

Research Article

Comprehensive Treatment for Pregnant and/or Parenting Women with Substance Use Disorders and Their Children: A Cross-Cultural Comparison

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Abstract

Background: Substance use during pregnancy and early parenting years is a well-known global public health problem, but the literature comparing treatment programs for this subpopulation across countries is limited. This article both describes three women-centered treatment programs in the United States, Brazil, and Argentina and examines similarities and differences among the programs in terms of patient characteristics. Such an analysis can better inform clinicians in the assessment and treatment of women who use substances and improve the universal understanding about them.

Methods: A secondary data analysis of patient characteristics (e.g., pregnant at treatment admission) and patient history (e.g., substance dependence diagnosis, family history of substance use, co-occurring mental health issues) of reproductive age women (N=356) from substance use treatment programs in the United States, Brazil, and Argentina.

Results: The Horizons program admitted the highest percentage of pregnant women (60%), Lua Nova (36%), and Casa Santa Clara (17%). Horizons patients (82%) were more likely to have a substance dependence diagnosis than Lua Nova (15%) or Casa Santa Clara patients (13%). Horizons patients (78%) were more likely to have a family history of substance use than Lua Nova (15%) or Casa Santa Clara (57%) patients. Horizons was also more likely than Lua Nova or Casa Santa Clara to have patients who had entered mental health treatment (70% vs. 19% vs. 9%, respectively).

Conclusion: Substance use problems that continue during pregnancy and parenting are common within different cultures and societies. These analyses identified similarities and differences in patient characteristics, history, and treatment programs. Cross-cultural comparisons of treatment approaches provide opportunities for clinicians to explore new ways of caring for this population.

INTRODUCTION

Although problematic substance use during pregnancy and parenting life periods is a global public health problem, the literature comparing treatment programs for this population is limited. This article focuses on the similarities and differences in substance use treatment programs for pregnant and parenting women in three different cultural contexts: The United States, Brazil, and Argentina.

Globally, 35 million people suffer from substance use disorders and require treatment services (1). While 1 out of 3 people who use substances are women, only 1 out of 5 who receive treatment each year are women (2). Internationally, the most prevalent substances (illicit and licit) used during pregnancy are tobacco, followed by alcohol, cannabis, and cocaine (2). However, substance use among pregnant and parenting women varies from country to country and region to region and reflects differences in age, socioeconomic status, availability of substances, and

methods of screening (2). For example, among pregnant and parenting women in the three countries highlighted in this article, alcohol and substance use disorders are twice as common among United States women compared to women in Brazil and Argentina (4.03% vs. 2.12% vs. 1.94%) (3).

Worldwide, the persistence of stigma, discrimination, and gender-based disparities are major barriers for women, including pregnant women, to access treatment services (2). Women who use substances during pregnancy and the early parenting years often do so in the context of intricately complex individual, social, institutional and environmental factors: poor nutrition, depression, extreme stress, violence of multiple forms, poor housing conditions, and exposure to environmental toxins and diseases (4). All of these factors can impact the woman and her child. In order to support women with substance use disorders during pregnancy and the early parenting years, policies and practices must address structural inequities and the multiplex determinants of health (social, environmental, economic, and cultural) impacting them.

Comprehensive approaches to treating women with substance use disorders in pregnancy has proven efficacious in mitigating negative pregnancy outcomes (5-9). These approaches include perinatal care, behavioral health, connections to community-based resources, and medication for substance use treatment, if indicated. Programs that offer an integrated, multidisciplinary, trauma-informed, gender-specific setting are uniquely tailored to support this population (10,11).

A number of effective treatment components for pregnant and parenting women with substance use disorders are outlined (10). Although sufficient research is lacking to support the effectiveness of all treatment components to address the various and multifaceted needs of these women, there is agreement that treatment should address survival needs, general and obstetrical health, psychological functioning, personal and social relationships, financial independence, and support services for mother and child (10). While such treatment programs in the United States, Brazil and Argentina offer these treatment components, the specific therapeutic needs of women vary, as do differences in age, culture, and substances used. These three countries were selected for study based upon their known treatment system maturity.

The most common substances used during pregnancy in these countries are tobacco, alcohol, cannabis, opioids, and cocaine (Table 1). In the United States, the national opioid rates at delivery quadrupled from 1999-2014, reflecting the burgeoning opioid crisis that has plagued the nation (12). While much attention has been paid to the growing rates of illicit opioid use in the United States, it is important to note that a higher percentage of women (9.5%) reported using alcohol during their pregnancy.

Much of the literature about substance use during pregnancy from Brazil has focused on alcohol, cannabis, and cocaine. For example, 17.7% of pregnant women reported using alcohol during pregnancy (13). In another study, 4.0% of women in their third trimester of pregnancy had used cannabis, and 1.7% had used cocaine (14).

