

Abortion and sex-related conditions in substance-dependent Brazilian patients

Aborto e saúde sexual e reprodutiva entre dependentes químicas brasileiras

Aborto y salud sexual y reproductiva entre drogodependientes brasileñas

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doi: 10.1590/0102-311X00143416

Abstract

Abortion is a very sensitive issue with relevance to public health; however few clinical or population-based studies have examined induced abortion among drug users. The study aims to evaluate the prevalence of induced abortion and sex-related conditions in an inpatient drug user sample. A cross-sectional design study was conducted in an inpatient addiction treatment unit in São Paulo, Brazil, with a sample of 616 patients, aged 18-75. Sociodemographic data, sexual behavior, and dependence severity were evaluated in relation to induced abortion. Approximately 27% of patients reported having a history of abortion (themselves in the case of women or partners in the case of men). The mean age was 34.6±10.9 years old, 34.9% diagnosed with severe alcohol dependence, 33% were diagnosed with severe levels of dependence on other drugs, 69.6% were diagnosed cocaine users (inhaled and smoked), and alcohol was the drug of choice for 30.4%. Chances of having a history of abortion is greater for women than for men with a odds ratio (OR = 2.9; 95%CI: 1.75-4.76), (OR = 1.7; 95%CI: 1.09-2.75) of no condom use; (OR = 2.0; 95%CI: 1.35-3.23) of history of STI and (OR = 3.2; 95%CI: 1.29-5.73) use of morning-after pill. Drug- and alcohol-dependent patients have high-risk behaviours of sporadic use or no-condom use which contribute to unplanned pregnancy and induced abortion, making this vulnerable population a group which deserves special attention in sexual health prevention programmes and health promotion efforts for the reduction of induced abortion.

Abortion; Sexual and Reproductive Health; Drug Users; Substance-related Disorders; Public Policies

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Introduction

Abortion is a very sensitive and relevant public health issue which involves social, psychological, ethical, moral and religious concerns ^{1,2,3}. This important taboo subject still generates controversies and disputes in many countries around the world ^{4,5}, including Brazil and other Latin American countries ⁶.

Concerns about abortion arise in debates during political and electoral campaigns ^{7,8} and anti-abortion views are extremely common in countries where population majority is Roman Catholic or another Christian religion ⁷. Yet, there have been discussions and advances in some Latin American countries, such as Mexico and Uruguay, where abortion was legalized despite the Christian population majority ^{9,10}.

Brazilian legislation forbids induced abortion, except when the pregnancy is life-threatening to the mother or results from a rape or sexual assault. Even when there is a severe foetal malformation as in anencephaly, abortion is only permitted after judicial authorization ^{9,11}. Still, little progress in this field has been observed from the public health perspective in Brazil, as the complications of abortion are among the major causes of maternal mortality ^{9,12}, which seems to be repeatedly true for the most vulnerable population, such as the chronic drug users ^{13,14,15,16,17,18}.

Being an illegal practice has not prevented abortions from taking place contributing to the use of unsafe techniques, therefore reducing statistic reliability of this type of practice since illegal abortion is even less reported ¹². In 2008, there was one abortion for every four pregnancies in Brazil (25%) ⁹. Many methods have been used to induce abortion, varying from safe procedures conducted in illegal private health clinics to home-based procedures, exposing women to complication and mortality risk. Due to inequalities within the country death is three times more likely to occur to African descendent women than to white women due to unsafe abortion procedures ^{9,19}. To complete the death vulnerability profile we must add youth and those with low income. In other words, those who are able to pay for illegal abortion are less likely to have complications or die ^{9,20}.

Unplanned pregnancy is a common occurrence among women of reproductive age. Unintended pregnancy is among the major contributors to abortion and many women rely on abortion as a primary birth control method ²¹. In Brazil, it is estimated that 1.8 million unplanned pregnancies result in 159,151 miscarriages, 48,769 induced abortions, 1.58 million live births and 312 maternal deaths, including 10 (3%) attributed to unsafe abortions. It is estimated that the cost of an unplanned pregnancy is equivalent to BRL 2,293 in Brazil. The abortion cost to health represents a small proportion of the total cost. However, these are generally paid out by the public health system ²².

It is believed that drug users are vulnerable to unplanned pregnancy and induced abortion, with propensity to higher rates when compared to the general population ^{12,23} due to risky sexual behaviors such as low condom use and high number of sexual partners ²⁴. Substance use during pregnancy is regarded as a serious problem in medical settings and in the criminal justice system ^{5,11}, but very few studies have observed large samples to evaluate induced abortion among drug users and alcohol-dependent patients.

A study with 91 female drug users found that 53% were sexually active in four weeks preceding the research, 66% acknowledged to have experienced sexual intercourse which could have led to pregnancy during those four weeks, and 55% had been forced to have sex against their will in their lifetime. Moreover, this sample presented high rates of sexually transmitted infections (STIs), pregnancy termination, and miscarriage indicating the need to recognize the extent of elevated sexual health risks and morbidities experienced by substance users with long-term opioid and crack use ¹⁴.

