Differences in Service Utilization, Co-occurring Disorders and Risk Behaviors between Men and Women Receiving Substance Use Treatment in Residential Facilities

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RESUMEN

Introducción: las diferencias de género en la población con trastorno por uso de sustancias (TUS) son notorias desde los patrones de consumo y hasta las necesidades de tratamiento. **Objetivo:** el objetivo de este estudio es determinar las diferencias entre hombres y mujeres en la prevalencia de trastornos coocurrentes, el contacto con los servicios y otros riesgos a la salud como conducta suicida y conductas sexuales de riesgo en una muestra de pacientes con TUS que reciben atención en centros residenciales. **Método:** análisis comparativo entre hombres y mujeres, secundario a un estudio transversal multicéntrico. El estudio se realizó en 30 centros residenciales ubicados en Ciudad de México, Puebla, Hidalgo, Querétaro y Estado de México. Se realizaron estudios estadísticos bivariados (*t* de *student* y chi cuadrado) para determinar la diferencia entre hombres y mujeres. **Resultados:** se encontraron diferencias en la prevalencia de trastorno por estrés postraumático y bulimia, así como en uso inconsistente de condón el último año, los cuales afectan mayormente a las mujeres. **Discusión y conclusiones:** la población de mujeres se encuentra en mayor riesgo, lo que resalta la importancia de considerar otros paradigmas para comprender los trastornos mentales y sus comorbilidades en próximos estudios, como los paradigmas de determinantes sociales en salud y sindemias.

Palabras clave: trastorno por uso de sustancias, conductas de riesgo, trastornos coocurrentes, centros residenciales.

ABSTRACT

Introduction: gender differences are notorious in population with a substance use disorder (SUD), from consumption patterns to treatment needs. **Objective:** to determine the differences between men and women in the prevalence of co-occurring disorders, contact with services and other health risks, like suicidal and high-risk sexual behaviors in a sample of patients with SUD currently receiving care in residential facilities. **Method:** comparative analysis between men and women, secondary to a multicenter cross-sectional study, conducted in 30 residential centers located in Mexico City, Puebla, Hidalgo, Queretaro and State of Mexico. Bivariate statistics studies were performed (Student's *t* and Chi-square) to determine the difference between men and women. **Results:** differences were found in the prevalence of post-traumatic stress disorder and bulimia, as well as inconsistent condom use in the last year, which predominantly affect women. **Discussion and conclusions:** the female population is at higher risk, which highlights the importance of considering other paradigms in future studies in order to understand mental disorders and their comorbidities, such as the paradigms of social determinants in health and syndemic.

Keywords: substance use disorder, risk behaviors, co-occurring disorders, residential facilities.

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INTRODUCTION

According to data from the latest Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco (Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz [INPRFM], 2017) the intake of any kind of drug in Mexico went from 3% in 2011 to 4.6% in 2016 in men, and from .07% to 1.3% in women (INPRFM, 2017). This overview worsens in regards to teenagers and young people (between 12 and 17 years old), where intake at any time in life registered an increment that went from 4% in 2011 to 4.66% in 2016 in men, and from 2.6% to 6.1% in women. The constant increment in the intake prevalence represents a severe social problem and a public health challenge that requires a detailed analysis of both context and determining intake factors, as well as an examination of the differential factors of the drug-using population that might bring change in the effectiveness of prevention and intervention of substance use disorders (SUD).

Social determinants of health (SDH) are defined as the different circumstances in which people are born, grow, live and work, which have an effect on their access to health services (Organización Mundial de la Salud [OMS], n.d.; World Health Organization [WHO], 2008) and which constitute one of the most relevant ways to differentiate the effectiveness of prevention and intervention programs. Some of the SDH with the biggest impact on prevalence, tendencies and SUD patterns are sex, gender and the different institutionalized contexts that offer treatment for this kind of issue (Becker & Chartoff, 2019; Erol et al., 2019; Erol & Karpyak, 2015; Giacometti & Barker, 2020; Spooner & Hetherington, 2004).