In Argentina, the literature about substance use during pregnancy is sparse. The City of Buenos Aires relies on two studies. One study found that the majority of mothers (21.0%) of 63 neonates used tobacco during pregnancy, while the minority (1.0%) used alcohol (18). The second study found that among 24 pregnant women, the majority (83%) reported cocaine use (19).

These findings suggest that both alcohol and marijuana use during pregnancy remain significant problems in the United States, Brazil, and Argentina. In Argentina, cocaine and tobacco use during pregnancy also appear to be significant problems. The high rates of opioid use during pregnancy in the United States indicate a strong need for comprehensive women's treatment programs. The lack of literature about opioid use during pregnancy in Brazil and Argentina hampers an ability to draw any significant conclusions about the differences and similarities between the countries.

Stigma and discrimination from health care providers in the United States, Brazil and Argentina may impact accessibility to substance use treatment. In the United States, women have reported stigma when trying to access prenatal care and substance use treatment, particularly in rural and southern communities (18,19). In Brazil, primary health care providers negatively judge pregnant women who use tobacco, marijuana, cocaine, and alcohol. Those who use marijuana/cocaine and alcohol reported being most likely to be turned away by health care professionals (20). In Argentina, pregnant women fear being labeled as "bad mothers" for having a substance use disorder because they are expected to assume the role of "caring mothers (21). In the City of Buenos Aires, such stigma has led to the underdiagnosis of pregnant women with substance use disorders (21). Stigma can pose challenges in accessing healthcare, prenatal care, and necessary medications and can hinder women from trying to seek care in the future (19).

This article aims to describe how programs in the United States, Brazil, and Argentina provide comprehensive women-centered treatment to pregnant and parenting women with substance use disorders in the diverse communities they serve. Additionally, this article examines similarities and differences among the programs in terms of patient characteristics. These characteristics include racial background, education, relationship status, and number of children, and patient history, such as involvement with the justice system, current substance use, and co-occurring mental health issues.

Table 1. Substance use during pregnancy in the United States, Brazil, and Argentina, Percentages.

Country	Tobacco	Alcohol	Cannabis	Opioids	Cocaine
United States	9.6 ¹⁵	9.5 ¹⁵	5.4 ¹⁵	0.4 ¹⁵	0.2 ¹⁵
Brazil	--	17.7 ¹³	4.0 ¹⁴	--	1.7 ¹⁴
Argentina	21.0 ¹⁶ 41.0 ¹⁷	1.0 ¹⁶ 29.0 ¹⁷	3.0 ¹⁶ 8.0 ¹⁷	--	3.0 ¹⁶ 83.0 ¹⁷

METHODS

Treatment Site: The UNC Horizons Program for Pregnant and Postpartum Women is located in the Department of Obstetrics and Gynecology at the University of North Carolina at Chapel Hill, North Carolina, United States (Table 2).

Horizons is an Area Health Education Center training site for psychiatry and has a weekly onsite psychiatry clinic in Chapel Hill. In both the OB/GYN clinic and through the psychiatric services UNC Horizons provides medication-assisted therapy (MAT) with buprenorphine for opiate dependent clients. The foundational treatment approach at Horizons is based on the relational model of female development and utilizes evidence-based curricula and state-of-the-science practices in gender specific treatment.

Treatment Site

The Lua Nova Association is located in São Paulo State, Brazil (Table 3).

The Lua Nova treatment program partners with local government, social services, and volunteers in order to address the short- and long-term needs of mothers with substance use disorders and their children. Clients are referred to Lua Nova by agencies in São Paulo and other states in Brazil. The mothers are usually 15 to 20 years old and often have only one child who is one year old or younger. Allowing young mothers to keep their children with them during treatment is innovative in Brazil, where most women are separated from their children in order to address their substance dependency.

Table 2: The UNC Horizons Program for Pregnant and Parenting Women, North Carolina, United States.

History	
1993	Horizons was founded in response to the high North Carolina infant mortality rate
2001	First residential treatment program
2003	Opened a licensed childcare center
2005	Upgraded its day treatment program to a SACOT (Substance Abuse Comprehensive Outpatient Treatment) program, which increased group programming from 3 to 5 days per week
2010	Second residential site opened in Chapel Hill in 2010, allowing Horizons to house up to 25 women and their children
Current Activities	
Families Served	Over 230 each year from over 40 of the 100 North Carolina counties
Programming	Addiction education, relapse prevention, parenting, healthy relationships, health and safety, family planning, trauma recovery, employment services, life skills, budgeting
Women's Services	Screenings, intake evaluations, individual counseling, case management services, outreach and peer support services (including home visits), and observed urine drug screens
Children's services	Comprehensive assessments for residential children, and a full range of intervention services as indicated, including child/parent psychotherapy for the mother/child dyads
Additional services	Transportation and childcare

Table 3: The Lua Nova Association, São Paulo State, Brazil.