Crack use has increased over the past decade in many countries around the world ²⁵ and its use has been associated to pregnancy termination ^{26,27}. A study evaluated a sample of 125 women crack users from the underprivileged communities in Salvador, Bahia State, Brazil, of whom 90% had low education levels and high unemployment, 37% reported having sex for money or drugs and 58% reported they had not used condoms during sexual intercourse over the previous 30 days. The study reinforces the concept that women who use crack are a significant vulnerable group in regard to STIs transmission and unplanned pregnancies ²⁸.

The risks associated to abortion are also higher among female injecting drug users (IDUs) because they are already more likely to have worse health conditions and clinical comorbidities, such as hepatitis C, HIV and other addictive disorders. Female IDUs may be more vulnerable to impoverishment

and discrimination, fading the ability to provide appropriate health care interventions²⁹. A study conducted with 80 sexually active IDU women in Saint Petersburg, Russia, showed that 67% had undergone abortion and consistent condom use was reported by only 22% of the subjects¹³.

More evidence on induced abortion in drug users in clinical settings and population-based studies may help programme planners and policy makers to identify groups at greater risk for unintended pregnancy and reduce abortion-related health risks among drug users, and further help guide and evaluate the best prevention efforts and health promotion approaches for this vulnerable population. This study aimed to evaluate the prevalence of induced abortion and sex-related conditions in a sample of inpatient drug users.

Methods

This study was a cross-sectional design conducted in an inpatient addiction treatment unit in São Paulo, Brazil. The sample comprised 616 consecutive admission of alcohol and cocaine users (smoked and inhaled), aged 18 years old or older with a confirmed clinical dependence diagnosis according to the *Diagnostic and Statistical Manual of Mental Disorders IV*, text revised (DSM-IV-TR) diagnosis criteria. Data collection was performed from May 2009 to November 2011, all patients admitted in the period above were approached within 14 days from admission date by a trained team constituted by a psychologist, an occupational therapist and a nurse. Interview protocol average duration was 50 minutes. No refusals were recorded³⁰.

Measures

• Sexual behavior

It was examined by simple question about lifetime history of induced abortion (dependent variable was investigated both in women and the abortion experience lived by the men through sexual partners), condom use frequency in the last 12 months, number of sexual partners in the last 12 months, history of sex with sex workers in the last 12 months, sexual orientation identity, lifetime homosexual experience in exchange for drugs, lifetime history of STIs, age at the time of first intercourse (vaginal, anal, oral).

• Sociodemographic data

The sociodemographic data included simple question about age, educational level, race, marital status, monthly income, occupational status, and religious affiliation.

Characteristics related to the treatment of the substance-related disorder. It was examined by simple question about the length of substance abuse and the number of previous treatments excluding the present treatment.

• Drug of choice

Data were collected on the individual preferred drug. This information was elicited directly by the simple question "What is your drug of choice?" Although substance users often meet the diagnostic criteria for dependence on multiple drugs, drug of choice is usually included in the patient clinical status because it assists in the user profile identification for appropriate case management provision³¹.

• Drug Abuse Screening Test (DAST) 20

The DAST is a scale consisted of 20 questions related to drug use within the last year. The questions pertained specifically to abuse, dependence, withdrawal (signs and symptoms), social impairment, family relations, legal implications, medical problems, and previous treatment history. The severity of the drug problem was classified on a scale from 0 to 20 and was scored as follows: 0 = no problem; 1 to

5 = mild; 6 to 10 = moderate; 11 to 15 = substantial; 16 to 20 = severe. Reliability and validity measures have been reported to be satisfactory in all the versions for use as a clinical and or research tool ³².

- **Short Alcohol Dependence Data (SADD)**

The SADD is a scale consisted of 15 questions related to the alcohol dependence severity, classified on a scale from 0 to 20, and scored as follows: mild (0-9), moderate (10-19) and severe (≥ 20). The Brazilian version and the original English version of the SADD are highly correlated and the coefficient of internal consistency is 0.79 ³³.

- **Fagerström Test for Nicotine Dependence (FTND)**

The FTND scale is a screening instrument extensively used and translated in many countries, including Brazil, for physical nicotine dependence assessment. The instrument consists of six items that are easily understood and rapidly applied. The scores obtained on the test allow nicotine dependence classification into five levels: very low (0 to 2 points); low (3 to 4 points); moderate (5 points); high (6 to 7 points); very high (8 to 10 points). The reliability index is excellent (0.87) and the Cronbach's alpha coefficient ranges from 0.55 to 0.74, indicating that the FTND has moderate internal consistency. FTND exhibits satisfactory sensitivity (0.75) and specificity (0.80) ³⁴.

