Original Article

Cross-sectional study on drug use by pregnant women in four public hospitals in the municipality of Recife, subsidized by Alcohol, Smoking and Substance Involvement Screening Test (assist)

Estudo transversal sobre o consumo de drogas por gestantes em quatro hospitais públicos do município de Recife a partir da aplicação do Alcohol, Smoking And Substance Involvement Screening Test (Assist)

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ABSTRACT

Introduction: Drug use is a major public health problem, altering the physical-mental state and behavior. In pregnant women, this use irreversibly compromises the integrity of the mother/fetus binomial. The hypothesis of this research was to detect, by ASSIST, if there was a high prevalence of drug addiction in low- and high-risk pregnant women, as well as possible protective factors for the non-consumption of drugs. **Objectives:** To identify the prevalence of drug addiction, to assess the protective and risk factors related to use in pregnancy through self-reporting by ASSIST. **Methods:** Cross-sectional study with casuistic selection, sample number of 160 pregnant women, applying ASSIST and selection for convenience of hospitals. Inferential analysis of the dependent variable (drug use) and the independent variables (age, education, and marital status) through logistic regression with a 5% significance level. Through multivariate logistic regression, the variables marital status, education and maternal age had statistical significance. **Results:** The total positivity of drug use was 86.9%, with a prevalence of 65% for tobacco, 81.9% alcohol, 16.9% marijuana, 4.4% cocaine/crack, and 12% hypnotics/sedative. Being married was a protective factor (p-value=0.0047 and OR=0.12) along with having a high school/technical course (p-value=0.041 and OR=0.11); maternal age >24 years old increased the use of drugs (p-value=0.035). **Conclusions:** A more effective assistance policy and adequate screening of pregnant women who use drugs is necessary due to a high maternal-fetal risk of clinical complications.

Keywords: Pregnant Women; Streets Drugs; Self-report.

RESUMO

Introdução: O uso de drogas é um grande problema de saúde pública, alterando o estado físico-mental e o comportamento. Nas gestantes, este uso, compromete irreversivelmente a integridade do binômio mãe/feto. A hipótese desta pesquisa foi detectar, pelo ASSIST, se existiria uma alta prevalência de drogadição em gestantes de baixo e alto risco, bem como possíveis fatores de proteção para o não consumo de drogas. **Objetivos:** Identificar a prevalência de drogadição, avaliar os fatores de proteção e risco relacionados ao uso na gestação através do autorrelato pelo ASSIST. **Métodos:** Estudo transversal com seleção casuística, número amostral de 160 gestantes, aplicando o ASSIST e seleção por conveniência dos hospitais. Análise inferencial da variável dependente (uso de drogas) e das independentes (idade, escolaridade e estado civil) através da regressão logística com nível de significância 5%. Através de regressão logística multivariada, as variáveis estado civil, escolaridade e idade materna tiveram significância estatística. **Resultados:** A positividade total do uso de drogas foi de 86,9%, com prevalência de 65% para tabaco, 81,9% álcool, 16,9% maconha, 4,4% cocaína/crack e 12% hipnóticos/sedativo. Ser casada era fator de proteção (p-valor=0,0047 e OR=0,12) junto com ter ensino médio/curso técnico (p-valor=0,041 e OR=0,11); já idade materna superior >24 anos aumentou o uso de drogas (p-valor=0,035). **Conclusões:** É necessário uma política mais eficaz de assistência e um rastreamento adequado de gestantes usuárias de drogas devido a um alto-risco materno-fetal de complicações clínicas.

Palavras-chave: Gestantes; Drogas Ilícitas; Autorrelato.

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INTRODUCTION

Drug use is a major public health problem, with worrisome repercussions in our society, because it aggressively influences on person's life, changing his physical, mental and behavioral state. This same problem becomes more serious in pregnant women, as the exposure of these patients to psychotropic drugs can result in irreversible integrity impairment of mother/fetus binomial [1].

