 (44.9)	25 (56.8)	
Unemployed and actively seeking	28 (15.9)	8 (18.2)	
Outside of the labor market	69 (39.2)	11 (25.0)	
Main consumption substance [n (%)]			0.359
Alcohol	92 (52.0)	28 (63.6)	
Cannabis	11 (6.2)	2 (4.5)	
Cocaine	33 (18.6)	7 (15.9)	
Opiates	39 (22.0)	6 (13.6)	

Note. There were no statistically significant gender differences in any of the variables.

Profile of addiction severity according to the RSSs on the ASI-6 scales

Men and women both showed greater severity on the primary scale of Employment, and on the secondary scales of Partner - Support and Friends - Support. Regarding the impact of gender on the severity of the addiction profile, we only found statistically significant differences in the primary scale of Psychiatric and the secondary scale of Partner - Problems. In both cases, there was higher severity in the women (Table 3).

Physical health

As regards the presence of chronic diseases related to substance use (HIV, tuberculosis, hepatitis, and cirrhosis or

other liver diseases), there were no statistically significant gender differences. However, 39.8% of the men compared to 23.3% of the women reported other chronic diseases, and the differences were statistically significant, $\chi^2 = 4.066$, $p = .044$. On another hand, 13.6% of the men and 2.3% of the women received a pension due to physical disease or disability, $\chi^2 = 4.513$, $p = .034$. We also found statistically significant differences in the mean number of times that they had been hospitalized for physical health problems: 2.26 times for the men and 1.51 times for the women, $t = 2.066$, $p = .041$.

Employment and resources

Statistically significant differences were found, $\chi^2 = 24.138$, $p = .007$, in terms of the type of work currently per-

Table 3. *Differential RSS Profile as a Function of Gender.*

Scales	Men (SD)	Women (SD)	Student's t	p	
PRIMARY	1.1. Physical health	45.1 (9.2)	42.8 (10.3)	1.403	0.162
	1.2. Employment	38.4 (13.1)	36.1 (11.7)	1.031	0.307
	1.3. Alcohol	51.7 (9.0)	54.1 (9.3)	-1.507	0.133
	1.4. Drugs	40.6 (10.9)	38.6 (9.4)	1.048	0.296
	1.5. Legal	47.0 (3.3)	47.2 (3.7)	-0.353	0.725
	1.6. Family - Children	49.7 (5.0)	50.4 (6.0)	-0.682	0.496
	1.7. Family/Social network - Support	45.0 (12.5)	44.2 (9.2)	0.465	0.643
	1.8. Family/Social network - Problems	43.6 (8.9)	49.0 (9.2)	-1.751	0.081
SECONDARY	2.1. Partner - Support	43.0 (11.4)	43.6 (11.4)	-0.329	0.742
	2.2. Partner - Problems	48.9 (6.6)	52.4 (8.2)	-2.570	0.013
	2.3. Adult relatives - Support	49.2 (8.9)	46.6 (8.3)	1.746	0.082
	2.4. Adult relatives - Problems	49.1 (7.0)	50.9 (7.9)	-1.530	0.128
	2.5. Friends - Support	48.1 (9.0)	47.8 (10.3)	0.178	0.860
	2.6. Friends - Problems	48.8 (6.2)	48.3 (5.5)	0.472	0.637
P	1.9. Psychiatric	44.1 (9.2)	48.1 (8.4)	-2.406	0.017

Note. RSS: Recent Score Summary; P: Primary.

formed. Out of the sample, women predominated in sectors of technical and administrative professions and domestic cleaning (specialized, executive, administrative and management professions, sales, clerks and administrative support, services and domestic employees), whereas men carried out manual labor (precision production, trades and repairs, machine operators and supervisors, carriers and removals, manual workers, cleaning equipment, helpers and laborers). The longest full-time work interval was 116.22 (SD = 120.8) months for the men versus 75.7 (SD = 91.7) months for the women, $t = 2.401$, $p = .019$.