History	
2000	Founded in response to the lack of residential substance use treatment programs for underserved pregnant and parenting adolescent mothers
2012	Designated a center of excellence serving as a resource for other residential and outpatient treatment programs in all regions and other states in Brazil.
Current Activities	
Families served	28 young mothers ages 15 to 20 years and 35 children
Programming	Community provides parenting skills, professional skills, and basic human rights
	Surroundings engages local low-income woman who offer courses on citizenship and community development
	Lua Nova Cooperative provides training to produce and market clothing to increase personal income for its members
	Lua Gifts gives 10 young mothers an opportunity to earn an income through the production and sale of eco-friendly gifts
	Lua Crescente Bakery trains 10 young mothers how to operate a business
Women's Services	Psychological and medical treatment, individual and group therapy, and education about basic hygiene, nutrition and breastfeeding, and housekeeping; food, health care, and social and educational support.
Children's services	Educational, physical, and social and psychological support to help improve mother and child relationships

The program has three main elements: community, surroundings, and the Lua Nova Cooperative. Together these three components emphasize breaking down the physical and emotional isolation young mothers with a history of substance use face in order to engage them in recovery. On average, mothers and their children remain at Lua Nova for nine months.

Treatment Site

Casa Santa Clara is located in Villa 21-24, the largest and most populated shantytown in the southside of Buenos Aires, Argentina (Table 4).

Casa Santa Clara is owned by CONVIVIR Foundation and is supported by the Buenos Aires government. The foundational approach to treatment is from a community intervention perspective. There is a particular focus on young women with substance use dependence or who are in treatment for addiction to “paco” and other psychoactive substances. The average length of treatment for adolescents and adult women is nine and six months, respectively.

Data Sources

The 2011-2012 annual reports from each program served as the source of data for each program: Horizons, United States (n=247), Lua Nova, Brazil (n=71), Casa Santa Clara, Argentina (n=38). The authors compared their data reporting to select common variables to compare across sites.

Study Design

This quantitative study had a cross sectional design. In this study, secondary data analyses were performed on data gathered from 2011-2012 Annual Reports at three substance use treatment programs for pregnant and parenting women: UNC Horizons, United States, Lua Nova, Brazil, and Casa Santa Clara, Argentina. The sample included a total of 356 reproductive-age women with substance use disorders (Horizons (n=247), Lua Nova (n=71), Casa Santa Clara (n=38)).

Outcome Measures

Patient characteristics in six areas were examined: program admissions information, pregnancy status at program admission, racial background, educational history, relationship status, and information regarding children. Patient history in six areas were also examined: criminal justice involvement, substance dependence diagnosis, family history of substance use, previous treatment for substance use, mental health history, and trauma history. The definitions for each of these variables can be found in (Table 5).

Statistical Analysis

Outcome data are presented in tabular form. Log-linear regression served as the primary inferential statistical method. The focus of the analyses was on the interaction between the outcome variable of interest and Program. Thus, an inferential test of the interaction effect examined whether the likelihood of occurrence of the event for the outcome variable in question differed between the three programs. There were zero occurrences of an outcome for some outcome variables. In this case, the interaction was tested as the residual after fitting the main effect for the outcome variable and program.

Due to both the differences in assessment practices at the three programs and, in the case of Lua Nova (Brazil) and Casa Santa Clara (Argentina), how the data were entered into the medical record, variables did not correspond exactly with one another, and so were recorded for the present analyses. For example, racial background was recoded to fairly represent the racial diversity in the three countries.

Finally, data were sometimes missing or incomplete for a given variable due to problems in either collecting (e.g., patient declined to answer a question) or recording the data (e.g., patient records not properly linked in the database), so the data available for a given outcome may be less than the number of patients for that year.

RESULTS

Patient characteristics

Table 6 provides a comparison of patient characteristics across the UNC Horizons, Lua Nova, and Casa Santa Clara treatment programs. The programs differed in the number of new patient admissions. The UNC Horizons program admitted the lowest percentage of women screened for admission (51%), and the Lua Nova program admitted the highest percentage (75%). Horizons admitted the highest percentage of pregnant women (60%), followed by Lua Nova (36%), and Casa Santa Clara (17%). There were no differences in the racial background of the women entering into the three programs, with White being the predominant racial group in all three programs.

Educational background differed among the three programs, with Horizons more likely to have patients who had a post-high school education (37%) compared to Casa Santa Clara (0%) and Lua Nova (0%). Lua Nova was particularly likely to have women who had not graduated from high school.

