Characterization of dual disorders in addiction treatment-seekers at mexican outpatient centers

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ABSTRACT

Introduction. In Mexico, very few studies have been published on dual disorders (DD) at specialized treatment centers describing actual treatment needs and even fewer have been undertaken at addiction treatment centers in the public system. The objective of this study was therefore to analyze DD and other clinical characteristics in people seeking treatment at outpatient addiction centers in the public system.

Method. Cross-sectional multi-site study. A sample of 148 patients from treatment centers was analyzed. Psychiatric disorders were evaluated with the Mini International Neuropsychiatric Interview, risky sexual behaviors with the HIV Risk Behavior Scale, injection drug use, and quality of life with the Quality of Life Questionnaire. Univariate chi-square analyses were performed to determine statistical differences between subjects with and without DD, while linear regression was used to calculate quality of life and binomial logistic regression to determine the risk of injection drug use, condom use, and suicidal behavior.

Results. Cocaine was the impact drug with the highest prevalence (33.8%). The group of subjects with alcohol use disorder + drug use disorder presented greater comorbidity with major depressive disorder (25.7%), antisocial disorder (27.7%), attention deficit (11.5%) and suicide attempt (17.6%). The group with DD presented higher injection drug use (OR = 1.67), non-use of condoms with a primary partner (OR = 3.66), more suicide attempts (OR = 4.2) and lower quality of life than those without DD.

Conclusion. Characterizing patients with DD enables the accurate identification of their treatment needs and the development of continuous improvement programs to optimize resources and improve the success of care.

KEYWORDS. Dual disorders, injection drugs, risky sexual behaviors, suicidality, quality of life.

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RESUMEN

Introducción. En México son pocos los estudios publicados sobre la patología dual (PD) en centros de tratamiento especializados que describan las necesidades reales de tratamiento y menos aún que se hayan realizado en centros de tratamiento de adicciones del sistema público. Por esto, el objetivo de presente estudio fue analizar la PD y otras características clínicas en personas que buscan tratamiento en centros ambulatorios de adicciones del sistema público. Método. Estudio transversal multisede. Se analizó una muestra de 148 pacientes de centros de tratamiento. Se evaluaron trastornos psiquiátricos con la Mini Entrevista Neuropsiquiátrica Internacional, conductas sexuales de riesgo con la Escala de Comportamiento de Riesgo de VIH, consumo de drogas inyectables, y la calidad de vida con el Cuestionario de Calidad de Vida. Se realizaron análisis univariados mediante chi cuadrado para determinar diferencias estadísticas entre personas con y sin PD, así como regresión lineal para calidad de vida y regresión logística binomial para determinar el riesgo para presentar consumo de drogas inyectables, uso de condón y conducta suicida. Resultados. La cocaína fue la droga de impacto con mayor prevalencia (33.8%). El grupo de personas con trastorno por consumo de alcohol + trastorno por consumo de drogas presentó mayor comorbilidad con el trastorno depresivo mayor (25.7%), trastorno antisocial (27.7%), déficit de atención (11.5%) e intento suicida (17.6%). El grupo con PD presentó mayor consumo de

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drogas inyectables (OR= 1.67), no uso de condón con pareja primaria (OR= 3.66), más intentos de suicidio (OR= 4.2) y una menor calidad de vida en comparación con aquellos sin PD. Conclusión. Caracterizar a los pacientes con PD, permite identificar con precisión sus necesidades de tratamiento y desarrollar programas de mejora continua para optimizar los recursos y mejorar el éxito de la atención.

INTRODUCTION

Most treatments for Substance Use Disorders (SUD) worldwide are based on the classic substance addiction paradigm. However, for over 30 years, scientific evidence has demonstrated that substance addiction is not only a biopsychosocial disease but also a brain disease, where genetic and neurobiological vulnerability factors interacting with the environment significantly contribute to the development of the disease[1-3] influencing with the heritability factor by up to 60%[4] Moreover, it is important to note that dozens of studies show that co-occurrence of SUD and other psychiatric disorders (OPD) is the rule rather than the exception in treatment seekers[5]. For example, household studies indicate a lifetime prevalence of co-occurrence of SUD and OPD up to 50%[6,7]. However, studies of people with SUD at specialized treatment centers report lifetime prevalences ranging from 50% to 75%[8-10], and of up to 65% in the past 30 days[8-10].