Exposure to alcohol during pregnancy is associated, in a dose-dependent way, with high toxicity and several maternal-fetal biological damages resulting from high placental and blood-brain permeability. Fetal Alcohol Syndrome (FAS) is the most serious consequence in pregnancy due to alcohol, which is one of the main causes of mental retardation in Brazil [2,3]

Approximately 5% of women admit to be using illicit drugs during pregnancy in Brazil. The expansion of psychoactive drugs use, mainly cocaine, either snorted / injected (cocaine salt) or inhaled / smoked (crack), also reached women of childbearing age, creating challenges in caring for them. In this context, crack is the illicit drug that most necroses tissues by vasoconstriction during pregnancy, and yet with an additive power superior to cocaine[4,5].

Maternal complications from cocaine use during pregnancy are evidenced by the high incidence of miscarriage, placental abruption, premature labor, uterine rupture, cardiac arrhythmias, liver rupture, cerebral ischemia, heart attack and death. Cocaine increases the concentration of oxytocin, inducing uterine activity [6,7].

The combination of hypertension, proteinuria and convulsions, resulting from cocaine abuse, may be mistaken with eclampsia. Differential diagnosis is essential in these cases to set the correct conduct[8,6].

The use of cocaine and/or crack in the first trimester of pregnancy is associated with higher rates of spontaneous abortion, and the negative effects are dose-independent, which suggests that any level of exposure increases the risk of miscarriage[9,7].

The study goals were to identify the prevalence of legal or illegal drug use in the current pregnancy in any trimester and make an association between socioeconomic and biological variables, as well as to reassess the protective and risk factors related to the use of these drugs during pregnancy through self-report of Alcohol, Smoking And Substance Involvement Screening Test (ASSIST) application.

The hypothesis of this research was to detect, through ASSIST, if there would be a high prevalence of the use of legal/illegal drugs in low and high risk pregnant women as well as possible protective factors for the non-consumption of drugs.[10,11,12]

METHODOLOGY

The study is an observational, individual, descriptive, cross-sectional type of low- and high-risk prenatal patients. The sample number (n) was 160 patients equally distributed in four hospitals (40 pregnant women at each hospital), selected for convenience. They were selected in 02 small hospitals with support for primary care and only with low risk prenatal care, named as Recife Women's Hospital (HMR) and Bandeira Filho Maternity Hospital (MBF); and 02 large and high risk prenatal care such as Agamenon Magalhães Hospital (HAM) and Maternidade da Encruzilhada (CISAM).

Patients were invited to be part in the research and, after signing the Free and Informed Consent Term - FIC, the ASSIST self-report questionnaire was applied. The selection of this test took into account being validated in Portuguese, being used by primary health care in several locations and to be easily applicable, encompassing socioeconomical variables and about drug use with its lifelong impairments, especially in the last 90 days from the date of questionnaire application.

Each patient, identified as a drug user by ASSIST, was referred to services with specialized multidisciplinary treatments within the Psychosocial Care Network (RAPS) in Recife.

As for ethical considerations, the research was approved by the Ethics Committee of IAM / FIOCRUZ / Recife, CAAE No. 62426316.6.0000.5190.

In the inferential statistical analysis of the study variables, the results measured were expressed through charts. The variables were analyzed using a logistic regression model, being the strength of association between the independent variables and the response variable (drug use) expressed by the "Odds Ratio (OR)", with a 95% confidence interval. They were classified as independent variables (marital status, maternal age, fetal age, ultrasound USG, schooling, reading skills and social programs - such as family allowance, LOAS Continued Payment Benefit or simply LOAS and sickness allowance) and the dependent variable (drug use) taking advantage of univariate and multivariate logistic regression models. The chi-square test was also used to analyze categorical data and all conclusions were reached at the 5% significance level.

RESULTS

The prevalence of the use of legal and illegal drugs by patients, in all low and high risk pregnancies trimesters after applying the self-report was 86.9% (table 01). The prevalence of this use per hospital was: CISAM with 82.5%, HAM with 85.0%, HMR with 90.0% and MBF with 90.0%, being the consumption prevalence observed and distributed in a similar way and without statistical significance between sites (p-value = 0.7514).