Table 4: Casa Santa Clara, Buenos Aires, Argentina.	
History	
2013	Founded as an outpatient program
Current Activities	
Families served	200 pregnant and parenting women ages 13 to 20 years and their children
Programming	Professional and community leaders offer health promotion, substance use prevention, and harm reduction services that aim to increase the quality of life of these women
Women's Services	Psychological and psychiatric services, behavioral therapy, life skills (e.g., conflict management, teamwork, assertive communication, employment services), strengthening the women's network of friends and family, especially grandmothers who are often caretakers of children, and access to local health and social services

Table 5: Definition of Patient Characteristics*.

Characteristic	Definition
Number of Patients Screened but not Enrolled	Women who contacted the program but failed to complete an intake evaluation. [Their data are not included anywhere else in the paper.]
Number of New Admissions	The number of women admitted to the program during that fiscal year
Pregnant at Admission	Self-report at intake, confirmed by physician examination subsequent to admissions
Trimester of Admission	Self-report at intake, determined by physician examination subsequent to admission
Racial Background	(1) White; (2) of African descent; (3) of Asian descent; (4) Multi-racial/Other
Education	(1) Uneducated/Illiterate; (1) Primary Education; (2) High School Graduate or General Education Development (GED); or (3) Post-High School Education
Relationship Status	(1) Currently Married; (2) Currently in a Relationship; or (3) Not Currently in a Relationship
Children under 18 years of Age	Whether or not the patient had one or more children under the age of 18
Children outside Their Care	Whether or not the patient had one or more children under the age of 18 placed outside her care
Child Protective Services Involvement	Whether or not the patient had been investigated by Child Protective Services in the past year
Mandated to Treatment	Whether or not the patient had been mandated to treatment by the Department of Social Services or the criminal justice system
Prior Arrest History	Whether or not the patient had been arrested
History of Incarceration	Whether or not the patient had previously been incarcerated in jail or prison
Probation/Court Supervision	Whether or not the patient was current under any time of correctional supervision
Psychoactive Substance Abuse or Dependence	Determined at intake by the Horizons staff member conducting the intake interview, and defined as: (1) Neither; (2) Abuse; or (3) Dependence
Primary Substance of Choice	(1) Opioid Abuse or Dependence; (2) Cocaine Abuse or Dependence; (3) Alcohol Abuse or Dependence; (4) Cannabis Abuse or Dependence; (5) Other Abuse of Dependence; or (6) Polysubstance Dependence
Lifetime History of Intravenous Substance Use	Whether or not the patient had, at any time in their life, injected any substance
Family of Origin Substance Use Problem	Whether or not the patient thought parents and/or siblings had a problem with alcohol or other drugs.
Current Partner Has a Substance Use Problem	Whether or not the patient thought her current partner had a problem with alcohol or other drugs. (Percentages in this article apply only for women who reported they were married or in a relationship.)
Previous Treatment for Substance Use	Whether or not the patient had received treatment for substance use, including medication-assisted withdrawal, but excluding Alcoholics Anonymous/Narcotics Anonymous
Lifetime History of Mental Health Treatment	Whether or not the patient had received treatment for a mental health problem, other than substance use
Eating-disordered behavior(s)	Using laxatives or diuretics to manage weight, and/or attempted self-induced emesis
Reported Feelings of Wanting to Hurt Themselves	Whether or not the patient had ever felt like hurting herself
Reported Physical Acts of Hurting Themselves	Whether or not the patient had ever attempted to hurt herself (e.g., cutting herself)
Reported at least One Suicide Attempt	Whether or not the patient had ever tried to commit suicide
Childhood Physical Abuse	Whether or not the patient felt she had ever been physically abused during her childhood
Sexual Abuse	Whether the patient felt she had ever been forced to have sexual activities during her childhood, defined as: (1) None reported; (2) Age 12 or under; (3) Between ages 13 and 18; or (4) After age 18
Lifetime History of Domestic Violence	Whether or not the patient reported a history or physical violence from a partner, and/or felt unsafe with that partner
Felt Unsafe with Their Current Partner	Whether or not the patient felt unsafe with her current partner. (Percentages in this article apply only for women who reported they were married or in a relationship.)

*Unless otherwise stated, information for all variables were determined from self-report at intake.

Compared to Lua Nova and Casa Santa Clara, Horizons had a smaller percentage of married women. Lua Nova had markedly more women (64%) not currently in a relationship than either Casa Santa Clara (61%) or Horizons (56%). Finally, Horizons was much more likely than either Lua Nova or Casa Santa Clara to have women with children under the age of 18 years and children outside of their care, although the three programs did not differ in terms of child protective services involvement.

Patient history

Table 7 provides a comparison of patient history across the three programs. The percentage of patients mandated to treatment were similar across all programs, although Horizons was much more likely than either Casa Santa Clara or Lua Nova to have patients with a prior arrest history, a history of incarceration, and patients under probation court supervision at the time of

Table 6: Comparison of patient characteristics: UNC Horizons (United States), Lua Nova (Brazil), and Casa Santa Clara (Argentina) substance use treatment programs.