The differences related to sex in the drug-user population with SUD are notorious from the intake patterns and up to treatment needs. Men present higher SUD prevalence, whereas women present more consequences derived from intake (United Nations Office on Drug and Crime [UNODC], 2017). While men require treatment focused on the intensity of intake, women require treatment focused on the multiple effects of intake, such as the quick progressions from drug intake to SUD (Hernández-Avila et al., 2004; Lewis et al., 2014; United Nations [UN], 2019; UNODC, 2017) and the co-occurrence of mental illnesses and risk behaviors (Foster et al., 2016; Lewis et al., 2014; McHugh et al., 2018; Zilberman et al., 2003).

An additional element that crosses and modifies the SUD experience for both men and women is the context in which they live through or receive treatment for addiction. Although the Mexican national surveys have a large capacity for generalization and a robust methodological process of elaboration (Hernández-Avila et al., 2000; INPRFM et al., 2017; INPRFM et al., 2015; Villatoro-Velázquez et al., 2016), they are usually employed as polls at home and schools, which limits the visibility of the contexts where SUD happen with more frequency and severity, like in residential treatment facilities.

During 2016 in Mexico, 60,882 people were registered as currently utilizing the services offered in 1,125 treatment facilities in 281 cities of the country (INPRFM, 2017). The demand for services in these facilities serves as evidence of the differences between sex and gender of the people who live with SUD, around 85% of the people who receive these services are men (INPRFM, 2017), and less than 10% of the user total are women, which also reflects on the facilities, since these are usually not adapted for certain needs, such as designated spaces for pregnant women or places to keep kids safe while the parents receive treatment (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009; Meinhofer et al., 2020; UN, 2019).

Because of this, it is necessary to conduct studies to obtain information regarding the treatment of SUD in residential facilities, so that the information gained from the observation of the differences between men and women allows the generation of evidence to understand the particular attention needs of these groups. The objective of this study is to determine, within a sample of patients with SUD who are currently in treatment in residential facilities, the differences between men and women regarding the prevalence of co-occurring disorders, the contact with services and other health risks, such as suicidal and risky sexual behaviors.

METHOD

The study is a comparative analysis between men and women, through a nonexperimental cross-sectional design of correlative descriptive level. This study underlies a cross-sectional multicenter study to evaluate the prevalence and associated factors of co-occurring disorders in people currently receiving residential treatment for SUD (Marín-Navarrete et al., 2016).

Participants

601 people between 18 and 60 years old (89.9% men, n = 540) participated in the study, recruited from a non-probabilistic convenience sample realized in 30 care centers in five states of Mexico (Mexico City, Puebla, Hidalgo, Queretaro and State of Mexico). The chosen centers complied with the current regulations established for addiction treatment, the appropriate infrastructure to guarantee the patient's privacy and the availability to conduct the study's procedures. The inclusion criteria for the participants were having reading-writing abilities in Spanish, meet-

ing the criteria for any SUD and having spent at least seven days in the residential facilities. The cases that complied with manic, hypomanic and current psychotic episode criteria were excluded, as well as those with severe cognitive deterioration.

Instruments

The demographic variables and the contact with health services information was collected through a survey designed for the study. The demographic data that were collected were age, education, employment and civil status. The contact with health services was evaluated through the question "which health services have you used to deal with alcohol and drug use?" Participants could choose the following types of services: general practitioner, non-psychiatrist specialized physician, psychiatrist, psychologist, social worker, school counselor, mental health helpline, religious counselor and/or traditional healer.

The Mini International Neuropsychiatric Interview 5th version (MINI 5.0) was also used (Sheehan et al., 1998). It has a sensibility of 70% for most disorders and a specificity of negative predictive values of 85% or more in all diagnoses. The instrument was used to evaluate the following psychiatric disorders: major depressive disorder, dysthymic disorder, suicide risk, mania/hypomania, social phobia, post-traumatic stress disorder, alcohol and drug use disorder, psychotic disorders, anorexia nervosa, bulimia nervosa, generalized anxiety disorder, antisocial personality disorder and attention deficit and hyperactivity disorder.

The data regarding the clinical information about substance use were collected with a survey based on the Addiction Severity Index (Darke et al., 1992). The clinical information was collected through a specific section that delves on substance use during the last 30 days, the current substance being used, and severity measurements.