Alcohol and drugs

We found statistically significant differences in the age at onset of alcohol use such that the men began to drink at a significantly lower mean age (16.0 years, SD = 5.1) than the women (18.5 years, SD = 7.3), $t = -2.119$, $p = .039$. Of the men, 27.7% had presented problems to control, reduce, or refrain from drinking alcohol or had spent a longer time drinking compared to 43.2% of women, $\chi^2 = 3.974$, $p = .046$. In addition, significantly fewer men (21.5%) than women (43.2%) had medical or psychological, occupational, legal or domestic problems due to alcohol use, $\chi^2 = 8.680$, $p = .003$. We also found statistically significant differences in the perception of craving or the impulse to drink as a problem, present in 27.3% of the men compared with 45.5% of the women, $\chi^2 = 8.241$; $p = .004$. Considering a daily abusive intake of 5 units of standard drink (USDs) for men and 4 for women, as established in the ASI-6, the men reported a mean regular abusive consumption of 13.02 (SD = 12.9) years, and the women of 7.84 (SD = 9.0) years, $t = 2.794$, $p = .006$.

Regarding illegal drugs, no age differences in the onset for any substance, in days of consumption or abuse, either lifelong or in the last 30 days, were found. No age differences were found for the consumption of sedatives, cocaine, stimulants and hallucinogens. Only in the case of inhalants, age at onset was lower for men (18.2 years, SD = 5.090) compared to women (26.4 years, SD = 9.370), $t = -2.448$, $p = .026$. In terms of the lifelong regularity of consumption, men consumed the following substances for significantly more years than women: marijuana (4.7 years, SD = 7.1, vs. 1.7 years, SD = 4.5, respectively), $t = 3.311$, $p = .001$, heroin (3.1 years, SD = 5.8, vs. 0.9 years, SD = 2.6, respectively), $t = 3.678$, $p \leq .001$, and methadone (1.2 years, SD = 3.107, vs. 0.4 years, SD = 1.706, respectively), $t = 2.296$, $p = .023$. We found no gender differences in the prevalence of abuse of any of the substances. However, regarding the use of secondary drugs (without a diagnosis of abuse), again men presented consumption patterns significantly more frequently than did women in some substances. Thus, among those who consumed marijuana, 56.5% of the men compared to 35.9% of the women, $\chi^2 = 5.414$, $p = .020$, had consumed it more than 50 days over their lifetime, and 31.2% of the men compared with 13.6% of the women had consumed heroin on more than 50 occasions, $\chi^2 = 5.418$, $p = 0.020$. In terms of risk behavior related to substance use, 23.3% of the men had injected drugs at some point in their lives, whereas of the women, only 9.3% had done so, $\chi^2 = 4.085$, $p = .043$.

No significant differences in economic problems derived from gambling were apparent. However, in the last 30 days, the men had gambled significantly more than the women in games like the lottery, the coupon, football pools, slots ma-

Table 4. Differences in Social and Family Relations as a Function of Gender.

	Men	Women	Statistical test	p
In the last 30 days				
Has spent time in person with partner - n (%)	107 (97.3)	28 (87.5)	5.052 ^a	0.025
Has had some contact with partner (calls, internet, etc.) - n (%)	108 (98.2)	26 (81.3)	13.367 ^a	0.000
Has argued with partner - n (%)	43 (39.4)	18 (64.3)	5.563 ^a	0.018
The partner has a problem with alcohol or drugs - n (%)	10 (9.2)	10 (35.7)	12.586 ^a	0.000
Close friends have problems with alcohol or drugs - n (%)	29 (27.6)	2 (8.0)	4.280 ^a	0.039
Has talked to friends about feelings or problems - n (%)	72 (67.3)	23 (92.0)	6.134 ^a	0.013
Has gone to religious services or activities promoted by the religious community - n (%)	14 (7.9)	8 (18.2)	4.148 ^a	0.042
Lifelong				
Someone he/she knows physically abused or assaulted him/her - n (%)	33 (18.9)	27 (38.6)	7.807 ^a	0.005
Someone he/she knows sexually abused or assaulted him/her - n (%)	4 (2.3)	10 (23.8)	26.171 ^a	0.000
Months since the last time - M (SD)	55.2 (61.5)	240.3 (117.1)	-3.272 ^b	0.006
Months since he/she saw how someone was killed, attacked, or seriously harmed - M (SD)	139.9 (133.8)	62.1 (47.2)	2.927 ^b	0.006

Note.

^a χ^2

^b Student's *t*

chines, bingo, betting on racing, casinos, etc., or any other illegal gambling (2.8 times, SD = 6.3, vs. 0.6 times, SD = 2.0, respectively), $t = 3.892$, $p \leq .001$).