Some studies have sought to determine whether the SUD came before the OPD or vice versa, with a variety of conclusions. Clinical epidemiology studies have reported that at least 80% of people with an SUD first presented an OPD, particularly externalizing, neurodevelopmental disorders such as attention deficit / hyperactivity disorder, conduct disorder, and oppositional defiant disorder[11,12].

This relationship between SUD and OPD is known as Dual Disorders (DD), defined as the co-occurrence between SUD and an OPD either sequentially or in parallel across the lifespan[13]. It is important to note that this co-occurrence creates a synergic effect, whose expression significantly increases the patient's symptomatologic severity, associated with greater specialized service and general medicine use and days of hospitalization[14], low treatment adherence, higher relapse and rehospitalization rates[15,16], more risky sexual behavior and a greater risk of contracting sexually transmitted infections[17,18], more suicide ideation and behavior[10], school and work dropout, legal problems and in general, greater psychosocial impairment, which significantly increases care costs[8,19].

These consequences mean that DD is a diagnostic dimension with clinical peculiarities and specific care demands, meaning that it requires treatment algorithms that incorporate care of the symptoms of both conditions[20,21]. These consequences mean that DD is a diagnostic dimension with clinical peculiarities and specific care demands, meaning that it requires treatment algorithms that incorporate care of the symptoms of both conditions[20,21]. However, most programs offer models that deal with the co-occurring condition in a serial or parallel manner[19,22,23], leading to the wrong and/or revolving door phenomenon, making it difficult for the patient to navigate the health system, since they fail to find the necessary treatment, which eventually leads to the abandonment of treatment, relapses and rehospitalizations[19].

Addiction treatment coverage in Mexico

SUD treatment coverage in Mexico consists of three components. The first is provided by the private sector, which is usually very expensive for most of those affected: the second by various civil society organizations, with treatment models focusing on mutual-aid (peer assistance), with over 20,000 groups (such as Alcoholics and Narcotics Anonymous) and over 1900 residential centers, most of which are based on the twelve-step philosophy of Alcoholics Anonymous and lack professional services and infrastructure[24,25]. The third component is provided by the public sector, comprising a nationwide network of over 400 outpatient and over 30 hospitalization units[24,26], the majority of which lack psychiatrists and personnel specializing and/or certified in attending patients with DD[24,26]. With over 50 years' experience in prevention and treatment programs in the field of addictions, Centros de Integración Juvenil AC contributes 104 outpatient centers and 12 hospitalization units for the Mexican mental health and addictions system.

Given the evidence presented earlier, there is an urgent need to empirically substantiate the paradigm shift in addiction care, to take steps towards a comprehensive care model for people with DD. To our knowledge, very few studies have been published in Mexico on DD at specialized treatment centers that describe actual treatment needs[9,14] let alone at addiction treatment centers in the public system.

The objective of this article was to analyze the characteristics of DD and other clinical characteristics (risky sexual behavior, injection drug use, suicidality, and perceived quality of life) in a sample of people seeking treatment at outpatient addiction centers in the public system.

METHOD

Design, participants, and sites

This is a multi-site study with a cross-sectional, observational, and descriptive design. Subjects were recruited at 10 outpatient centers for addiction treatment in the public system that form part of the Centros de Integración Juvenil network, all located in Mexico City. Inclusion criteria were a) being a substance user, b) being aged between 18 and 60, c) being able to understand and sign the informed consent form, d) being a patient who is visiting the treatment center for the first time. Exclusion criteria were presenting psychotic, manic and / or cognitive impairment symptoms that reduced the ability to understand the questionnaire and answer adequately. The data were collected between August and December 2017.