Data analysis

A descriptive data analysis was initially performed. For the categorical variables, absolute and relative frequencies were presented, and for the numerical variables, frequency measurements (mean, minimum, maximum, and standard deviation) were presented. Statistical analyses include the chi-square test or Fisher's exact test for small samples, Student's t-test for independent samples and logistic regression. For all the statistical tests, a significance level of 5% was considered. A multivariate analysis was conducted through binary logistic regression to obtain estimated odds ratio (OR) 95% confidence intervals (95%CI) adjusted to confounding variables. Variables included in this model were associated to induced abortion history with $p < 0.20$ in the bivariate analysis. The variables which remained in the model were only the variables with statically significant values ($p < 0.05$). The dependent variable was induced abortion history (dichotomic) and independent variables were gender, marital status, educational level, occupational status, SADD, DAST, tobacco, FTND, sexual activity in the past 12 months, condom use, history of STIs, HIV testing and use of the morning-after pill. For all the statistical tests, a significance level of 5% was considered. The statistical analyses were performed using the IBM SPSS version 20 (IBM Corp., Armonk, USA).

Ethical approval

This study was approved by the Federal University of São Paulo (UNIFESP) Ethics Committee (protocol number 1193/09) and all the subjects signed an informed consent form.

Results

Sociodemographic data

The sample comprised a total of 616 inpatient drug users, 508 (82.5%) men and 108 (17.5%) women, predominantly adults (mean 34.6 ± 10.9 years old) ranging in age from 18 to 75 years, unmarried (77.6%), Catholic (52.7%), Caucasian (54.5%), non-registered employee/liberal profession and unemployed (67.9%), with low levels of education (47.2%) and income (36.1%) (Table 1). Many of the sociodemographic variables in this study were found to be significantly associated with a history of induced abortion (Table 1). A total of 165 (26.8%) participants reported a history of induced abortion in their lives. In the sample, 40.7 of the women had a history of abortion. However, there was

Table 1

Sociodemographic data and history of induced abortion.

	Total		History of induced abortion				p-value
	(n = 616; 100.0%)		(n = 165; 26.8%)		(n = 451; 73.2%)		
	n	%	n	%	n	%	
Gender							
Male	508	82.5	121	23.8	387	76.2	< 0.001 *
Female	108	17.5	44	40.7	64	59.3	
Marital status							
Unmarried	478	77.6	118	24.7	360	75.3	0.020 *
Married/Stable union	138	22.4	47	34.1	91	65.9	
Ethnicity/Skin color/Race							
White	336	54.5	101	30.1	235	69.9	0.027 *
Non-white	280	45.4	64	22.9	216	77.1	
Religion							
Catholic	325	52.7	73	22.5	252	77.5	
Evangelical	130	21.2	43	33.1	87	66.9	0.070
Spiritualist/ <i>Umbanda</i> / <i>Candomblé</i> /Other	81	13.2	26	32.1	55	67.9	
Atheist/No religion	80	12.9	23	28.7	57	71.3	
Educational level							
Illiterate	72	11.7	69	95.8	3	4.2	
Elementary school	219	35.5	156	71.2	63	28.8	< 0.001
Secondary school	223	36.2	161	72.2	62	27.8	
Higher education/Graduate education	102	16.5	65	63.7	37	36.3	
Occupational status							
Retired	16	2.6	7	43.8	9	56.3	
Registered employee	171	27.8	45	26.3	126	73.7	0.014
Non-registered employee/Liberal profession	356	57.8	95	26.7	262	73.3	
Fully unemployed	62	10.1	11	17.7	51	82.3	
Housewife	11	1.8	7	63.6	4	36.4	
Income (minimum wage **)							
≤ 1	225	36.1	45	20.0	180	80.0	
2-3	215	34.9	63	29.3	152	70.7	0.022
4-5	98	15.9	27	27.6	71	72.4	
6-7	28	4.5	11	39.3	17	60.7	
≥7	50	8.1	19	38.0	31	62.0	

* Descriptive level of Fisher's exact test (p-value ≤ 0.005) N = 616.

** Minimum wage: BRL 724 or USD 280.18.

Note: descriptive level of the chi-squared test (test statistics; degrees of freedom) N = 616.

induced abortion history predominance among female participants (40.7%, $\chi^2(1) = 13.005$, $p \leq 0.001$), married/stable union (34.1%, $\chi^2(1) = 4.796$, $p = 0.020$), Caucasian (30.1%, $\chi^2(1) = 4.040$, $p = 0.044$), illiterate (95.8%, $\chi^2(3) = 24.023$, $p \leq 0.001$), housewife (63.6%, $\chi^2(3) p \leq 0.014$), income (6-7 minimum wage [MW]; 1 MW = BRL 724 or USD 280) (39.3%, $\chi^2(4) = 11.444$, $p = 0.022$), with statistically significant associations.