Legal situation

At the legal level, men had significantly more problems than women. Of the men, 44.1% had been in jail/prison even though only for a few hours at some point in their lives, whereas of the women, only 20.5% had been in jail, $\chi^2 = 8.232$, $p = .004$. In the case of arrests, 48.0% of the men and 25.0% of the women had been arrested, $\chi^2 = 7.573$, $p = .006$.

Family and social relationships

As shown in Table 4, in the last 30 days, a greater proportion of men than of women had spent time with their partners, had had contact with them, and had close friends with current problems of alcohol or drugs. Moreover, in the last 30 days, a higher percentage of women than of men had argued with their partners, their partner had drug or alcohol problems, and they had talked more with friends about their problems and feelings. In addition, a higher percentage of women than men had suffered physical assault or abuse (38.6% vs. 18.9%, respectively, $\chi^2 = 7.807$, $p = .005$) and sexual abuse (23.8% vs. 2.3%, respectively, $\chi^2 = 26.171$, $p \leq .001$) at some time in their lives.

Mental health

The women's level of mental health was significantly worse than the men's. Thus, a higher percentage of women had tried to commit suicide at some time in their lives (28.6% vs.

10.1%), $\chi^2 = 9.612$, $p = .002$, and had felt depressed or low or had had sleeping problems in the past 30 days (65.9% vs. 46.1%), $\chi^2 = 5.462$, $p = .019$. In addition, women were assessed or treated for emotional or psychological problems for the first time at a younger age than men [24.8 years, SD = 9.3, vs. 30.3 years, SD = 11.9), $t = 2.293$, $p = .024$.

Subjective assessment of severity and the need for treatment

As shown in Table 5, the women were significantly more concerned about their alcohol consumption, the abusive and traumatic events experienced, and their psychological problems, and they granted more importance to treatment for their consumption and their social relationships with other adults, and for the abuse and trauma suffered. The women also showed a higher tendency than the men to worry about their physical health and the problems associated with drugs. They also considered that achieving abstinence from alcohol, getting treatment for their psychological problems, and feeling more satisfied with their adult relationships was more important than did the men. Furthermore, we observed in the men a tendency to experience more pain or physical discomfort, and they granted more importance to its treatment, and to the need for job counseling, treatment to cease using substances, and counseling in their relation with their children. They felt their current legal problems were more severe, they were more concerned about their relationships with other adults, and they were more satisfied with their free or leisure time.

Discussion

The main goal of this study was to examine gender differences in addiction severity in the different life areas assessed by the ASI-6. In relation to the addiction severity profile, when observing the RSSs, there are few differences, and these show that women's profile is significantly more severe in the life domains related to mental health and couple problems. However, when considering different items of the ASI-6 individually, the men in this study have more problems related to substance use in all life areas, except for those concerning psychological status and the area of social relations, in line with the findings of other studies (Cotto et al., 2010; Kopak et al., 2012; Najt et al., 2011; Palmer et al., 2010).

A global and comprehensive, standardized and universally accepted assessment instrument was used in this study, which has shown that there is no differential addiction severity profile as a function of gender, except for the scales of Mental health and Partner- Problems.

Physical health

The men reported having been hospitalized several times, and a higher proportion of men than of women received a pension for physical-related problems. Among the scarce previous studies, it was found that women have

poorer health status (Green et al., 2009; Grella & Lovinger, 2012), although in those cases, the samples were limited to patients with opioid abuse.

Employment and resources

Substance use influences the socio-economic area (Neale, Nettleton, & Pickering, 2014). In our sample, we detected a labor market pattern characterized by the predominance of manual work in men, and of technical, administrative, and commercial professions and domestic work in women. On another hand, women had worked less in full-time jobs, as other studies have shown (Green et al., 2009; Huang et al., 2011). More research is needed to understand how the SUD affects men and women in the workplace (Huang et al., 2011).