Instruments and outcome measures

Demographic data questionnaire

Data on clinical and demographic characteristics (age, educational attainment, employment, and marital status) were collected using a demographic data form designed *ad hoc* for this study. The questionnaire also included a section with questions on substance use based on the Addiction Severity Index (ASI), following the recommendations of Mäkelä[27] on the use of standardized items evaluating substance use patterns. The term "drug" was used to refer to any drug of abuse other than alcohol (such as marijuana, cocaine, heroin, and inhalants), while the term "substance" refers to both alcohol and any other drug.

Montreal Cognitive Assessment (MoCA)

Brief 30-point test to detect cognitive impairment[27]; in this study, it was used to measure overall cognitive functioning. The MoCA shows Cronbach's α of over .71 test-retest reliability[28]. This scale was used to screen for cognitive impairment, for which researchers adopted the recommendations of Nasreddine et al., 2005, who establish a cut-off point of <18 to determine a high degree of symptoms, adding one point to subjects with 12 years or less of formal academic education.

Mini International Neuropsychiatric Interview (MINI)

The International Mini Neuropyschiatric Interview -fifth version- (MINI 5.0) in Spanish was used to evaluate psychiatric disorders[29]. The MINI 5.0 is a structured diagnostic interview with adequate inter-rater reliability and diagnostic accuracy. For this study, the following psychiatric disorders were assessed: major depressive disorder, persistent depressive disorder (dysthymia), mania/ hypomania, psychotic disorder, post-traumatic stress disorder, generalized anxiety disorder, suicidality, drug and alcohol use disorder, antisocial personality disorder, and attention deficit/hyperactivity disorder.

Injection Drug and Sexual Behavior Questionnaire

This instrument, developed to assess risky sexual behavior in the past 30 days, inquires about the number of sexual partners, frequency of condom use during vaginal and anal sex with primary and non-primary partners, and sexual intercourse for drugs or money. Items 7-12 of the HIV Risky Behavior Scale were used (HRBS)[30] to evaluate the past 12 months. Respondents were asked about injection drug use (past 30 days and lifetime), as well as injection utensils sharing.

Quality of Life Questionnaire (WHOQoL-BREF)

Self-report instrument comprising 26 items answered on a Likert-type scale with five options[31]; of which 24 items comprise four dimensions (physical health, psychological health, social relations and environment) and two are used for overall assessment. The instrument has .75 reliability (moderate) and .87 concurrent validity according to Lawton's subjective well-being scale[32].

Procedures

Potential participants were recruited through a group discussion in which they were informed of the characteristics of the study. This was done at each of the treatment centers. Interested candidates underwent an individual informed consent and signing process, with an interviewer providing detailed information on the study, risks, benefits, and participants' rights. Eligible participants completed all the assessments in a single session lasting approximately two hours.

The assessment team comprised psychologists. Six interviewers interviewers with undergraduate studies, and two supervisors with graduate studies in clinical psychology. Participating interviewers and supervisors had demonstrable experience of at least five years of treating people with substance use disorders. All members of the clinical team were trained and certified in the study procedures and evaluations. The training was provided by the team of

researchers (all experts in clinical research). Training consisted of a centralized five-day program, comprising theoretical and practical seminars. Certification was carried out through a role-playing exercise.

Statistical analyses

The groups with and without DD were formed based on the MINI diagnostic categories; univariate analyses were conducted for demographic variables using chi-square *(χ^2)* for categorical variables and Student's t for numerical variables. Univariate χ^2 analyses were performed to determine whether there were significant differences in the prevalence of psychiatric disorders by substance use disorder group (alcohol use disorder (AUD) vs. drug use disorder (DUD) vs. AUD + DUD). Lastly, linear regression models were performed for the quality of life dimensions, and binomial logistic regression models for injection drugs, condom use, and suicidality. In the regression models, the independent variable was categorized into two levels (With and without DD) and a significant value of $p < .05$ was used. All statistical analyses were performed using SPSS version 23.

