

DRUGS OF ABUSE USE IN PREGNANCY: CLINICAL AND NEONATAL OUTCOMES

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Highlights: (1) Tobacco and alcohol were the most consumed substances by the pregnant women. (2) Maternal syphilis (28.1%) and preterm births (19.6%) were frequent outcomes. (3) Maternal profiles and neonatal outcomes were similar before and during COVID-19.

PRE-PROOF

(as accepted)

This is a preliminary, unedited version of a manuscript that was accepted for publication in Revista Contexto & Saúde. As a service to our readers, we are making this initial version of the manuscript available, as accepted. The article will still be reviewed, formatted and approved by the authors before being published in its final form.

<http://dx.doi.org/10.21527/2176-7114.2026.51.17057>

How to cite:

Veloso JC, Menezes CR, Baldoni NR, Otoni A, Fook SML, Leão TCC. et al. Drugs of abuse use in pregnancy: clinical and neonatal outcomes. Rev. Contexto & Saúde. 2026;26(51):e17057

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ABSTRACT

Objective: To analyze the sociodemographic and clinical profile of pregnant women with use, misuse, or dependence on drugs of abuse and of their newborns, comparing these characteristics before and during the COVID-19 pandemic. **Methods:** A descriptive cross-sectional study based on secondary data extracted from the medical records of pregnant women with substance use disorders treated at a high-complexity health center in the Central-West region of Minas Gerais, Brazil, between March 2019 and March 2021. **Results:** A total of 52 medical records were analyzed. Among the documented psychoactive substances, tobacco was the most frequent (69.3%), followed by alcohol (43.1%), marijuana (40.8%), and cocaine (35.4%). The simultaneous use of two or more substances was common, particularly the combination of alcohol + tobacco (21.0%). Comorbidities were frequent, especially syphilis (28.1%), urinary tract infection (21.9%), and hypertension (21.9%). Among the newborns, 19.6% were preterm, and the median gestational age was 38 weeks; 12.2% had low birth weight. There were no statistically significant differences between pregnant women evaluated before (n = 18) and during (n = 34) the pandemic regarding sociodemographic characteristics, clinical profile, substance use patterns, or neonatal outcomes. **Conclusion:** The findings reinforce the need for public health strategies targeted at the care of pregnant women who use psychoactive substances, in order to reduce associated risks to maternal and neonatal health.

Keywords: drugs of abuse; pregnant women; newborns; COVID-19.

USO DE DROGAS DE ABUSO NA GRAVIDEZ: RESULTADOS CLÍNICOS E NEONATAIS

RESUMO

Objetivo: Analisar o perfil sociodemográfico e clínico de gestantes com uso, abuso ou dependência de drogas de abuso e de seus recém-nascidos, comparando essas características antes e durante a pandemia de COVID-19. **Métodos:** Estudo transversal descritivo baseado em dados secundários extraídos de prontuários de gestantes com transtorno por uso de substâncias atendidas em um centro de saúde de alta complexidade da região Centro-Oeste de Minas Gerais, Brasil, entre março de 2019 e março de 2021. **Resultados:** Foram analisados 52 prontuários. Entre as substâncias psicoativas registradas, o tabaco foi a mais frequente (69,3%), seguido do álcool (43,1%), maconha (40,8%) e cocaína (35,4%). O uso simultâneo de duas ou mais drogas

foi comum, destacando-se a combinação álcool + tabaco (21,0%). Comorbidades foram frequentes, sobretudo sífilis (28,1%), infecção do trato urinário (21,9%) e hipertensão arterial (21,9%). Entre os recém-nascidos, 19,6% nasceram prematuros e a mediana da idade gestacional foi de 38 semanas; 12,2% apresentaram baixo peso ao nascer. Não houve diferenças estatisticamente significativas entre as gestantes avaliadas antes (n=18) e durante (n=34) a pandemia quanto às características sociodemográficas, perfil clínico, padrão de uso de substâncias ou desfechos neonatais. **Conclusão:** Os achados reforçam a necessidade de estratégias de saúde pública direcionadas ao cuidado de gestantes que fazem uso de substâncias psicoativas, a fim de reduzir os riscos associados para a saúde materna e neonatal.