	UNC Horizons (United States) N=247 n (%)	Lua Nova (Brazil) N=71 n (%)	Casa Santa Clara (Argentina) N=38 n (%)	χ^2	df	p
Number of new patient contacts						
Screened but not enrolled	121	18	15			
New program admissions	126	53	23	12.3	2	.002
Pregnant at program admission	76 (60%)	19 (36%)	4 (17%)	17.4	2	<.001
Trimester				3.8	2	.15
First	16 (36%)	7 (37%)	--*			
Second	23 (52%)	5 (26%)	--			
Third	5 (11%)	5 (26%)	2 (50%)			
Postpartum	0	2 (10%)	2 (9%)			
Not specified	32 (42%)	0	0			
Racial background				.3	2	.84
White	94 (73%)	41 (77%)	23 (100%)			
of African descent	23 (18%)	11 (21%)	0			
of Asian descent	1 (1%)	0	0			
Multi-racial	4.3%	1 (2%)	0			
Education				56.2	2	<.0001
Unschool/illiterate	--	42 (79%)	1 (4%)			
Primary education	--	5 (9%)	22 (96%)			
High school graduate		0	--			
Beyond high school	--	5 (9%)	--			
Relationship status				2.0	4	<.001
Currently married	7 (6%)	6 (11%)	4 (17%)			
Currently in a relationship	70 (56%)	12 (23%)	14 (61%)			
Not currently in a relationship	49 (39%)	34 (64%)	5 (22%)			
Children						
under 18 years of age	106 (84%)	7 (13%)	9 (39%)	62.3	2	<.001
outside their care	54 (51%)	2 (4%)	0	33.2	1	<.001
Child protective services involvement	20 (19%)	5 (9%)	0	1.4	1	.24

*-- No data

Table 7: Comparison of patient history: UNC Horizons (United States), Lua Nova (Brazil), and Casa Santa Clara (Argentina) substance use treatment programs.

	UNC Horizons (United States) n=126 n (%)	Lua Nova (Brazil) n=53 n (%)	Casa Santa Clara (Argentina) n=23 n (%)	χ^2	df	p
Mandated to treatment	43 (34%)	13 (25%)	2 (9%)	5.9	2	.052
History of prior arrest	96 (76%)	7 (13%)	0	64.4	1	<.0001
History of incarceration	62 (49%)	0	0	--		
Probation court supervision	31 (25%)	0	0	--		
Psychoactive substance abuse or dependence				63.3	3	<.0001
Neither	0	17 (32%)	5 (22%)			
Abuse*	23 (18%)	28 (53%)	15 (65%)			
Dependence*	103 (82%)	8 (15%)	3 (13%)			
Primary substance of addiction				18.5	3	.0003

Opioids	36 (29%)	0	00			
Cocaine	37 (29%)	17 (32%)	5 (22%)			
Alcohol	30 (24%)	0	16 (70%)			
Cannabis	21 (17%)	36 (68%)	9 (39%)			
Other	2 (2%)	0	0			
Family history of substance use						
Family of origin substance use problem	98 (78%)	18 (15%)	13 (57%)	28.8	2	<.001
Current partner has a substance use problem	28 (37%)	26 (49%)	15 (65%)	21.3	2	<.001
Previous treatment for substance use	73 (58%)	0	4 (18%)	10.5	1	.001
Lifetime history of mental health treatment	88 (70%)	10 (19%)	2 (9%)	45.0	2	<.001
Eating-disorder behavior(s)	26 (21%)	0	0	--	--	--
Reported feelings of wanting to hurt themselves	45 (55%)	2 (4%)	2 (9%)	17.1	2	<.001
Reported physical acts of hurting themselves	27 (21%)	2 (4%)	2 (9%)	8.0	2	.02
Reported one or more suicide attempts	37 (29%)	3 (6%)	3 (9%)	12.9	2	.002
Childhood Physical Abuse	40 (32%)	53 (100%)	9 (39%)	.5	1	.49
Sexual Abuse				16.4	3	.0009
None reported	71 (56%)	41 (77%)	0			
Age 12 or under	33 (26%)	2 (4%)	0			
Between 13 and 18 years old	11 (9%)	7 (13%)	5 (22%)			
After age 18 years old	11 (9%)	3 (6%)	0			
Domestic violence						
Lifetime history	70 (56%)	18 (34%)	19 (82%)	42.9	2	<.0001
Felt unsafe with their current partner	18 (26%)	5 (9%)	4 (18%)	100.2	2	<.0001

*Abuse and dependence as defined in DSM-IV

program admission. (The latter two differences are not subject to statistical test due to the fact that neither Casa Santa Clara nor Lua Nova had any patients with a history of incarceration or who were under probation court supervision.)