Ethical considerations

All study procedures, informed consent, evaluation forms, and participant recruitment materials were approved by the Research and Ethics Committee of the Ramón de la Fuente Muñiz National Institute of Psychiatry (INPRFM) (No. CEI/C071/2016) and in keeping with the recommendations of the World Medical Association, Declaration of Helsinki, and international good practices for research on human beings.

For the benefit of the participants, all those who met the criteria for psychosis, mania, and suicide ideation and behavior were notified of the diagnosis and their consent was requested to inform the coordinator of the treatment into each center to ensure they received proper treatment.

RESULTS

During the recruitment process, 915 participants were contacted, of which 336 were recruited as potentially eligible. In the next step, the eligibility evaluation was undertaken, reducing the sample of enrolled subjects to 155. The final sample for data analysis comprised 148 records (see Figure 1).

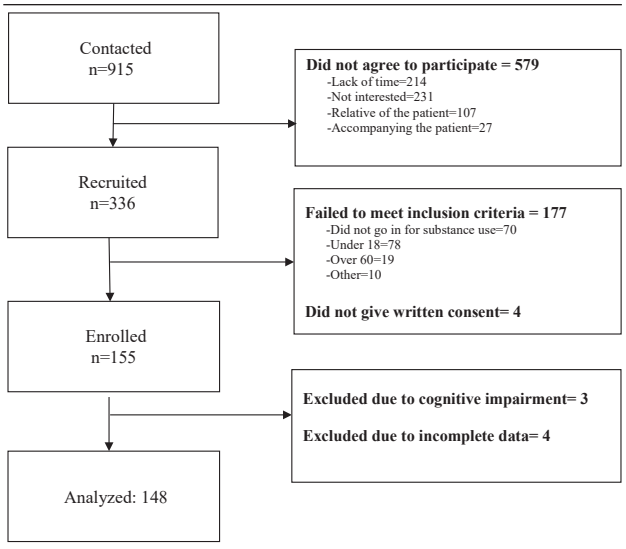

Figure 1 Participant flowchart

Demographic characteristics

Study participants were predominantly male (83.1%), with a mean age of 29.8 years (*sd* = 10.7), with the group of subjects with DD being significantly younger (28.4 [*sd* = 9.6]) than those without DD (31.9 years [*sd* = 12.1]). Likewise, over half the subjects reported being single (53.4%), with primary education being their highest degree of formal studies (53.4%). Regarding the substance of abuse with the greatest impact (for which they were seeking treatment), cocaine (33.8%) was the substance with the highest prevalence followed by marijuana (24.3%) and alcohol (23.6%). The comparative analysis between groups (with and without DD), found that cocaine was the substance with the greatest impact on the group of subjects with DD (25.7%), while alcohol had the greatest impact on subjects without DD (11.5%). Additionally, subjects with DD reported a greater number of days of use in the past month compared to those without DD (see Table 1).

Association between DD and SUD

Prevalence of DD in the past 30 days was 61.5%, with antisocial personality disorder having the highest prevalence in the sample (48.6%), followed by attention deficit hyperactivity disorder (18.9%), major depressive disorder (12.2%) and generalized anxiety disorder (10.1%).

In the comparative analysis between groups (AUD vs. DUD vs. AUD + DUD), statistically significant differences were found for the AUD + DUD group in the presence of any psychiatric disorder (31.1%, $\chi^2 = 8.6$, $gl = 2$, $p < .05$),