Alcohol and drugs

Regarding substance use, coinciding with the literature, men begin consuming at earlier ages, and their consumption is more abusive and regular (Alvanzo et al., 2011; Buu et al., 2014; Green et al., 2009). For their part, the women in the sample, like those from other studies, considered craving as a problem and reported more difficulties to control their alcohol use and more problems associated with

Table 5. Subjective Assessment of Severity and the Need for Treatment in the past 30 Days

	Men n (%)			Women n (%)			χ^2	p
	None	Moderate	Extreme	None	Moderate	Extreme		
Physical health								
Pain or physical discomfort	103 (58.9)	43 (24.6)	29 (16.6)	27 (61.4)	12 (27.3)	5 (11.4)	0.754	0.686
Concern about physical health	109 (62.3)	29 (16.6)	37 (21.1)	28 (63.3)	4 (9.1)	12 (27.3)	1.906	0.386
Importance of treatment for physical health	100 (57.5)	12 (6.9)	62 (35.6)	25 (58.1)	3 (7.0)	15 (34.9)	0.008	0.996
Employment and resources								
Importance of job counseling	114 (65.5)	11 (6.3)	49 (28.2)	25 (61.0)	6 (14.6)	10 (24.4)	3.177	0.204
Alcohol use								
Concern about problems with alcohol	128 (72.7)	9 (5.1)	39 (2.2)	19 (43.2)	3 (6.8)	22 (50.0)	14.626	0.001
Importance of treatment to quit drinking	94 (53.4)	12 (6.8)	70 (39.8)	14 (32.6)	3 (7.0)	26 (60.5)	6.423	0.040
Importance of achieving / maintaining abstinence from alcohol	85 (48.3)	13 (7.4)	78 (44.3)	14 (31.8)	3 (6.8)	27 (61.4)	4.282	0.118
Drug use								
Concern about drug-related problems	130 (75.6)	6 (3.5)	36 (20.9)	32 (76.2)	1 (2.4)	9 (21.4)	0.132	0.936
Importance of treatment to quit using substances	96 (54.9)	8 (4.6)	71 (40.6)	28 (65.1)	2 (4.7)	13 (30.2)	1.597	0.450
Importance of achieving / maintaining abstinence from substances	86 (49.1)	8 (4.6)	81 (46.3)	26 (61.9)	1 (11.1)	15 (35.7)	2.316	0.314
Legal situation								
Severity of judicial problems	146 (84.9)	2 (1.2)	24 (14.0)	36 (87.8)	0 (0.0)	5 (12.2)	0.585	0.746
Family and social relationships								
Satisfaction provided by adult relationships	59 (33.5)	57 (32.4)	60 (34.1)	11 (25.0)	14 (31.8)	19 (43.2)	1.617	0.445
Concern about problems in adult relationships	103 (58.2)	30 (16.9)	44 (24.9)	21 (48.8)	12 (27.9)	10 (23.3)	2.749	0.253
Importance of treatment for adult relationships	103 (58.5)	20 (11.4)	53 (30.1)	17 (39.5)	11 (25.6)	15 (34.9)	7.462	0.024
Satisfaction with leisure	78 (44.1)	55 (31.1)	44 (24.9)	26 (59.1)	9 (20.5)	9 (20.5)	3.347	0.188
Concern about abuse and traumatic events	162 (94.7)	0 (0.0)	9 (5.3)	30 (73.2)	7 (17.1)	4 (9.8)	31.982	0.000
Importance of treatment for traumatic/abusive events	160 (93.6)	2 (1.2)	9 (5.3)	30 (73.2)	2 (4.9)	9 (22.0)	14.793	0.001
Additional need for problems with children	126 (95.5)	2 (1.5)	4 (3.0)	32 (97.0)	0 (0.0)	1 (3.0)	0.506	0.776
Difficulty in relationship with children	131 (99.2)	1 (0.8)	0 (0.0)	30 (96.8)	1 (3.2)	0 (0.0)	1.262	0.261
Importance of counseling for relationship with children	123 (93.9)	3 (2.3)	5 (3.8)	28 (90.3)	2 (6.5)	1 (3.2)	1.465	0.481
Mental health								
Concern for psychological problems	79 (45.7)	27 (15.6)	67 (38.7)	13 (31.0)	4 (9.5)	25 (59.5)	5.992	0.050
Importance of psychological treatment	77 (43.8)	24 (13.6)	75 (42.6)	12 (27.3)	5 (11.4)	27 (61.4)	5.169	0.075

consumption (Shand, Degenhardt, Slade, & Nelson, 2011; Thompson & Petrovic, 2009). In our study, we detected a higher percentage of men who injected drugs. This could be because women basically inject with their partners, whereas men have a broader network of family and friends who consume (Werb et al., 2013).