As for the sociodemographic aspect, some characteristics were more prevalent, such as brown skin (64.7%), common-law marriage (39.5%), having a steady partner (94.9%), high school graduated (50, 9%), reading skill (97.9%), not receiving social programs (65.6%) and not being head of the family (75.8%), as noted in table 01.

Regarding the individual abuse of psychotropic drugs, only during the current pregnancy in any quarter, the study figured out that the prevalence rate was 65% for tobacco, 81.9% for alcohol, 16.9% for *C. sativa*, 4.4% for cocaine / crack and 12% for hypnotics / sedatives. In addition to these results, 28.1% said they had used and 22.5% said they had a craving for some of these drugs in the past 90 days. Moreover, a percentage of 17.5% failed to reduce their consumption and 5.8% used injecting drugs, as shown in table 2.

When evaluating the drug use as a dependent variable, it was observed that, in the study, being married (OR = 0.17; p = 0.010), having attended high school (OR = 0.10; p =

Table 1. Prevalence of drug use of abuse and socioeconomical/ biological variables of women by the Self-Report submitted to the ASSIST Test - Recife 2017/2018[a]

Variables	N*	%
Self-report (Drug Use)		
Positive	139	86.9
Negative	21	13.1
Hospital		
CISAM	40	25.0
HAM	40	25.0
HMR	40	25.0
MBF	40	25.0
Race		
White	33	21.2
Black	18	11.5
Yellow	4	2.6
Brown Skinned	101	64.7
Marital status		
Single	45	28.7
Married	49	31.2
Separated	1	0.6
Stable union	62	39.5
Fixed Companion		
Yes	149	94.9
No	8	5.1
Reading		
Yes	156	97.5
No	4	2.5
Schooling level		
Elementary School 1 to 4	11	6.9
Elementary School 5 to 9	37	23.3
High school	81	50.9
Technical course Comp / Incomp	12	7.6
University education Comp / Incomp	18	11.3
Social program		
Sickness Allowance	1	0.6
LOAS	2	1.3
Family Allowance	46	29.3
Others	5	3.2
Not Receiving	103	65.6
Head of the family		
Yes	38	24.2
No	119	75.8

*N= corresponds to the sample size. The differences between the variables and the total N are due to the fact that the patients did not answer all the questions during the interview. Therefore, this explains the difference in the total N for each evaluated variable.
a = The percentages were calculated for each variable and the sum of the percentages of the items of the variable represents 100%.

0.024) or have attended University (OR = 0.11; p-value = 0.060) were the statistically significant variables presented as protective factors for drug use, or that it would be reducing the likelihood of drug use, highlighting that the higher education was borderline to the significance level. However, not receiving any social programs proved to be a risk factor with a borderline p-value for drug use (OR = 3.36; p-value = 0.060), increasing the risk of drug involvement by three times when comparing to women who received some type of social benefit - table 03.

When performing the analysis by multivariate logistic regression, statistical significance was observed for schooling level, marital status and maternal age. Therefore, being married (OR = 0.12; p = 0.005), complete or incomplete High School graduation/Vocationl Course (OR = 0.11; p = 0.041) and having a maternal age> 24 years (OR = 3.68; p-value = 0.035), demonstrated to be statistically associated with drug use by patients. Good to notice that being married and being high schooled contribute as protection, reducing in approximately 90% the chance of using drugs; however, being over 24 years old is a risk factor that increases the risk of involvement with drugs by almost four times (Table 4).

DISCUSSION

In the present study, it was observed that alcohol (prevalence of 81.9%) and tobacco derivative (65%) are the most used drugs among these patients. It was also found that being married or having attended high school / vocational course had a positive influence on drug use prevention. However, not being included in social programs or being over the age of 24 years presented themselves as a risk factor for drug use.

Different authors show that the abusive consumption of legal and illegal substances has been a worldwide concern with regard to the health of pregnant women and their children at different socioeconomic levels, mainly in the lower classes[13,14,15].