When comparing mean age, no statistically significant differences were found between participants with (36.8±10.4 versus 33.7±11.0; $t = 2.877$ [95%CI: 0.96-5.11], $p = 0.004$) and without history of abortion.

It should be noted that among patients who reported induced abortion history, the age groups prevalence was as follows: 18 to 29 years old (23.9%), 30 to 59 years old (32.9%) and 60 years old or more (27.3%, $p = 0.094$) (data not displayed in table).

Substance use and history of induced abortion

The substance user sample characteristics are displayed in Table 2. The most frequent drug of choice was cocaine (inhaled and smoked) at 69.6% and alcohol at 30.4%. It was observed among the subjects with history of induced abortion the predominance of severe alcohol dependence (SAAD) (32.1%, $\chi^2(3) = 13.152$, $p = 0.004$), drug use substantial/severe (DAST) (33%, $\chi^2(2) = 24.81$, $p < 0.001$), tobacco use (32.2% $\chi^2(1) = 13.33$, $p < 0.001$) and very low/low/moderate (FTND) (33.5% $\chi^2(1) = 16.68$, $p < 0.001$), with statistically significant difference. Amphetamine and injectable drug users were not identified in the sample, although this was not an exclusion criterion.

The average period of previous addiction treatment reported by subjects (mean 2.6 ± 3.4 versus 2.5 ± 3.0 ; $t = 0.517$ [95%CI: 0.45-0.77], $p = 0.605$) did not differ significantly in the sample.

Tobacco use length in this sample was 17.1 ± 11.2 years. When comparing groups it was observed that participants with induced abortion history had been tobacco users for a longer period of time (mean 18.9 ± 11.6 versus 14.9 ± 3.3 ; $t = 2.260$ [95%CI: 0.34-4.93], $p = 0.024$) when compared to those without induced abortion history. The length of use of other illicit substances (mean 17.3 ± 9.9 versus 15.0 ± 10.1 ; $t = 2.314$, [95%CI: 0.34-4.18; $p = 0.021$) and without a history of induced abortion differ significantly in the sample.

Table 2

Data on drug of choice, severity of dependence, and history of induced abortion among drug users.

	History of induced abortion						p-value
	Total		Yes		No		
	(n = 616; 100.0%)		(n = 165; 26.8%)		(n = 451; 73.2%)		
	n	%	n	%	n	%	
Drug of choice							
Alcohol	187	30.4	60	32.1	127	67.9	0.032 *
Cocaine (inhaled and smoked)	429	69.6	105	24.5	324	75.5	
SAAD							
Mild dependence	78	12.6	24	30.8	54	69.2	0.004
Moderate dependence	121	19.6	33	27.3	88	72.7	
Severe dependence	175	28.4	61	34.9	114	65.1	
Does not use alcohol	242	24.2	47	19.4	195	80.6	
DAST							
No problem/Low/Moderate	178	28.9	23	12.9	155	87.1	< 0.001
substantial/Severe	336	54.6	111	33.0	225	67.0	
No illicit drug use	102	16.5	31	30.4	71	69.6	
Tobacco							
Yes	367	59.6	118	32.2	249	67.8	< 0.001 *
No	249	40.4	47	18.9	202	81.1	
FTND							
Very low/Low/Moderate	245	39.8	82	33.5	163	66.5	< 0.001
high/Very high	163	26.5	48	29.4	115	70.6	
Non-smoker	208	33.7	35	16.8	173	83.2	

DAST: *Drug Abuse Screening Test*; FTND: *Fagerström Test for Nicotine Dependence*; SAAD: *Short Alcohol Dependence Data*.

* Descriptive level of Fisher's exact test (p -value ≤ 0.005).

Note: descriptive level of the chi-squared test (test statistics; degrees of freedom) $N = 616$.

Sexual behaviors and history of induced abortion

Sexual behaviors and history of induced abortion in the sample are presented in Table 3. Sexual behaviors such as having an active sexual life (32%, $\chi^2(1) = 11.725$, $p = 0.001$), homosexual experience in life (41.7%, $\chi^2(2) = 7.26$, $p = 0.026$), homosexual experience in exchange for drugs (37.9%, $\chi^2(1) = 4.63$, $p = 0.031$), low frequency of condom use (36.3%, $\chi^2(2) = 23.70$, $p = 0.001$), HIV testing (33.2%, $\chi^2(1) = 23.85$, $p = 0.001$), use of the morning-after pill (55.9%, $\chi^2(1) = 15.53$, $p = 0.001$) and having three or more partners (32%, $\chi^2(1) = 4.23$, $p = 0.040$) were all positively associated to induced abortion history in this sample.

Table 3

Sexual behavior and history of induced abortion among drug users.