Table 1 Participant characteristics

	Without DD n=57	With DD n=91	Total n=148	Statistical difference	Residuals
	$\tilde{X}$ (sd) / n (%)	$\tilde{X}$ (sd) / n (%)	$\tilde{X}$ (sd) / n (%))		
Age				**$t_{(146)}$=1.98***	
	31.9 (12.1)	28.4 (9.6)	29.8 (10.7)		
Sex				$\chi^2_{(1)}$=.03	
Man	47 (31.8)	76 (51.4)	123 (83.1)		[-.4, .4]
Woman	10 (6.8)	15 (10.1)	25 (16.9)		[.2,-.2]
Marital status				$\chi^2_{(2)}$=2.85	
Single	29 (19.6)	50 (33.8)	79 (53.4)		[-.5, .5]
Divorced/separated/widowed	7 (4.7)	18 (12.2)	25 (16.9)		[1.5, -1.5]
Married/partnered	21 (14.2)	23 (15.5)	44 (29.7)		[-1.2, 1.2]
Educational attainment				$\chi^2_{(2)}$=1.23	
Elementary school	28 (18.9)	51 (34.5)	79 (53.4)		[-.8, .8]
High school	21 (14.2)	32 (21.6)	53 (35.8)		[.2, -.2]
Higher education	8 (5.4)	8 (5.4)	16 (10.8)		[1.0, -1.0]
Impact substance				**$\chi^2_{(4)}$=10.34***	
Alcohol	17 (11.5)	18 (12.2)	35 (23.6)		[1.4,-1.4]
Marijuana	13 (8.8)	23 (15.5)	36 (24.3)		[-.3, .3]
Cocaine	12 (8.1)	38 (25.7)	50 (33.8)		[-2.6, 2.6]
Inhalants	5 (3.4)	4 (2.7)	9 (6.1)		[1.1, -1.1]
Other	10 (6.8)	8 (5.4)	18 (12.2)		
Substance use in past 30 days					
Two or more[1]	.51 (1.3)	4.3 (8.2)	3.2 (7)	**$t_{(116)}$= -2.83***	
Any drug[2]	4.3 (9.5)	9.6 (11.7)	7.5 (11.1)	**$t_{(146)}$= -2.88***	
Any substance[1]	5.5 (5.5)	11.3 (11.8)	9.1(11.2)	**$t_{(146)}$= -3.09***	

[1]: Any drug + alcohol; [2]: Any drug without alcohol
Without DD: Without Dual Disorders; With DD: With Dual Disorders
**p<.05*

compared to the other two groups. Similar results can be observed for major depressive disorder (lifetime prevalence) (25.7%, χ^2=6.12 *gl*=2, p <.05), post-traumatic stress disorder (4.1%, χ^2 = 6.1 *gl* = 2, p <.05), antisocial disorder (27.7%, χ^2 = 17.6 *gl* = 2, p <.05), attention deficit with hyperactivity disorder (11.5%, χ^2 = 6.3 *gl* = 2, p <.05), and suicide attempts (lifetime prevalence) (17.6%, χ^2 = 5.6, *gl* = 2, p <.05) (see Table 2).

Injection drug use and risky sexual behavior

Only the group with DD presented injection drug use (4.7% lifetime use and 1.4% in the past 12 months), with an increased probability of presenting it (*OR* = 1.67, 95% CI [1.46-1.92], p <. 05) compared to the group without DD (see Table 3).

Table 2 Association between substance use disorders and other psychiatric disorders