The three programs differed markedly in terms of patients with current substance use. Horizons patients (82%) were much more likely than Lua Nova (15%) or Casa Santa Clara patients (13%) to have a diagnosis of dependence. Horizons was also more likely than Lua Nova or Casa Santa Clara to have patients with a diversity of primary substances of addiction. Lua Nova principally had patients whose primary substance of use was cannabis, while Casa Santa Clara had patients whose primary substance of use was alcohol. (Casa Santa Clara did note that a woman could have more than a single primary substance of addiction).

A comparison of family history of substance use showed that Horizons was more likely (78%) than Lua Nova (15%) or Casa Santa Clara (57%) to have patients whose families had a substance use problem. Casa Santa Clara (65%) was more likely than Lua Nova (49%) or Horizons (37%) to have patients whose partner had a substance use problem. Horizons was more likely than either of the other two programs to have patients who had previous substance use treatment.

Analysis of a history of mental health indicated that Horizons was more likely than either of the other two programs to have patients who had entered mental health treatment, to have problems with eating disorders (not tested, due to the fact

that neither Lua Nova nor Casa Santa Clara had any patients diagnosed with an eating disorder), and to report feelings of wanting to hurt themselves, attempting to hurt themselves, and to have attempted suicide.

Programs differed by history of childhood physical abuse, with all Lua Nova patients having had a history of such abuse. Programs also differed by patient history of sexual abuse, with Lua Nova having a significantly larger percentage of patients (77%) with no such history than Horizons (56%). Horizons had a significantly larger percentage of patients experiencing substance abuse while 12 years of age or younger (26%) than in Lua Nova (4%). Casa Santa Clara is not included in these comparisons because they did not always record a history of patients' sexual abuse.

A comparison of domestic violence showed that Casa Santa Clara and Horizons patients (82% and 56%, respectively) were more likely than were Lua Nova patients (34%) to have had a lifetime history of domestic violence, with no significant differences between Casa Santa Clara and Horizons. Horizons patients were more likely than were either Lua Nova or Casa Santa Clara patients, and Lua Nova patients were more likely than Casa Santa Clara patients, to feel unsafe with their current partner.

DISCUSSION

The present study compared patient similarities and differences across three substance use treatment programs

for pregnant and parenting women in the United States, Brazil, and Argentina. The demographics of women engaging in comprehensive substance use treatment differ between the three programs. Cultural differences exist with regards to patient characteristics, substance use history, treatment history, and incarceration history.

In terms of patient characteristics, Horizons admitted the lowest percentage of women screened for admission compared to Lua Nova and Casa Santa Clara. There were no racial differences between the three programs. Horizons patients were also more likely to have a post-high school education compared to Lua Nova and Casa Santa Clara, which suggests potential education differences between the countries. Additionally, Horizons had the smallest percentage of married women compared to Lua Nova and Casa Santa Clara.

Women entering Horizons were more likely to have children over the age of eighteen, which could be indicative of their age entering the program. The United States has less than 1% of teen pregnancies, compared to the 8% of births in Brazil to mothers between the ages of 15 and 19 (22,23). Women entering Horizons could have been older and therefore, more likely to have older children compared to Lua Nova and Casa Santa Clara.

The patient history differences indicate that women in Horizons were also more likely to have an arrest history than women in Lua Nova and Casa Santa Clara, which could imply that there is more punitive criminalization of substance use in the United States than in Brazil and Argentina. This could also explain why women in the Horizons program were more likely to be mandated to treatment compared to women in the other two programs.

Women in Horizons were more likely to use opioids compared to women in Lua Nova and Casa Santa Clara, which reflects the opioid crisis in the United States that has been heavily emphasized in the literature. Seven percent of women in the United States reported prescription opioid use during pregnancy in 2020, and 21.2% of them reported misuse (24). Rates of opioid use disorder in pregnancy have increased fourfold over the past decade. While we do not have national comparisons of rates of opioid use in Brazil or Argentina, findings from this research suggest that women in the United States either experience higher rates of opioid use during pregnancy than in Brazil and Argentina or that more women with opioid use disorder in the United States have access to treatment (25).

In Lua Nova, the primary substance of addiction was cannabis, highlighting historic literature noting the use of cannabis in pregnancy in Brazil (14). The authors of this paper could not find national data for Brazil on current substance used during pregnancy, so this finding could potentially add to the body of literature that suggests cannabis remains a substance woman use during pregnancy.