	History of induced abortion						p-value
	Total		Yes		No		
	(n = 616; 100.0%)		(n = 165; 26.8%)		(n = 451; 73.2%)		
	n	%	n	%	n	%	
Sexual activity in the past 12 months							
Yes	440	71.4	141	32.0	299	68.0	< 0.001 *
No	176	28.6	24	13.6	152	86.4	
Homosexual experience							
Never	482	78.2	118	24.5	364	75.5	0.026
At least once	36	5.9	15	41.7	21	58.3	
More than once	97	15.9	32	33.0	65	67.0	
Sexual orientation							
Heterosexual	573	93.0	156	94.5	417	92.5	0.239 *
Homosexual	43	7.0	9	5.5	34	7.5	
Homosexual experience in exchange for drugs							
Yes	66	10.7	25	37.9	41	62.1	0.025 *
No	550	89.3	140	25.5	410	74.5	
Sex with sex workers							
Yes	308	50.0	89	28.9	219	71.1	0.137 *
No	308	50.0	76	24.7	232	75.3	
Condom use							
No use	215	34.9	71	33.0	144	67.0	< 0.001
Sometimes	135	21.9	49	36.3	86	63.7	
Always	266	43.1	45	16.9	221	83.1	
History of STIs							
Yes	145	23.5	58	40.0	87	60.0	0.530 *
No	471	76.5	107	22.7	364	77.3	
HIV testing							
Yes	401	65.0	133	33.2	268	66.8	< 0.001 *
No	215	35.0	32	14.9	183	85.1	
Use of the morning-after pill							
Yes	34	5.5	19	55.9	15	44.1	< 0.001 *
No	582	94.5	146	25.1	436	74.9	
Number of sexual partners in the last 12 months							
Up to 2	413	67.0	100	24.2	313	75.8	0.026
3 or more	203	33.0	65	32.0	138	68.0	

STI: sexually transmitted infection.

* Descriptive level of Fisher's exact test.

Note: descriptive level of the chi-squared test, N = 616.

For average first sexual intercourse age with penetration (oral, vaginal, anal) among participants with induced abortion history (mean 14.6 ± 2.8 versus $14.9, \pm 3.3$; $t = -1.163$ [95%CI: 0.24-0.94], $p = 0.245$) and without induced abortion history, no significant difference was observed.

Logistical regression analysis

According to the logistic regression analyses, abortion history chance is greater in women (OR = 2.9, 95%CI: 1.75-4.76, $p = 0.001$), single (OR = 1.8, 95%CI: 1.13-3.12, $p = 0.014$), full unemployed (OR = 2.4, 95%CI: 1.46-3.82, $p = 0.001$), tobacco users (OR = 1.6, 95%CI: 1.03-2.49, $p = 0.037$), sexual activity in the past 12 months (OR = 2.0, 95%CI: 1.17-3.69, $p = 0.013$), STIs history in life (OR = 2.0, 95%CI: 1.17-3.69, $p = 0.001$) HIV test (OR = 2.0, 95%CI: 1.32-3.53, $p = 0.002$), occasional or no condom use in the past 12 months (OR = 1.7, 95%CI: 1.09-2.75, $p = 0.018$) and morning-after pill use (OR = 3.2, 95%CI: 1.29-5.73, $p = 0.003$) (Table 4).

Table 4

Final model logistical regression analysis.

	OR unadjusted (95%CI)	OR adjusted (95%CI)	p-value
Gender			
Female	3.1 (1.42-3.89)	2.9 (1.75-4.76)	0.001
Male	1.00	1.00	
Marital status			
Unmarried	2.6 (1.04-2.37)	1.8 (1.13-3.12)	0.014
Married	1.00	1.00	
Occupational status			
Unemployed	2.8 (1.38-2.99)	2.4 (1.46-3.82)	0.001
Employed/others	1.00	1.00	
Tobacco			
Yes	2.0 (1.38-2.99)	1.6 (1.03-2.49)	0.037
No	1.00	1.00	
Sexual activity in the last 12 months			
Yes	2.9 (1.85-4.80)	2.0 (1.17-3.69)	0.013
No	1.00	1.00	
Condom use			
No use/Never use or sometimes	2.5 (1.73-3.78)	1.7 (1.09-2.75)	0.018
Always	1.00	1.00	
History of STIs			
Yes	2.2 (1.52-3.37)	2.0 (1.35-3.23)	0.001
No	1.00	1.00	
HIV testing			
Yes	2.8 (1.84-3.37)	2.2 (1.32-3.53)	0.002
No	1.00	1.00	
Use of the morning-after pill			
Yes	3.7 (1.87-7.63)	3.2 (1.29-5.73)	0.003
No	1.00	1.00	

95%CI: 95% confidence interval; OR: odds ratio; STI: sexually transmitted infection.