Palavras-chave: drogas de abuso; gestantes; recém-nascidos; COVID-19.

INTRODUCTION

The abusive consumption of licit and illicit drugs has caused an increase in undesirable social occurrences, such as family crises, violence, and preventable hospitalizations, increasing the occupancy rate of hospital beds and consequently, overloading health systems¹.

The increase in the number of drug-dependent pregnant women, especially with the consumption of alcohol, tobacco and cocaine/crack has been evidenced. Studies on the use of drugs of abuse by pregnant women are of great importance, as the exposure of this population to drugs can lead to irreversible impairment of the integrity of the mother-fetus binomial. Furthermore, there are few studies in the scientific literature addressing the epidemiological profile of drug-addicted pregnant women and their newborn².

Addiction to drugs of abuse has a devastating effect during the gestational period and predisposes the newborn to the development of different syndromes of different degrees and complexities. Alcohol is one of the substances of widespread abuse in Brazil and causes a condition called Fetal Alcohol Syndrome in newborn. Drug abuse by pregnant women causes subsequent delay in intrauterine growth, including impairment in neuropsychomotor development, which may progress to premature delivery and low birth weight^{3,4}.

The use of licit drugs (alcohol and tobacco) and/or illicit drugs (cocaine, crack, marijuana, synthetic drugs, and others), associated with other factors, can lead to serious health problems (physical and psychosocial) for the child and the mother⁵.

Abuse of crack and cocaine in pregnant women increases the risk of miscarriage and premature birth. It also has an extensive deleterious effect on cognitive functions such as

attention, executive capacity, and language deficit. Prenatal exposure may include repercussions on the respiratory system, genitourinary malformations, and increase the risk of sudden death⁶⁻⁷.

Tobacco use during the prenatal period brings repercussions of great impact, increasing the risk of miscarriage and damage to the placental unit. There is also a greater chance of occurrence of prematurity, low birth weight, in addition to a high risk for the mother of development of cardiovascular diseases and neoplasms⁸.

It is important to point out that the data shown on the consumption of licit and illicit substances still present a significant distance from the actual statistics due to significant underreporting and underestimation in these cases, especially because they reach high-risk populations, corresponding to only 1/9 or even 1/10 of the actual statistics⁹. An investigation described Brazilian prevalence data of alcohol consumption was reported by 213 women (37.3%)¹⁰.

Monitoring newborn of mothers dependent on drugs of abuse requires a multidisciplinary and specialized approach. Chemical dependency permeates the family, requiring multidisciplinary understanding. These newborn have the highest morbidity and mortality rates and the highest risk of developing disabling sequelae during their lifetime. The strict monitoring of this group is paramount. Health actions that encourage the interruption and end of perpetuation of this problem between generations should be encouraged¹¹.

In March 2020, the World Health Organization declared the outbreak of a new pandemic triggered by the international spread of a coronavirus (COVID-19)¹². It is highly contagious in nature and confinement measures have led to an increase in anxiety and depressive symptoms¹³. A particularly vulnerable group of the population are pregnant women as they are more likely to suffer, due to the pregnancy itself, from psychological stress, anxiety and depression, symptoms that have been aggravated by the pandemic, in addition to concerns about their personal health and the fetus¹⁴. With the COVID-19 pandemic, an increase in global drug consumption was observed, however, this consumption during pregnancy is underestimated¹⁵.

To date, in the literature there are few studies identified that analyze the effect of the COVID-19 pandemic on the epidemiological and clinical profile of the population of pregnant women and possible clinical repercussions on newborn. The study carried out by Sayuri¹⁵ observed an increase in the number of referrals to high risk prenatal care due to drug use during pregnancy in the municipality of Volta Redonda - Rio de Janeiro, from 2019 to 2020, suggesting

a negative impact of the pandemic on the consumption of drugs of abuse during pregnancy.