There were several other notable differences in patient history. Horizons patients were more likely than patients in Lua Nova or Casa Santa Clara to have a family history of substance use problems. Patients in Casa Santa Clara were more likely to have a partner who had a history of substance use compared to the other two programs. Women in the Horizons program were

more likely to have a history of substance use treatment and more likely to have a history of mental health diagnosis. These findings could indicate that Horizons patients had greater access to substance use and mental health treatment and/or that the United States has a greater cultural emphasis on treating and identifying mental health disorders, given the limited literature on substance use and mental health treatment and screening in Brazil and Argentina.

There were also several differences in abuse histories between participants in the programs. Every patient in the Lua Nova program had a history of childhood abuse and more women in Lua Nova had a history of sexual abuse compared to Horizons. Lua Nova women were also more likely to have a history of sexual abuse than women in Horizons. However, Horizons and Casa Santa Clara women were more likely than Lua Nova women to have experienced domestic violence. Further research is needed to explain the cause or societal underpinnings of these differences in patient history.

While many cultural differences exist between the programs, this research highlights the strong need to ensure access to perinatal substance use treatment as well as the importance of available screening for substance use for all pregnant women in the first trimester of pregnancy. Horizons and Lua Nova had a similar percentage of patient admissions (36% and 37%, respectively) in the first trimester of pregnancy, whereas Casa Santa Clara did not admit any pregnant patients (0%). It is evident that many mothers were consuming substances during at least one trimester of pregnancy.

Substance use in pregnancy is associated with significant risks to the mother, fetus, and neonate, including inadequate prenatal care, still birth, preterm delivery, relapse of substance use during postpartum care, and involvement with child protective services. As discussed previously, comprehensive care helps mitigate many of the harmful outcomes associated with substance use in pregnancy (5-9).

With women engaging care later in pregnancy, these findings suggest that such programs are still difficult for many patients to access. Future research should explore why such programs are difficult to access in each unique community they serve. Furthermore, local health officials should prioritize policies that increase screening and access to such treatment services (31-33).

Strengths and Limitations

Our study is one of the first to compare substance use treatment programs for pregnant and parenting women in the United States, Brazil, and Argentina. Cross-cultural research is important, and collaborations such as this analysis create opportunities for large cross-cultural studies. Our study was able to compare substance use treatment programs for pregnant and parenting women and identify similarities and differences in patient characteristics and history, as well as treatment across three countries. Our findings support the need to cross-culturally examine treatment programs to prevent and reduce substance use disorder for pregnant and parenting women in the United States, Brazil, and Argentina.

The present findings must also be considered in light of

several limitations of the study. First, the United States, Brazil, and Argentina samples came from a single treatment program in each country that draw from large urban catchment areas. Although this condition makes the samples more similar, it also hinders generalizability of results to non-urban populations in all three countries. Second, there were differences in the sample size across programs with Horizons having a higher number of patients than either Lua Nova or Casa Santa Clara. Findings might have yielded different patient characteristic and patient history results with similar sample sizes. Third, the study did not include the age of the participants, which moderate other differences in patient demographics. Fourth, the samples did not include women's ethnicities; future research should include other groups to enrich the results concerning ethnic influences on substance use. Fifth, there were differences in program assessment practices, variables captured, data entry practices, and data sets were not uniform in all countries. It is possible that different reporting biases were operating in the three countries. Sixth, findings here cannot be assumed to be generalizable to other countries from similar regions.

CONCLUSION

Given the prevalence of substance use among pregnant and parenting women in different cultures, the sharing of cross-cultural information is an important first step in learning new ways for providers to best care for this population and their children.