Discussion

In this study, 165 (26.8%) drug users, mainly adult women, reported induced abortion history. This is one of few clinical Brazilian studies undertaken in a clinical setting to evaluate abortion prevalence in a large drug user sample. Abortion is a method used to prevent births in many developing countries²¹ including in Brazil^{6,35} and rates remain high around the world^{13,36,37,38}. The association between abortion and substance use is a public health problem of great magnitude which makes a substantial contribution to maternal morbidity and mortality^{1,2,3,39}.

The findings of studies that have investigated the relationship between abortion and substance use suggested several pathways by which substance use is associated to induced abortion, including engaging in risky sexual behaviors under the influence of alcohol and drugs, which increases the potential risks of an unplanned pregnancy and may lead to abortion rate increase^{16,36,40,41}.

Abortion scope estimates vary according to research method, sample composition, data collection strategy, sources and different conceptual definitions used by researchers^{35,42}. The abortion risk evaluation is a vitally important clinical health care issue⁴³. There are many obstacles preventing health care providers from taking the reproductive life history, including the history of abortion among drug users. This is a crucial strategic resource to be addressed by health care programmes, since many are the barriers which prevent pregnant patients or their partners who misuse substances from accessing and engaging in drug abuse treatment^{13,14,44}.

Sociodemographic data

Variables such as gender (female), marital status (unmarried), ethnicity (Caucasian), education (illiterate), occupational status (housewife) and low income were associated to abortion in substance-related disorder patients. A previous study had reported the likely link between sociodemographic variables and abortion⁴⁴. Abortion is influenced by several factors such as socioeconomic status, gender, educational level, income, religion, moral values and beliefs and also by alcohol and drug use⁴⁴. However, very few studies have investigated the relationship between abortion and socioeconomic status in a substance user Brazilian sample^{4,20}.

From the 82.5% men of the sample, 23.8% reported abortion history. Little is known about their perspectives regarding sexual and reproductive health, or their views concerning abortion³⁶. Capture some data on men's perspective regarding abortion was the reason leading to their inclusion in the analysis. Literature review reveals recurring themes concerning men's reaction to abortion. Men may suffer intense grief after abortion is undertaken by a sexual partner and they have reported feelings such as regret, helplessness, guilt, anxiety, anger, and emasculation. Each man experiences abortion in a singular way and therefore, the psychological impact of abortion on men should be taken into consideration in future studies⁴⁵. Brazilian studies investigating abortion situations in male samples are extremely uncommon, since men are rarely included in research^{6,12,36,46}. Most legal abortion studies are focused on women and when abortion and contraception are discussed, attention is predominantly focused on the women's role and responsibility⁴⁶. A Brazilian literature review on abortion presented heterogeneity among women who have abortions in the country. The authors concluded that pregnancy outcome is part of their reproductive trajectories. Therefore, abortion among drug users needs to be understood in terms of its social significance.

Seventy-two (11.7%) participants with the lowest educational level (illiterate) presented a high abortion rate (95.8%). This finding diverges from the literature about non-drug users³⁶, which suggests that an increase in educational level predicts increased support for abortion. Education has been presented as one of the most evident factors to determine people's views, with men and women of higher educational levels showing better choices in their reproductive life attitudes^{47,48}. Educational level has a positive association to sympathetic attitudes regarding abortion^{47,48,49}. A study on educational level and income showed an inverse association to abortion risk⁴⁴.

The largest portion of this sample is at the margins of the formal labor market, a fact which aggravates psychosocial vulnerability and needs to be taken into account since lack of employment and poor professional experience result in low access to health services and information^{20,29,44}. Programmes and health services might not yet be prepared to recognize the specific needs required by this population^{10,47}.

Abortion and severity of addiction

Abortion is known to be associated to higher rates of substance abuse¹⁸. In this sample, all variables related to the severity of alcohol (SADD), drug (DAST) and nicotine (FTND) use were positively associated to abortion history.

Our study sample comprised cocaine users (inhaled and smoked) (69.9%). However, alcohol was the first drug of choice and with higher severity level/SADD, presenting affirmative association to patients with abortion history. Alcohol use is widespread among more than 50% of women of reproductive age⁴³, although there is no solid evidence to suggest that alcohol is a factor which influences women seeking an abortion⁵⁰. A study which investigated the women accessing abortion services in the United States to identify whether alcohol, tobacco and other drug use, in the month prior to pregnancy awareness, contributed to their decision to terminate the pregnancy, showed that from 956 women surveyed, 2.6% identified alcohol as a reason for seeking an abortion⁵¹.

Due to its harmful effects, we suppose that it is possible to find higher rates of abortion history among participants who used cocaine (inhaled and smoked)⁴³. In addition to being associated to induced abortion, cocaine use during the early months of pregnancy may cause an spontaneous abortion. Up to 38% of early pregnancies result in miscarriage in cocaine-abusing mothers^{43,52}.