Finally, risky sexual behaviors were evaluated with the HIV Risk-taking Behavior Scale (Darke et al., 1991). For this study, evaluations related to the inconsistency of condom use with primary and secondary partners during the las 30 days and 12 months were taken into account. The questions had a Liker-type response of five points, which evaluates the frequency that each risk behavior presented.

Procedure

Participants were recruited through an informative session in the residential facilities. Those who were interested moved on to the individual informed consent stage of the process, which was presented by a trained interviewer. During said process, each participant was presented with the information regarding risks, benefits and their rights during the study. Afterwards, the participants that matched the inclusion criteria were invited to complete the evaluations during one to two sessions with and interviewer.

The interviewers who were in contact with the participants were previously trained by two experts on the topic (Marín-Navarrete et al., 2016). After the application process, the unprocessed database was received and the procedure to select valid cases amongst the participants was conducted. The latter produced a database with eligible cases and case-relevant variable interests.

Data Analysis

Descriptive analyses were performed on the participants' characteristics. In order to determine the differences between men and women regarding co-occurring disorders, contact with health services, suicidal behavior and risky sexual behavior, and the analysis were performed with the Chi-squared test (χ^2) and the Student's *t*-distribution for unrelated samples. In both cases, sex was an independent variable. For all the inferential analyses, a value of $p < .05$ was considered as significant.

Ethical Considerations

All procedures, protocols, informed consent and evaluation surveys, and the material used for recruiting patients were approved by the Comité de Ética en Investigación of the Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz (INPRFM). The clinical coordinators of the corresponding facilities and local health authorities were notified regarding the participants that met the criteria for psychotic, manic and hypomanic episodes or suicidal behavior, with the purpose of guaranteeing them specialized treatment. All databases were de-identified.

RESULTS

A total of 657 participants were recruited for the main study. 56 of them were excluded due to not meeting the necessary criteria, thus the final sample included 601 participants, 89.9% were men (540) and 10.1% were women (61).

When looking for differences in SUD co-occurring disorders (Table 1) some illnesses that affected mostly the female population were identified, such as: current psychotic episode, current psycho-affective episode, post-traumatic stress disorder and bulimia nervosa. Some similarities were also found between men and women regarding the dependence of non-alcoholic psychoactive substances and the antisocial personality disorder.

Regarding risky sexual behavior, women's results were also notable, since they presented a bigger chance

Table 1
Relevant differences between men and women regarding co-ocurring disorders.

	Men (*n* = 540)	Women (*n* = 61)	
Co-occurring disorders	*n* (%)	*n* (%)	Statistical differences
Attention deficit and hyperactivity disorder (ADHD)	78 (14.4)	10 (16.4)	$\chi^2[1] = .67$
Antisocial personality disorder	240 (44.4)	23 (37.7)	$\chi^2[1] = 1.01$
Generalized anxiety disorder	50 (9.3)	10 (16.4)	$\chi^2[1] = 3.10$
Purgative bulimia	0	0	$\chi^2[1] = 0$
Bulimia nervosa	18 (3.3)	7 (11.5)	$\chi^2[1] = 9.11$*
Anorexia nervosa	1 (.2)	1 (1.6)	$\chi^2[1] = 3.49$
Psycho-affective episode throughout life	20 (3.7)	6 (9.8)	$\chi^2[1] = 4.98$*
Current psychotic episode	58 (10.7)	12 (19.7)	$\chi^2[1] = 4.25$*
Psychotic episode throughout life	107 (19.8)	16 (26.2)	$\chi^2[1] = 1.4$
Non-alcoholic psychoactive substance abuse	30 (5.6)	3 (4.9)	$\chi^2[1] = .43$
Non-alcoholic psychoactive substance dependence	365 (67.6)	43 (70.5)	$\chi^2[1] = .21$
Alcohol abuse	64 (11.9)	2 (3.3)	$\chi^2[1] = 4.12$*
Alcohol dependence	392 (72.6)	51 (83.6)	$\chi^2[1] = 3.43$
Post-traumatic stress disorder	43 (8.0)	12 (19.7)	$\chi^2[1] = 9.04$*
Social phobia	50 (9.3)	9 (14.8)	$\chi^2[1] = 1.87$
Past hypomanic episode	109 (20.2)	14 (23.0)	$\chi^2[1] = .26$
Current hypomanic episode	3 (.6)	0	$\chi^2[1] = .34$
Past manic episode	98 (18.1)	14 (23.0)	$\chi^2[1] = .83$
Current manic episode	11 (2.0)	2 (3.3)	$\chi^2[1] = .4$
Dysthymic disorder	30 (5.6)	61 (4.9)	$\chi^2[1] = .04$
Recurrent major depressive episode	77 (14.3)	9 (14.8)	$\chi^2[1] = .01$
Current major depressive episode	164 (30.4)	22 (36.1)	$\chi^2[1] = .83$