It was found that men had gambled more frequently in the last month, which could be attributed to the vulnerability shared by SUD and pathological gambling, and the differential characteristics of impulsiveness, emotional arousal, and response to stress as a function of gender, etc. (Estévez Herrero, Herrero Fernández, Sarabia Gonzalvo, & Jáuregui Bilbao, 2014; Pilver, Libby, Hoff, & Potenza, 2013; Verdejo-García, Lawrence, & Clark, 2008).

Legal situation

Although, in accordance with other studies (Green et al., 2009; Haas & Peters, 2000), there were more men than women who had been in prison or had been arrested, the severity profile of the Legal Scale did not yield significant gender differences.

Family and social relationships

A broad range of research indicates that the family environment is more dysfunctional in women with SUD than in men (Kopak et al., 2012; Shand et al., 2011). According to our study, there are no major differences in problems in the family setting or in the severity scores of this area, and such problems are limited to the couple context, where the women did present higher severity. According to Cranford, Tennen, and Zucker (2015), following the theory of role incompatibility, consumption would be more incongruent with adult social roles like marriage in the case of women, which could generate more couple problems.

There are no data on the social network of adults with SUD. In our study, men had more friends with problems related to alcohol or other substances than did women. This could be because women tend to make new friends or remake contact with people who do not consume, whereas men have more trouble making new nonconsumer friends, to which is added the lack of family support (Neale et al., 2014).

The higher prevalence of traumatic events in women with SUD than in men (Shand et al., 2011), as well as the greater likelihood of sexual abuse (Neale et al., 2014; Shand et al., 2011) is well documented in the literature. In this sample, the women had been assaulted physically and sexually more frequently than the men, but it was striking that the men had been sexually assaulted a shorter time ago.

The spiritual or religious aspect in SUDs, although less studied, seems to play a considerable role in the treatment and recovery process (Alterman, Cacciola, Dugosh, Ivey, & Coviello, 2010). These data would explain why the women in our sample reported attending religious events more frequently than the men.

Psychiatric area

Although until now, there have been conflicting data on the comorbidity of SUD with other psychiatric diagnoses and gender differences, among people with SUD, mental health problems and thoughts and attempts of suicide seem more prevalent in women (Araos et al., 2014; Saiz et al., 2014; Shand et al., 2011). In this sense, the analyzed sample confirms that there are more women who are depressed and who have attempted suicide, but no differences appeared in the rest of symptoms assessed by the ASI-6. Although other studies found similar results, none of them offers an explanation (Miquel et al., 2011). The severity scores in the area of mental health confirm that women have a worse mental health profile, so the psychological consequences of substance use are higher in women than in men.

Subjective assessment of severity and the need for treatment

To our knowledge, there are no studies on the differences in subjective experiences about the consequences of SUD in the different domains. When was asked for subjective assessment, in our study, the women were significantly more concerned about their consumption of alcohol, stressful life events experienced, and psychological problems, and they granted more importance to the treatment of their consumption and their social relationships with other adults, and of the abuses and traumatic events suffered.

Limitations

Firstly, the low proportion of women in the study sample should be noted. Second, we included patients with all types of substance dependence and, as expected, the legal substance (alcohol) was overrepresented compared to the rest. Finally, it should be taken into account that memory bias, motivations, social desirability, and the subjective perceptions of the interviewed subjects may have influenced the scores obtained. Therefore, it is necessary to be cautious when generalizing the results found in the study.

Conclusion

Our study reveals the existence of gender differences in multiple specific aspects evaluated by the ASI-6. However, these differences are minimized when considering the severity profile of the ASI-6. Nevertheless, women showed a more severe addiction profile in the mental health components and in couple problems, in line with their subjective evaluations of concern and need for treatment of psychological and social aspects.

These findings are of great interest to clinical practice because personalized intervention programs should be developed to attend to each patient differentially and globally, in this case, a function of gender.

However, further studies are needed that allow the establishment of causal relationships to explain severity differences between men and women, as well as prospective studies that include larger and more homogeneous samples regarding gender and substances.

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Conflict of interest

The authors declare that no there is conflict of interest in this work.