In addition, cocaine use is frequently associated to inadequate prenatal care and concomitant use of tobacco and alcohol. It has also been associated to psychosocial, behavioral and biomedical risk factors, such as poverty, malnutrition, stress, depression, physical abuse, lack of social support and STIs²⁴, all of which might greatly affect the pregnancy outcome^{16,43,52}.

Nicotine dependence has been investigated as a factor which affects women's health directly, causing lung cancer, heart disease and premature death¹⁶. Cigarette use is common among women seeking abortion^{51,53,54} and this relationship has been found to be associated to unplanned pregnancy, indicating that smoking is not pregnancy-resolution related but rather pregnancy-occurrence related¹⁶. Studies have reported positive associations between abortion and subsequent tobacco use^{23,54}. A longitudinal population-based study has suggested that having an abortion may cause young women to smoke as a coping mechanism in order to deal with the stress of having had an abortion²³.

Abortion and sexual behavior

Drug users with a history of abortion exhibit high levels of risky sexual behavior such as no condom use and history of STIs. In this study sample the sexual behavior identified was as follows: had active sexual life in the previous 12 months, had a homosexual experience (more than once), had a homosexual experience in exchange for drugs, had used condoms occasionally or never, had been tested for HIV, had used the morning-after pill and had three or more partners in the previous 12 months, this latter showing the highest prevalence and a positive association to abortion history. Substance-dependent people may engage in risky sexual behavior associated to increased potential interruption of pregnancy²¹, such as sexual intercourse without condom and homosexual experiences in exchange for drugs²⁴.

Brazilian studies highlight the lack of information on contraceptives among women who have abortions, especially youth. They also show that, despite being familiar to the contraceptive methods available, Brazilian women had not used them in the period preceding the pregnancy episode investigated⁶. Moreover, AIDS prevention campaigns have failed because they have promoted abstinence, fidelity and condom use. What is often neglected is that condom use requires strong partner co-operation and abstinence is an almost impossible strategy, given that adults are almost universally involved in sexual activity⁵⁵.

This study included male evaluation of induced abortion history and mainly in psychoactive substances chronic users, a theme that has limited exposure in national studies. This is the first study to report the prevalence of induced abortion history among a sample of drug users in Brazil. There is insufficient national literature to compare our data, which makes it impossible to determine if sexual behavior patterns and abortion rates are similar to those of women from national estimates.

Limitations

The results of our study must be considered in light of some potential limitations. First, the study relies on self-reported accounts regarding abortion and substance misuse. The induced abortion history was evaluated using self-reported information, without the use of standardized tools or information from other relatives. It is also important to consider that abortion is considered a crime in Brazil and people are afraid and embarrassed to report having had an abortion. Moreover, most of those in our sample were Catholic or Evangelical. We are therefore not sure that misreporting did not affect our results. It is possible that abortion was under-reported. Besides that, the participants were asked about their history of abortion in life, and it was impossible to know whether their substance use preceded their or their partners' abortions.

Second, this study was undertaken in a specialized unit providing inpatient treatment. The recruitment took place at a voluntary tertiary service, so this substance-dependent sample may not be representative of the substance-dependent community and must be treated as a convenience sample. This sample bias may limit the external validity and generalizability of these findings. It is assumed that only the most serious and motivated patients receive this type of treatment. Thus, there is a selection bias as the study reports on a single drug user segment with induced abortion history and who had complications as a result of substance use where hospitalization was necessary.

There is a need for new studies to analyze the social factors involved and reasons for induced abortion in this population. It is known that reports of induced abortion differ according to gender, ethnicity/race, and social class, reflecting the assortment of implications that may be attributed to pregnancy and abortion. Such analysis would reveal the social inequalities between women and men facing the risk of an unplanned pregnancy, incorporating discussion of sexual and reproductive rights.

Third, while we agree that sexual and reproductive health issues concerning men are understudied, the fact that the sample consisted primarily of men is also a concern. This because focusing on women would be of greater interest, especially since it is likely that many abortions take place without the male partner's knowledge plus the fact that women are not represented in clinical studies of addiction and abortion. However, our women sample was not large. It is also important to note that women continue to be under-represented in exclusive treatment service for drug abuse with low access due to many reasons including the stigma.

Implications for clinical practice

Health providers should incorporate drug user health care information strategies and multiple contraceptive methods – including injectable formulations and implants that facilitate adherence and monitoring by health professionals who perform home visits or work with outreach treatment for vulnerable populations, instead of merely promoting the use of condoms. It is widely recognized that interventions continue to be based on notions of individual agency or responsibility for prevention of STIs/HIV^{14,24}.

Studies connecting knowledge, attitudes and practice are necessary to embrace the complexity and multidimensionality of the environment in which the sexuality of drug users is constructed and experienced^{14,24}. In this context, one of the consistent and fitting ways to ethically face the abortion problem seems to be to primarily construe the task in favour of human dignity, which may be translated into the ability to listen without judgment to women and couples in struggle⁵⁶. There is thus an important ethical dimension in this issue, namely the need to respect human life in all its breadth and demonstrations^{57,58}.