REFERENCES

- United Nations Office of Drug and Crime. World Drug Report 2019: 35 million people worldwide suffer from drug use disorders while only 1 in 7 people receive treatment. United Nations: Office on Drugs and Crime.
- United Nations Office of Drug and Crime. UNODC and WHO organize international training on substance use treatment and care during pregnancy. United Nations: Office on Drugs and Crime.
- Ritchie H, Roser M. Drug Use. Our World Data. Published online December 5, 2019.
- Robins LN, Mills JL. Effects of in utero exposure to street drugs: Report. *Eff Utero Expo Str Drugs Rep*. 1993;83.
- SAMHSA. Results from the 2015 National Survey on Drug Use and Health, Center for Behavioral Health Statistics and Quality; 2016.
- SAMHSA. The CBHSQ Report: Women of Childbearing Age and Opioids; 2017.
- Terplan M, Lawental M, Connah MB, Martin CE. Reproductive Health Needs Among Substance Use Disorder Treatment Clients. *J Addict Med*. 2016; 10 :20-25.
- Saia K, Bagley SM, Wachman EM, Patel PP, et.al. Prenatal treatment for opioid dependency: observations from a large inner-city clinic. *Addict Sci Clin Pract*. 2017; 12: 5.
- Ramage M, Ostrach B, Fagan B, Coulson CC. Stabilizing the Mother-Infant Dyad for Better Outcomes from OB to FM Caring for Patients with Perinatal Opioid Use Disorder through the 4th Trimester. *N C Med J*. 2018; 79: 164-165.
- Jones HE, Kaltenbach K. Treating Women with Substance Use Disorders during Pregnancy: A Comprehensive Approach to Caring for Mother and Child. Oxford University Press; 2013.
- Saia KA, Schiff D, Wachman EM, et al. Caring for Pregnant Women with Opioid Use Disorder in the USA: Expanding and Improving Treatment. *Curr Obstet Gynecol Rep*. 2016; 5: 257-263.
- Haight SC. Opioid Use Disorder Documented at Delivery Hospitalization — United States, 1999–2014. *MMWR Morb Mortal Wkly Rep*. 2018 ; 67: 845-849.
- Guimaraes VA, Fernandes KS, Lucchese R, et al. Prevalence and factors associated with alcohol use during pregnancy in a maternity hospital in Goiás, Central Brazil/Prevalencia e fatores associados ao uso de alcool durante a gestacao em uma maternidade de Goias, Brasil Central. *Ciecircncia Amp Sauacutede Coletiva*. 2018; 23: 3413-3421.
- Mitsuhiro SS, Chalem E, Barros MC de M, Guinsburg R, Laranjeira R. Prevalence of cocaine and marijuana use in the last trimester of adolescent pregnancy: socio-demographic, psychosocial and behavioral characteristics. *Addict Behav*. 2007; 32: 392-397.
- SAMHSA. 2019 National Survey on Drug Use and Health: Women; 2020: 25-26.
- Pregnancy and the consumption of substances of abuse. The Department of Toxicology and Pharmacology, First Chair of Toxicology. Medical Faculty UBA. Juan A Fernández Acute Care Hospital.
- Consumption of psychoactive substances during pregnancy. Period of opportunity for an interdisciplinary approach. Toxicology Division, Juan A. Fernández Hospital.
- Kramlich D, Kronk R, Marcellus L, Colbert A, et.al. Rural Postpartum Women with Substance Use Disorders. *Qual Health Res*. 2018; 28: 1449-1446.
- Ostrach B, Leiner C. "I didn't want to be on Suboxone at first..."—Ambivalence in Perinatal Substance Use Treatment. *J Addict Med*. 2019; 13: 264-271.
- Ronzani TM, Higgins-Biddle J, Furtado EF. Stigmatization of alcohol and other drug users by primary care providers in Southeast Brazil. *Soc Sci Med*. 2009; 69: 1080-1084.
- Jesica Suarez, personal correspondence August 31, 2020.
- About Teen Pregnancy | CDC. 2019.
- Vaz R, Monteiro D, Rodrigues N. Trends of teenage pregnancy in Brazil, 2000-2011. *Rev Assoc Med Bras*. 2016; 62: 330-335.
- Ko JY. Vital Signs: Prescription Opioid Pain Reliever Use During Pregnancy - 34 U.S. Jurisdictions, 2019. *MMWR Morb Mortal Wkly Rep*. 2020; 69: 897-903.
- Addressing Women & Infants in the U.S. Opioid Crisis Response | Reproductive Health | CDC. 2019.
- Canfield M, Radcliffe P, Marlow S, Boreham M, et.al. Maternal substance use and child protection: a rapid evidence assessment of factors associated with loss of child care. *Child Abuse Negl*. 2017; 70: 11-27.
- Ecker J, Abuhamad A, Hill W, et al. Substance Use Disorders in Pregnancy: Clinical, Ethical, and Research Imperatives of the Opioid Epidemic. *American Journal of Obstetrics & Gynecology*. 2019.
- Forray A, Merry B, Lin H, Ruger JP, et.al. Perinatal substance use: a prospective evaluation of abstinence and relapse. *Drug Alcohol Depend*. 2015; 150: 147-155.
- Niccols A, Milligan K, Sword W, Thabane L, et.al. Integrated programs for mothers with substance abuse issues: A systematic review of studies reporting on parenting outcomes. *Harm Reduct J*. 2012; 9: 14.
- National Institute on Drug Abuse. National Institute on Drug Abuse (NIDA) Substance Use in Women; 2018.

31. Frazer Z, McConnell K, Jansson LM. Treatment for substance use disorders in pregnant women: Motivators and barriers. *Drug Alcohol Depend.* 2019; 205: 107652.
32. Patrick SW, Schiff DM, COMMITTEE ON SUBSTANCE USE AND PREVENTION. A Public Health Response to Opioid Use in Pregnancy. *Pediatrics.* 2017; 139.
33. Grella CE. Services for perinatal women with substance abuse and mental health disorders: the unmet need. *J Psychoactive Drugs.* 1997; 29: 67-78.

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