Our results, in compliance with several studies, demonstrate the progressive and alarming increase of women using drugs, particularly during pregnancy. The prevalence of use of these substances during pregnancy varies widely and it has been difficult to set the real estimation [16,17,18].

In Europe, cocaine is one of the most used drugs by women during pregnancy, being, in our research, the third most consumed illicit drug with a prevalence of 4.4%. In London (1995), a study with urine analyses revealed continuous use of illegal substances during pregnancy, with an exposure rate of 10.6% in the first trimester and for cocaine a rate of 1.1%. Similar results to those of our research were described by a study in Spain (1995), through meconium analysis in the postpartum period, which revealed a 7.9% positive rate for drug abuse, among which cocaine was positive in 4.4% .

In 2015, a study accomplished with 1,797 prenatal care in women aged from 18 to 37 years, at a Primary Care Reference Unit in the city of Rio Branco (Acre), during a 9 weeks period, found prevalence of alcohol use (2%), *C. sativa* (1.2%) and cocaine (0.9%). However, compared to this study in the state of Acre, our results for alcohol (81.9%), *C. sativa* (17.0%) and cocaine / crack (4.4%) were higher due to the fact that it was performed by specialized

Table 2. Distribution of prevalence regarding the consumption of alcohol and other drugs related to the ASSIST Test - Recife 2017/2018[a].

Variables	Drug Use			
	No		Yes	
	N	%	N	%
Q27 - Individual Use				
Tobacco derivative	56	35.0	104	65.0
Alcoholic beverages	29	18.1	131	81.9
Marihuana	133	83.1	27	16.9
Cocaine / Crack	153	95.6	7	4.4
Amphetamines or ecstasy	147	91.9	13	8.1
Inhalants	146	91.3	14	8.8
Hypnotics / Sedatives	141	88.0	19	12.0
Hallucinogens	154	96.3	6	3.8
Opioids / Opiates	153	95.6	7	4.4
Others	159	99.0	1	1.0
Q 28 - During the past three months, did you use any of the above substances?	115	71.9	45	28.1
Q 29 - During the past three months, have you had a desire to consume some of the above substances?	124	77.5	36	22.5
Q 30 - During the past three months, what was the frequency of your consumption (1st drug and 2nd drug, etc.)?	152	95.0	8	5.0
Q 31 - During the past three months, with what frequency, because of your use of drugs (1st drug and 2nd drug, etc)?	151	94.4	9	5.6
Q 32 - Are there friends, relatives or other people who have shown concern about their use?	127	79.4	33	20.6
Q 33 - Have you ever tried to control, reduce or stop the use of drugs (1st drug, then 2nd drug etc.) and failed?	132	82.5	28	17.5
Q 34 - Have you ever used drugs by injection?	245	94.2	9	5.8

a= Each line represents a variable and the sum of the line's percentages represents 100%.

professionals and not by primary care. In addition, previous training of applicators were used to provide guidance on the most qualified care and approaches to pregnant women, in that prenatal clinic, in the 04 hospitals[20].

In Brazil, the Ministry of Health reports that low education is a risk factor to increase maternal mortality, referring that the difficulty in accessing and comprehending information leads to irregular and ineffective prenatal care. For those reasons, a significant variable in the logistic regression of our study was the high school / vocational course which reduced the risk of drug use (p-value = 0.041 and OR = 0.11), mainly in high-risk pregnancies as they occur in many drug users. [21,22]

Nevertheless, a study accomplished in Maringá City (PR) with 394 interviewed pregnant women revealed that the average age of pregnant women was 25.2 years, with 36.1% single and 45.83% brown skinned. In 2016, the BRISA cohort with 1,447 pregnant women showed that 75.6% graduated in high school and 81% had a maternal age between 20-34 years. These surveys corroborate our results, in which the average was 29 years old and the maternal age variable showed to be statistically significant, being a risk factor when over 24 years of age, in our study [4,13,24].

The national BRISA cohort in 2016 showed that 36.1% of single women used drugs and 45.83% were brown skinned, similar to the results of our research. We revealed that being married was a protective factor with statistical significance (p-value = 0.004) and presented a prevalence for brown skinned of 64.7% [13,24].