Implications for future studies

Future research should examine the extent to which characteristics such as poor mental health, lack of concern for one's health and lack of responsibility affect the reproductive choices of addicted men and women. In addition, more empirical attention should be directed towards understanding the features of personality that could be associated to an increase in induced abortion demand in drug users.

Contributors

A. Diehl and R. Laranjeira wrote the text and worked on content review. S. C. Pillon participated in the statistics and wrote the text. M. A. Santos wrote the text. All the authors revised the final version for publication.

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Resumo

O aborto é uma questão altamente sensível e com relevância para a saúde pública. Entretanto, poucos estudos clínicos ou populacionais já examinaram o aborto provocado em usuárias de drogas. O estudo tem como objetivo avaliar a prevalência de aborto provocado e condições sexuais em uma amostra de usuárias hospitalizadas. Foi realizado um estudo transversal em uma unidade hospitalar para tratamento de dependência química em São Paulo, Brasil, com uma amostra de 616 pacientes entre 18 e 75 anos de idade. Foram avaliados dados sócio-demográficos, comportamento sexual e gravidade da dependência química e a associação com o aborto provocado. Entre as próprias usuárias e seus parceiros masculinos, 27% relataram história de aborto. A média de idade era 34,6±10,9 anos, 34,9% tinham diagnóstico de dependência alcoólica grave, 33% tinham diagnóstico de níveis graves de outras dependências químicas, 69,6% usavam cocaína (inalada e/ou fumada) e álcool era a droga de escolha para 30,4% da amostra. Quando comparadas aos parceiros masculinos, as mulheres relatavam chances mais elevadas nos seguintes itens: história de aborto (OR = 2,9; IC95%: 1,75-4,76), falta de uso de preservativo (OR = 1,7; IC95%: 1,09-2,75), história de DSTs (OR = 2,0; IC95%: 1,35-3,23) e uso da pílula do dia seguinte (OR = 3,2; IC95%: 1,29-5,73). Os pacientes com dependência de álcool e outras drogas apresentam comportamentos de alto risco para uso nulo ou esporádico de preservativos, contribuindo para a gravidez não planejada e o aborto provocado, fazendo com que essa população vulnerável seja um grupo que merece atenção especial nos programas de prevenção em saúde sexual e nos esforços de promoção da saúde para a redução do aborto provocado.

Aborto; Saúde Sexual e Reprodutiva; Usuários de Drogas; Transtornos Relacionados ao Uso de Substâncias; Políticas Públicas

Resumen

El aborto es una cuestión altamente sensible y relevante para la salud pública. Pese a ello, pocos estudios clínicos o poblacionales han analizado el aborto provocado en consumidoras de drogas. El estudio tiene como objetivo evaluar la prevalencia de aborto provocado y las condiciones sexuales en una muestra de drogodependientes hospitalizadas. Se realizó un estudio trasversal en una unidad hospitalaria para el tratamiento de dependencia a drogas en Sao Paulo, Brasil, con una muestra de 616 pacientes entre 18 y 75 años de edad. Se evaluaron datos sociodemográficos, comportamiento sexual y gravedad de la drogodependencia y su asociación con el aborto provocado. Entre las propias drogodependientes y sus parejas masculinas, un 27% informaron de un historial de aborto. La media de edad era 34,6±10,9 años, un 34,9% tenían un diagnóstico de dependencia alcohólica grave, un 33% tenían un diagnóstico de niveles graves de otras dependencias a drogas, un 69,6% consumían cocaína (inhhalada y/o fumada) y el alcohol era la droga de elección para un 30,4% de la muestra. Cuando se compara con las parejas masculinas, las mujeres presentaban oportunidades más elevadas en los siguientes ítems: historial de aborto (OR = 2,9; IC95%: 1,75-4,76), falta de uso de preservativo (OR = 1,7; IC95%: 1,09-2,75), historial de DSTs (OR = 2,0; IC95%: 1,35-3,23) y uso de la píldora del día siguiente (OR = 3,2; IC95%: 1,29-5,73). Los pacientes con dependencia del alcohol y otras drogas presentan comportamientos de alto riesgo, asociados a un uso nulo o esporádico de preservativos, contribuyendo al embarazo no planeado y al aborto provocado, ocasionando que esa población vulnerable sea un grupo que merece atención especial en los programas de prevención en salud sexual y en los esfuerzos de promoción de la salud para la reducción del aborto provocado.

Aborto; Salud Sexual y Reproductiva; Consumidores de Drogas; Trastornos Relacionados con Sustancias; Políticas Públicas

Submitted on 16/Aug/2016

Final version resubmitted on 13/Dec/2016

Approved on 06/Feb/2017