Note: *$p < .05$.

Table 2
Relevant differences between men and women regarding risky sexual behavior.

	Men (*n* = 498)	Women (*n* = 55)	
Risky sexual behavior	*n* (%)	*n* (%)	Statistical differences
Primary partner 30d	98 (19.7)	13 (23.6)	$\chi^2[1] = .48$
Inconsistent condom use with primary partner 12m	312 (62.7)	47 (85.5)	$\chi^2[1] = 11.31$*
Inconsistent condom use with secondary partner 30d	41 (8.2)	4 (7.3)	$\chi^2[1] = .06$
Inconsistent condom use with non-primary partner 12m	160 (32.1)	25 (45.5)	$\chi^2[1] = 3.95$*
When having sex in exchange for drugs 30d	15 (3.0)	3 (5.5)	$\chi^2[1] = .94$
When having sex in exchange for drugs 12m	44 (8.8)	8 (14.5)	$\chi^2[1] = 1.9$
During anal sex 30d	40 (8.0)	5 (9.1)	$\chi^2[1] = .07$
Inconsistent condom use during anal sex 12m	126 (25.4)	24 (43.6)	$\chi^2[1] = 8.37$*

Notes: 12m = last 12 months; 30d = last 30 days; *$p < .05$.

Table 3
Relevant differences between men and women regarding suicidal behavior.

	Men (n = 540)	Women (n = 61)	
	n (%)	n (%)	Statistical differences
Suicidal thoughts	65 (12.0)	12 (19.7)	$\chi^2[1] = 2.86$
Suicide planning	52 (9.6)	11 (18.0)	$\chi^2[1] = 4.12$*
Suicide attempt in the last 30 days	21 (3.9)	1 (1.6)	$\chi^2[1] = .79$
Suicide attempts throughout life	181 (33.5)	37 (60.7)	$\chi^2[1] = 17.46$*

Note: *$p < .05$.

Table 4
Relevant differences between men and women regarding the use of services.

	Men (n = 540)	Women (n = 61)	
Use of services	n (%)	n (%)	Statistical differences
Contact with another alternative service	67 (12.4)	11 (18.0)	$\chi^2[1] = 1.54$
Contact with any alternative service	201 (37.2)	23 (37.7)	$\chi^2[1] = .005$
Contact with general physician	117 (21.7)	12 (19.7)	$\chi^2[1] = .13$
Contact with psychologist	236 (43.7)	34 (55.7)	$\chi^2[1] = 3.29$
Contact with psychiatrist	138 (25.6)	24 (39.3)	$\chi^2[1] = 5.30$*
Contact with another doctor	30 (5.6)	8 (13.1)	$\chi^2[1] = 5.29$*
Contact with any professional service	300 (55.6)	40 (65.6)	$\chi^2[1] = 2.24$

Note: *$p < .05$.

of inconsistent condom use with their primary and secondary partners in the last 12 months, as well as inconsistent condom when practicing anal sex in the last 12 months (Table 2).

With regards to suicidal behavior, the most notable result was found in women, since this group showed almost double the risk in suicidal planning and attempting behaviors through life when compared to male participants (Table 3).

Finally, regarding the use of health services (Table 4), women have more contact with physicians and psychiatrist (besides the ones available in residential facilities) when compared to men.