Therefore, investigating the epidemiological and clinical profile of these pregnant women and their newborns in a referral hospital means evaluating valuable scientific substrates to obtain indicators that support possible intervention strategies⁸. Therefore, the present study aims to analyze the epidemiological and clinical profile of dependent pregnant women and their newborns, and to compare these characteristics before and during the COVID-19 pandemic.

METHODS

This is a descriptive cross-sectional study in accordance with the guidelines proposed by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)¹⁶.

This investigation is based on secondary data from medical records of pregnant women with a documented history of psychoactive substance use and was carried out in a high complexity health center, with a philanthropic nature, with priority assistance from the Brazilian Public Health System, located in the central-west region of the state of Minas Gerais. The institution is a reference for the region in urgent and emergency care, including intoxication due to drug use. It is also a reference in high-risk maternity. The variables analyzed in the study are considered dependent because it takes place over a specific period between March 2019 and March 2021.

Population and Selection Criteria

An analysis of medical records of pregnant women with a history of psychoactive substance use was carried out between March 2019 and March 2021. The following criteria were applied:

Inclusion Criteria: Medical records of pregnant women (any gestational age) with a documented history or clinical suspicion of psychoactive substance use (including alcohol, tobacco, and illicit drugs) recorded during prenatal care or hospital admission.

Exclusion Criteria: Records containing illegible handwriting, incomplete information in fundamental fields (identification, clinical history, or physical examination), and cases where substance use could not be clinically confirmed through professional notes.

The study was based exclusively on secondary data extracted from clinical records,

with no prospective data collection. Pregnant women were classified as presenting substance dependence or abusive use according to the self-reported consumption documented by the attending health professionals in the medical records, routinely collected during prenatal care or hospitalization. No diagnostic instruments or structured assessments were used; the classification followed the description provided in the clinical files. Alcohol consumption during pregnancy was also recorded when mentioned in the medical notes.

To increase transparency regarding the temporal distribution of participants, the annual frequencies of included records were described and the variable “period of care (before vs. during COVID-19 pandemic)” was treated as an independent explanatory variable in the comparative analyses. A structured form was prepared by the authors for data extraction, containing 14 items.

Information regarding drug dependence was obtained from the mothers' medical records. These records include a section for recording the dependence and another for detailing the type, such as alcohol, cocaine, marijuana, among others. For the variable “type of psychoactive substance,” drugs were categorized into three functional groups based on their primary pharmacological effects on the Central Nervous System (CNS), following the classification framework established by the World Health Organization (WHO)¹⁷:

Depressants: This group comprises substances that reduce CNS activity, diminish alertness, or induce analgesia. In this study, it includes Alcohol (Ethanol) and Opioids (compounds with morphine-like effects).

Stimulants: This group includes substances that increase psychomotor activity and physiological arousal. In this study, it includes Nicotine/Tobacco, Cocaine (including derivatives like crack), and Amphetamines.

Hallucinogens/Psychodysleptics: This group consists of substances that produce changes in thought, perception and mood, altering sensory perception and thought processes. In this study, Marijuana (Cannabis) was classified within this category due to its primary psychoactive profile and its capacity to produce distortions in perception.

In this study, polysubstance use was defined as the simultaneous or concurrent consumption of two or more psychoactive substances (legal or illicit) by the same individual during the gestational period. This definition allows for the evaluation of cumulative effects on maternal and neonatal health, following common epidemiological frameworks for high-risk pregnancy studies.

A double data entry was performed by the researchers; the first researcher entered the data from the form into the electronic system, and another researcher entered their collected data without having access to the first. Consistency verification was performed by a supervisor using the data entered into an Excel spreadsheet.