According to the National Household Sample Survey (PNAD, 2012), only 42.2% of northeastern women are economically active. This corroborates with our univariate analysis, in which drug use was positive in 74.3% of pregnant women who were not head of family versus 25.7% who were head of their family. This social fragility can lead to greater vulnerability and lack of female autonomy, resulting into greater exposure to precarious social conditions and increasing the predisposition to the use of psychotropic drugs[23].

Early detection of these patients at higher risk of drug use during prenatal care may allow for a more effective intervention. Furthermore, it reduces risky behaviors to maternal and fetal health, as well as improves the quality of care by professionals. Thereby, there will be a referral directed to specialized services with multiprofessional teams to welcome and give the appropriate treatment.

A more targeted and adequate policy aiming at strengthening pregnancy comes to be pretty necessary, due to pregnant drug users who become maternal-fetal high-risk by chemical addiction. With that being said, the scope of our research revealed several data in line with other research in Brazil and in the world, enriching national data. It clearly showed that marital status and education are protective factors, while maternal age and not being supported

Table 3. Analysis of the association between sociodemographic aspects and use of drugs by pregnant women attended at four hospitals in Recife between 2017-2018[a].

| Univariate Analysis | Self-report (any drug) | | | | OR | IC95% | | P-value |
| | Negative | | Positive | | | Inf | Sup | |
	N	%	N	%				
Use of drugs	**104**	**65.0**	**56**	**35.0**				
Marital status								
Single / Separated	3	14.3	43	31.6	1.00			
Married	14	66.7	35	25.7	0.17	0.04	0.59	**0.0098**
Stable union	4	19.0	58	42.7	1.01	0.19	4.82	0.9883
Schooling level								
Teaching[1]	1	4.8	47	34.1	1.00			
Teaching[2]	17	80.9	76	55.1	0.10	0.01	0.49	**0.0244**
Teaching[3]	3	14.3	15	10.9	0.11	0.01	0.90	**0.0602**
Social program								
Yes	17	85.0	86	62.8	1.00			
No	3	15.0	51	37.2	3.36	1.06	14.89	0.0625
USG Time (Weeks)								
≤ 12	2	9.5	14	11.3	1.00			
12 a 24	11	52.4	68	54.8	0.88	0.13	3.78	0.8799
24 +	8	38.1	42	33.9	0.75	0.10	3.45	0.7346
Age								
≤ 24	8	38.1	33	23.7	1.00			
> 24	13	61.9	106	76.3	1.98	0.73	5.12	0.1657
Head of family								
Sim	3	14.3	35	25.7				
Não	18	85.7	101	74.3	0.4	0.11	1.53	0.2628
			1		8			

The univariate analysis was done through logistic regression test. Teaching: 1 - Elementary 1 to 9 / 2 – Complete / Incomplete High School / Technical Course / 3 - Complete / Incomplete University
a= The presentation of the percentages is per column and the sum of the percentages for each column represents 100%.

Table 4. Analysis of the association between sociodemographic aspects and drug use by pregnant women attended at four hospitals in Recife between 2017-2018.

| Associated variables | OR | IC 95% | | P- value |
		Inf	Sup	
Multivariate model				
Marital status – (Single / Separated)				
Married	0.12	0.02	0.46	0.0047
Stable union	1.10	0.20	5.48	0.9109
Schooling Level – (Elementary School 1 to 9)				
Teaching2	0.11	0.01	0.62	0.0412
Teaching3	0.22	0.01	2.06	0.2162
Age - (≤ 24 years)				
> 24 Years	3.68	1.12	13.29	0.0351

The univariate analysis was by logistic regression test
Teaching: 2 - Complete/Incomplete High School/Technical Course / 3 - Complete / Incomplete University

by social programs increase the risk of drug use among pregnant women.

CONCLUSION

The ASSIST questionnaire demonstrated that the use of licit/illicit drugs in pregnant women is underestimated

and underdiagnosed. Therefore, the ASSIST test can be an excellent tool to be implemented during prenatal care.

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