	AUD n=47	DUD n=39	AUD+DUD n=62	Total n=148	Statistical difference	Residuals
	n (%)	n (%)	n (%)	n (%)		
Major depressive episode[a]	4 (2.7)	4 (2.7)	10 (6.8)	18 (12.2)	$\chi^2_{(2)}$=1.6	[-.9,-.4,1.3]
Major depressive episode[b]	19 (12.8)	16 (10.8)	38 (25.7)	73 (49.3)	**$\chi^2_{(2)}$=6.12***	[-1.5,-1.2,2.5]
Persistent depressive episode[a]	2 (1.4)	2 (1.4)	1 (.7)	5 (3.4)	$\chi^2_{(2)}$=1.06	[.4,.7,-1.0]
Manic/hipomanic episode[a]	2 (1.4)	2 (1.4)	4 (2.7)	8 (5.4)	$\chi^2_{(2)}$=.26	[-.4,-.1,.5]
Any psychotic disorder[a]	2 (1.4)	2 (1.4)	1 (.7)	5 (3.4)	$\chi^2_{(2)}$=1.07	[.4,.7,1.0]
Posttraumatic stress disorder[a]	1 (.7)	0 (0)	6 (4.1)	7 (4.7)	**$\chi^2_{(2)}$=6.1***	[-1.0,-1.6,2.4]
Generalized anxiety disorder[a]	4 (2.7)	3 (2)	8 (5.4)	15 (10.1)	$\chi^2_{(2)}$=.91	[-.4,-.6,.9]
Antisocial personality disorder	12 (8.1)	19 (12.8)	41 (27.7)	72 (48.6)	**$\chi^2_{(2)}$=17.6***	[-3.8,.0,3.6]
Attention deficit and hyperactivity disorder	5 (3.4)	6 (4.1)	17 (11.5)	28 (18.9)	**$\chi^2_{(2)}$=6.3***	[-1.9,-.7,2.2]
Suicide attempt[a]	4 (2.8)	1 (.7)	2 (1.4)	7 (4.8)	$\chi^2_{(2)}$=2.20	[1.5,-.7,-.7]
Suicide attempt[b]	11 (7.4)	16 (10.8)	26 (17.6)	53 (35.8)	**$\chi^2_{(2)}$=5.6***	[-2.1,.8,2.3]
Any psychiatric disorder[a]	22 (14.9)	23 (15.5)	46 (31.1)	91 (61.5)	**$\chi^2_{(2)}$=8.6***	[-2.5,-.4,2.7]

[a]Past 30 days; [b]Lifetime; AUD: alcohol use disorder; DUD: drug use disorder
*p<.05

Subjects with DD displayed higher rates of risky sexual behavior compared to those without DD, with increased probabilities in the category of "multiple sexual partners" (*OR*=2.31, 95% CI [1.11-5.79], *p*<.05), "Non condom use with primary partner" (*OR* = 3.66, 95% CI [1.16-11.51], *p*<.05), and "non condom use with non-primary partner" (*OR* = 2.34, 95% CI [1.25 -6.12], *p*<.05) in the past 30 days.

"Non-use of condom during anal sex" (*OR*=1.63, 95% CI [1.23-4.82], *p*<.05) was the only category with a higher probability in the past 12 months in subjects with DD (see Table 3).

Suicide ideation, planning and attempts

In relation to suicidality (suicide ideation, planning and attempt), a lifetime prevalence of suicide attempts of 35.8% was found, with participants with DD presenting an increased lifetime risk of attempts (*OR* = 4.2, 95% CI [1.89-9.34], *p* <.001) compared to participants without PD, which was also found for ideation in the past 30 days (*OR* = 5.1, 95% CI [1.44-18.02], *p* <.001) and for planning in the past 30 days (*OR* = 6.5, 95% CI [3.24-52.61], *p*<.001) (see Table 3).

Perceived quality of life

For the perceived quality of life analysis, the total scores in each of the four dimensions were considered, which are close to 50 points. Linear regression found that the psychological health dimension obtained an R^2c = 20% coefficient of determination, negatively explained by co-occurring disorders (β = -4.04, *t* = -2.46, *p* = 015). Likewise, the social relations dimension had an R^2c=28% coefficient of determination, negatively explained by co-occurring disorders (β = -12.11, *t* = -3.56, *p* = 001) (see Table 4).

DISCUSSION

The objective of this article was to analyze the characteristics of DD and other clinical characteristics (risky sexual behavior, injection drug use, suicidality, and perceived quality of life) in a sample of people seeking treatment at outpatient addiction centers in the public system.