References

- Alterman, A. I., Cacciola, J. S., Dugosh, K. L., Ivey, M. A., y Coviello, D. M. (2010). Measurement of mental health in substance use disorder outpatients. *Journal of substance abuse treatment*, 39, 408-414. doi: 10.1016/j.jsat.2010.07.002
- Alvanzo, A. A., Storr, C. L., La Flair, L., Green, K. M., Wagner, F. A., y Crum, R. M. (2011). Race/ethnicity and sex differences in progression from drinking initiation to the development of alcohol dependence. *Drug and alcohol dependence*, 118, 375-382. doi: 10.1016/j.drugalcdep.2011.04.024
- Araos, P., Vergara-Moragues, E., Pedraz, M., Pavon, F. J., Campos Cloute, R., Calado, M., . . . Rodriguez de Fonseca, F. (2014). Psychopathological comorbidity in cocaine users in outpatient treatment. *Adicciones*, 26, 15-26.
- Becker, J. B., y Hu, M. (2008). Sex differences in drug abuse. *Frontiers in neuroendocrinology*, 29, 36-47. doi: 10.1016/j.yfrne.2007.07.003
- Buu, A., Dabrowska, A., Mygrants, M., Puttler, L. I., Jester, J. M., y Zucker, R. A. (2014). Gender differences in the developmental risk of onset of alcohol, nicotine, and marijuana use and the effects of nicotine and marijuana use on alcohol outcomes. *Journal of studies on alcohol and drugs*, 75, 850-858.
- Cacciola, J. S., Alterman, A. I., Habing, B., y McLellan, A. T. (2011). Recent status scores for version 6 of the Addiction Severity Index (ASI-6). *Addiction*, 106, 1588-1602. doi: 10.1111/j.1360-0443.2011.03482.x
- Casares, M. J., Díaz Mesa, E. M., García-Portilla, P., Sáiz Martínez, P. A., Bobes Bascarán, M. T., Fonseca, E., . . . Bobes, J. (2011). Sixth version of the Addiction Severity Index: Assessing sensitivity to therapeutic change and retention predictors. *International Journal of Clinical and Health Psychology*, 11, 495-508.
- Castillo-Carniglia, A., Pizarro, E., Luengo, D., y Soto-Brandt, G. (2014). Alcohol use and self-reported violent events in Chile. *Adicciones*, 26, 46-53.
- Cotto, J. H., Davis, E., Dowling, G. J., Elcano, J. C., Staton, A. B., y Weiss, S. R. (2010). Gender effects on drug use, abuse, and dependence: a special analysis of results from the National Survey on Drug Use and Health. *Gender medicine*, 7, 402-413. doi: 10.1016/j.genm.2010.09.004
- Cranford, J. A., Tennen, H., y Zucker, R. A. (2015). Using multiple methods to examine gender differences in alcohol involvement and marital interactions in alcoholic probands. *Addictive behaviors*, 41, 192-198. doi: 10.1016/j.addbeh.2014.10.009
- Díaz Mesa, E. M., Garcia-Portilla, P., Saiz, P. A., Bobes Bascaran, T., Casares, M. J., Fonseca, E., . . . Bobes, J. (2010). Psychometric performance of the 6th version of the Addiction Severity Index in Spanish (ASI-6). *Psicothema*, 22, 513-519.
- Estévez Herrero, A., Herrero Fernández, D., Sarabia González, I., y Jáuregui Bilbao, P. (2014). El papel mediador de la regulación emocional entre el juego patológico, uso abusivo de Internet y videojuegos y la sintomatología disfuncional entre jóvenes y adolescentes. *Adicciones*, 26, 282-290.
- Green, T. C., Grimes Serrano, J. M., Licari, A., Budman, S. H., y Butler, S. F. (2009). Women who abuse prescription opioids: findings from the Addiction Severity Index-Multimedia Version Connect prescription opioid database. *Drug and alcohol dependence*, 103, 65-73. doi: 10.1016/j.drugalcdep.2009.03.014
- Grella, C. E., y Lovinger, K. (2012). Gender differences in physical and mental health outcomes among an aging cohort of individuals with a history of heroin dependence. *Addictive behaviors*, 37, 306-312. doi: 10.1016/j.addbeh.2011.11.028
- Haas, A. L., y Peters, R. H. (2000). Development of substance abuse problems among drug-involved offenders. Evidence for the telescoping effect. *Journal of substance abuse*, 12, 241-253.
- Hogue, A., Dauber, S., Dasaro, C., y Morgenstern, J. (2010). Predictors of employment in substance-using male and female welfare recipients. *Journal of substance abuse treatment*, 38, 108-118. doi: 10.1016/j.jsat.2009.09.003
- Huang, D. Y., Evans, E., Hara, M., Weiss, R. E., y Hser, Y. I. (2011). Employment Trajectories: Exploring Gender Differences and Impacts of Drug Use. *Journal of vocational behavior*, 79, 277-289. doi: 10.1016/j.jvb.2010.12.001
- Kopak, A. M., Chen, A. C., Haas, S. A., y Gillmore, M. R. (2012). The importance of family factors to protect against substance use related problems among Mexican heritage and White youth. *Drug and alcohol dependence*, 124, 34-41. doi: 10.1016/j.drugalcdep.2011.12.004
- McMurrin, M., Riemsma, R., Manning, N., Misso, K., y Kleijnen, J. (2011). Interventions for alcohol-related offen-