DISCUSSION AND CONCLUSIONS

The objective of this study was to evaluate the differences between men and women in the prevalence of co-occurring disorders, the contact with health services and other health risks, like suicidal and risky sexual behaviors. Among the most relevant results, it was found that post-traumatic stress disorder and bulimia nervosa affect mostly women with SUD. This finding coincides with previously reported data (Agterberg et al., 2019; Claudat et al., 2020; María-Ríos & Morrow, 2020; Tossone & Baughman, 2020), which provides more evidence that women who deal with SUD are the population most affected by these co-occurring disorders.

In the case of antisocial personality disorder, no statistically meaningful differences were obtained, which is an interesting finding since the studies conducted in the general population point to a significant difference between sexes regarding externalizing disorders, antisocial disorder and criminal behavior (Hecksher & Hesse, 2009; Hektner et al., 2017; SAMHSA, 2007). This finding points to the fact that disruptive behaviors are common for the population in residential treatment centers for substance use, despite sex and gender, and there are documented cases of aggressive behavior towards the staff (Black, 2015; Bride et al., 2015; Chermack et al., 2009; Clark et al., 2014).

Residential facilities users in Mexico have been denominated by the public as “unruly,” since they typically show resistance against discipline and rules while also displaying disruptive behaviors, which signify that they meet the criteria for antisocial personality disorder. This subgroup of men and women is of great interest due

to the individual and social consequences that their behaviors can incur, such as getting involved in crime and being more likely to commit suicide (Black 2015; Chávez-Ayala, 2017; Clark et al., 2014; Palacios, 2015; Villalobos-Gallegos et al., 2019).

This study also found that women with SUD display more risky behavior regarding the use of condoms. A different study showed similar results, and both coincided in the fact that inconsistent condom use is typically reported with regards to the primary partner (Nehl et al., 2017). The implications of these results are profound, since inconsistent condom use might be related to higher probabilities of unwanted pregnancies or sexually transmitted diseases.

The collection of comorbidities present in the female population with SUD also represent risk factors that might lead to different health conditions, which is of great interest to this clinical group. It has been documented that women with SUD are at a higher risk to experience traumatic events due to the activities necessary to acquiring illegal or addictive substances. Such events alter the stress response systems in the brain, and make it vulnerable to post-traumatic stress disorder (María-Ríos & Morrow, 2020; Tossone & Baughman, 2020). Women are also at higher risk of acquiring a sexually transmitted disease, including the human immunodeficiency virus (HIV) (Jones et al., 2019; Gilbert et al., 2015). Besides, the population with the most diagnoses of SUD, HIV and suicide attempts is at a higher risk to have social, psychiatric and work-related problems, such as unemployment (Walter & Petry, 2016).

It is worth noticing that there is an interaction between disorders and demographic variables, such as sex, SUD, post-traumatic stress disorder, suicide attempts and risky sexual behavior. This kind of interaction, where a risk generates a predisposition to another, has been introduced to the specialized literature as a "syndemic". A syndemic is a collection of tightly interconnected and of mutual improvement health problems, which work together in social and physical harmful contexts, and can negatively affect the general burden of an illness and the health status of a population (Singer & Hispanic Health Council, 2006). This same perspective reveals the fact that comorbidities and risk behaviors in the population with SUD are closely interconnected to common expositions, such as violent contexts and vulnerable socioeconomic levels, since these conditions work together and affect the development of mental disorders (Moen et al., 2020).

This cross-sectional study highlights the relevance of recognizing the differences between sex and gender that are present in the clinical population with SUD. The results of this study are consistent with the studies realized in different countries; however the female Mexican population in particular has a high level of antisocial personality disorder indicators. The female population is at a higher risk in these areas according to the results obtained, which highlight the importance of considering other paradigms in order to understand mental health disorders and their comorbidities in the following studies, such as the social determinant paradigms regarding health and syndemic. Said approximations would allow the better understanding of social and individual factors that might modify the beginning, progression and treatment of SUD in women, since this group has been underrepresented in the national and international specialized literature.

The limitations of this study included the disparity between samples of each sex and the lack of direct measurements of gender. For future approximations to these demographics, it is suggested to equate both samples and directly evaluate some gender elements, such as gender roles and identity, in order to deepen and strengthen the tests and findings.

DISCLOSURE STATEMENT

The authors declare there is no conflict of interest regarding this study and its publishing.

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