Among the most significant results, it was found that people who seek treatment at outpatient centers in the public system in Mexico, display a DD prevalence of 61.5%. Likewise, subjects with DD showed a significant tendency to use multiple substances (cocaine, marijuana, and alcohol) in

Table 3 Injection drugs, risky sexual behavior and suicidality of subjects

	Without DD n=57	With DD n=91	Total n=148	Statistical difference	Residuals	OR [95 % IC]
	n (%)	n (%)	n (%)			
Injection drug use						
Lifetime use	0	7 (4.7)	7 (4.7)	$\chi^2_{(1)}$=**4.60***	[-2.1,2.1]	**1.67 [1.46-1.92]***
12 previous months	0	2 (1.4)	2 (1.4)	$\chi^2_{(1)}$=1.27	[-1.2,1.2]	1.64 [1.44-1.86]
Share syringes	0	1 (.7)	1 (.7)	$\chi^2_{(1)}$=.63	[-.8,.8]	1.63 [1.43-1.85]
Multiple sexual partners						
Past 30 days	8 (5.4)	17 (11.5)	25 (16.9)	$\chi^2_{(1)}$=**4.32***	[-2.2,2.2]	**2.31 [1.11-5.79]***
Past 12 months	32 (23.4)	60 (43.8)	92 (67.2)	$\chi^2_{(1)}$=1.7	[-.8,.8]	1.37 [.66-2.84]
Non condom use						
Primary partner past 30 days	36 (50.7)	18 (25.4)	54 (76.1)	$\chi^2_{(1)}$=**5.26***	[2.3,-2.3]	**3.66 [1.16-11.51]***
Primary partner past 12 months	59 (48.8)	46 (38)	105 (86.8)	$\chi^2_{(1)}$=.56	[-.7,.7]	1.94 [.67-5.62]
Non primary partner past 30 days	8 (5.4)	19 (12.83)	27 (18.2)	$\chi^2_{(1)}$=**4.23***	[-2.1,2.1]	**2.34 [1.25-6.12]***
Primary partner past 12 months	20 (21.3)	34 (36.2)	54 (57.4)	$\chi^2_{(1)}$=.26	[-.5,.5]	1.09 [.46-2.56]
Anal sex past 30 days	7 (4.7)	8 (5.4)	15 (10.1)	$\chi^2_{(1)}$=.07	[.3,-.3]	1.45 [.49-4.24]
Anal sex past 12 months	30 (45.5)	22 (33.3)	52 (78.8)	$\chi^2_{(1)}$=**4.75***	[2.6,-2.6]	**1.63 [1.23-4.82]***
Exchanged sex for money or drugs	8 (5.4)	5 (3.4)	13 (8.8)	$\chi^2_{(1)}$=1.7	[.3,-.3]	1.16 [.37-3.76]
Suicidality						
Ideation[a]	3 (2.1)	21 (14.5)	24 (16.6)	$\chi^2_{(1)}$=**7.53***	[-2.7,2.7]	**5.1 [1.44-18.02]****
Planning[a]	1 (.7)	10 (6.9)	11 (7.6)	$\chi^2_{(1)}$=**4.04***	[-2.0,2.0]	**6.5 [3.24-52.61]****
Attempt[a]	2 (1.4)	5 (3.4)	7 (4.8)	$\chi^2_{(1)}$=.37	[-.6,.6]	1.51 [.28-8.07]
Attempt[b]	10 (6.8)	43 (29.1)	53 (35.8)	$\chi^2_{(1)}$=**13.46****	[-3.7,3.7]	**4.2 [1.89-9.34]****

[a]Past 30 days; [b]Lifetime, Without DD: Without Dual Disorders; With DD: With Dual Disorders; OR: Odds Ratio

**p<.05, **p<.001*

Table 4 Linear regression between quality of life and DD dimensions

	Without DD	With DD	Total			
	$\tilde{x}$ (sd)	$\tilde{x}$ (sd)	$\tilde{x}$ (sd)	R^2c	β	*t*
Physical health	54.81 (11.5)	51.02 (12.6)	52.46 (12.3)	.15	3.79	1.80
Psychological health	51.93 (9.7)	47.89 (9.2)	50.41 (9.7)	**.20**	**-4.04**	**-2.46***
Social relations	61.37 (20.5)	49.26 (19.2)	53.83 (20.5)	**.28**	**-12.11**	**3.56***
Environment	57.24 (10.11)	55.42 (10.1)	56.11 (10.2)	.08	1.82	1.05

Without DD: Without Dual Disorders; With DD: With Dual Disorders.
**p<.05*

larger amounts. These findings are congruous with and similar to other studies of clinical populations reporting that DD is the rule rather than the exception[9,10,33].