- ding by women: a systematic review. *Clinical psychology review*, 31, 909-922.
- Messina, N., Grella, C. E., Cartier, J., y Torres, S. (2010). A randomized experimental study of gender-responsive substance abuse treatment for women in prison. *Journal of substance abuse treatment*, 38, 97-107. doi: 10.1016/j.jsat.2009.09.004
- Miquel, L., Roncero, C., López Ortiz, C., y Casas, M. (2011). Diferencias de género epidemiológicas y diagnósticas según eje I en pacientes con Patología Dual. *Adicciones*, 23, 165-172.
- Najt, P., Fusar-Poli, P., y Brambilla, P. (2011). Co-occurring mental and substance abuse disorders: a review on the potential predictors and clinical outcomes. *Psychiatry research*, 186, 159-164. doi: 10.1016/j.psychres.2010.07.042
- Neale, J., Nettleton, S., y Pickering, L. (2014). Gender sameness and difference in recovery from heroin dependence: a qualitative exploration. *The International journal on drug policy*, 25, 3-12. doi: 10.1016/j.drugpo.2013.08.002
- Palmer, E. J., Jinks, M., y Hatcher, R. M. (2010). Substance use, mental health, and relationships: A comparison of male and female offenders serving community sentences. *International journal of law and psychiatry*, 33, 89-93. doi: 10.1016/j.ijlp.2009.12.007
- Pilver, C. E., Libby, D. J., Hoff, R. A., y Potenza, M. N. (2013). Gender differences in the relationship between gambling problems and the incidence of substance-use disorders in a nationally representative population sample. *Drug and alcohol dependence*, 133, 204-211. doi: 10.1016/j.drugalcdep.2013.05.002
- Saiz, P. A., Jimenez-Trevino, L., Diaz Mesa, E. M., Garcia-Portilla, M. P., Marina, P., Al-Halabí, S., . . . Ruiz, P. (2014). Dual diagnosis in anxiety disorders: pharmacologic treatment recommendations. *Adicciones*, 26, 254-274.
- Schwinn, T. M., Schinke, S. P., y Trent, D. N. (2010). Substance use among late adolescent urban youths: mental health and gender influences. *Addictive behaviors*, 35, 30-34. doi: 10.1016/j.addbeh.2009.08.005
- Shand, F. L., Degenhardt, L., Slade, T., y Nelson, E. C. (2011). Sex differences amongst dependent heroin users: histories, clinical characteristics and predictors of other substance dependence. *Addictive behaviors*, 36, 27-36. doi: 10.1016/j.addbeh.2010.08.008
- Thompson, M., y Petrovic, M. (2009). Gendered transitions. Whittin-Person changes in employment, family, and illicit drug use. *Journal of research in crime and delinquency*, 46, 377-408.
- Verdejo-Garcia, A., Lawrence, A. J., y Clark, L. (2008). Impulsivity as a vulnerability marker for substance-use disorders: review of findings from high-risk research, problem gamblers and genetic association studies. *Neuroscience and biobehavioral reviews*, 32, 777-810. doi: 10.1016/j.neubiorev.2007.11.003
- Werb, D., Buxton, J., Shoveller, J., Richardson, C., Rowell, G., y Wood, E. (2013). Interventions to prevent the initiation of injection drug use: a systematic review. *Drug and alcohol dependence*, 133, 669-676. doi: 10.1016/j.drugalcdep.2013.08.017