As regards suicidality (ideation, planning and attempts), it was found that subjects with DD presented more ideation (5.1 more times), planning (6.5 more times) in the past 30 days and up to 4.2 more lifetime attempts than those who do not present DD[9], but much higher than the highest lifetime rate reported among the general population (35.8% vs. 0.7%)[34]. Accordingly, the results of this study coincide with the scientific literature, in which people with DD have a higher risk than other populations of presenting more lifetime suicide attempts[35,36].

Likewise, it was found that people with DD are 2.3 times more likely to have "multiple sexual partners" and 2.4 times more likely "not to use a condom with non-primary partners" than those who do not present DD, suggesting that DD is associated with a number of risky sexual behaviors as well as a greater risk of contracting a sexually transmitted infection or a blood-borne virus (such as Human Immunodeficiency/HIV and/or Hepatitis C Virus/HCV) particularly with injection drug users, as has been seen in other studies[9,37-39].

Additionally, subjects with DD reported worse quality of life, mainly as regards physical and psychological health and social relations, which has been observed in other studies[40-42].

These findings anticipate the need to make recommendations to increase the success of treatment and seek to decrease the costs of public care. However, to achieve this purpose, it is necessary to increase the characterization of people with DD throughout the national network of outpatient and hospitalization units, in order to achieve more extensive, accurate detection of treatment needs and thus develop continuous improvement programs that will make it possible to optimize resources and improve the success of care. Accordingly, these programs could consider: a) developing and implementing standardized interventions, b) updating the skills of and certifying clinical staff (such as doctors, psychologists and nurses) to handle patients with DD, c) promoting clinical research for continuous epidemiological monitoring, and d) the development of customized algorithms and interventions.

Limitations

This study has three main limitations. The first was to exclude patients with current symptoms of psychosis or mania, as well as severe cognitive impairment, which would have provided relevant information to undertake analyses with this specific group. However, previous studies have reported difficulties related to the understanding of semi-structured and structured interviews during clinical evaluation, or the presence of aggression towards themselves or others, as a result of which it was decided to exclude subjects with these characteristics. The second limitation is associated with the small sample size, since it proved difficult to recruit and enroll patients on their first visit to outpatient treatment centers, since nearly 50% decided not to participate due to lack of time or interest in the study, which explains the final enrollment rate of 16.9% (n = 155). This contrasts with the enrollment rate achieved in residential treatment centers in Mexico where rates close to 90% are achieved (9). Including more personnel for field work, increasing recruitment time, and offering financial incentives to subjects for the time spent on the interview, might increase the final enrollment rate. The third limitation corresponds to the low representation of treatment centers that would enable findings to be generalized since the 10 participating treatment units were in the central region of the country.

CONCLUSION

In conclusion, a significant percentage of people with SUD who attend outpatient addiction treatment meet the diagnostic criteria for OPD. This situation is complicated by the fact that they have higher rates of substance use, suicidality, multiple sexual partners, inconsistent condom use with non-primary partners as well as further deterioration in functional areas of quality of life. This highlights the need to develop and implement algorithms for the diagnosis, treatment and rehabilitation of patients with DD, in order to reduce patient navigation through the health system, avoiding as far as possible the wrong and revolving door phenomenon by providing a model that addresses both dimensions of DD.

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DECLARATION OF CONFLICT OF INTEREST

RM-N, EM-D, NS; AP-L, RS-D, and DH-A declare no conflicts of interest. CF-C, RS-H, BD-N, and SR-K declare that they have a contractual relationship with CIJ in managerial positions. However, the analysis and academic opinions in this article are the responsibility of the authors and do not represent the official position of the institution.

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