The main independent variable in this study is the time period, categorized dichotomously: pre-pandemic (period from March 2019 to March 2020) and during the pandemic (period from March 2020 to March 2021). This variable acts as the main exposure factor, being treated as an explanatory variable in multivariate models to determine the impact of the pandemic context on outcomes, which could be related to comorbidities among women in the postpartum period, such as anemia, asthma, depression, diabetes mellitus, hypertension, urinary tract infection, syphilis, and Group B Streptococcus infection; and in the newborn, the main one being prematurity, in addition to low birth weight for gestational age, which constitute the dependent variables of the analysis (Chart 1).

Chart 1: Description of the study variables

Independent Variables		Dependent Variable	
Variable	Details	Variable	Details
Period Pandemic	Before Pandemic: March 2019 to January 2020; After Pandemic: February 2020 to March 2021	Age Group (years)	15-20, 21-25, 26-30 31-35, 36-40
		Origin	Urban zone, Rural zone
		Skin color	White, Brown, Black Yellow
		Marital Status	Married, Single
		Drugs of abuse	Tobacco, Alcohol, Marijuana, Cocaine
		Comorbidities	Anemia, Asthma, Depression, Hypertension, Urinary Infection, Syphilis, Group B streptococcus
		Gestational age (weeks)	25 to 30, 31 to 34, 35 to 36, 37 to 40, ≥ 41
		Weight	Small for Gestational

DRUGS OF ABUSE USE IN PREGNANCY: CLINICAL AND NEONATAL OUTCOMES

		according to gestacional age	Age (SGA), Adequate, Large for Gestational Age (LGA)
		Length at birth (cm)	≤ 40, 41 to 43, 44 to 45, 46 to 47, 48 to 50, > 50
		Gender	Female, Male
		Clinical outcome	Clinical discharge, Hospitalization at Intensive Care Unit (ICU), death

The data obtained were tabulated with double entries in the Microsoft Excel® Program, 2013. The consistency of the data was verified.

Initially, a descriptive analysis of the study population was carried out, in which anthropometric data of newborn, sociodemographic data of pregnant women, and profile of use of drugs of abuse were represented by frequency distribution, measures of central tendency (mean; median), and measures of variability (standard deviation; interquartile range).

To compare these characteristics before and during the COVID-19 pandemic, pregnant patients were selected who, upon admission to the hospital, reported using illicit substances according to a questionnaire applied during the anamnesis. The study participants were allocated according to the period of hospital stay, being divided into the groups "before the pandemic" (from March 2019 to January 2020) and "during the pandemic" and "during the pandemic" (March 2020 to March 2021), with different participants in each of the periods. Both groups were compared for all variables of interest in the study. The period before/during the pandemic is the dependent or explanatory variable and, according to the findings in the medical records, they relate to the tables presented.

The Chi-square test was considered for categorical variables, with adjustment for Fisher's exact test when the expected value in at least one cell was less than 5. The Mann-Whitney test was used for numeric variables with non-normal distribution, and an independent Student's t test was used for numeric variables with normal distribution. Data normality was verified using the Kolmogorov-Smirnov test.

To compare maternal and neonatal characteristics across the two study periods (pre-pandemic vs. during pandemic), different inferential tests were applied based on the nature of the variables:

The Chi-square test (or Fisher's exact test, when expected cell frequencies were < 5)

was used for categorical variables, including maternal sociodemographic data (age group, origin, marital status), presence of comorbidities (syphilis, hypertension, etc.), and neonatal outcomes (prematurity, weight classification).

The independent Student's t-test was used for continuous variables with normal distribution (e.g., maternal age), and the Mann-Whitney test was applied for those with non-normal distribution (e.g., gestational age in weeks and total duration of substance use).

In these analyses, the "period of care" (pre-pandemic vs. during pandemic) functioned as the independent explanatory variable, whereas the clinical, sociodemographic, and neonatal characteristics were treated as dependent variables.

The results were considered statistically significant at the significance level of $p < 0.05$. Statistical analysis was performed using the Statistical Package for the Social Sciences software (version 21.0). It is noteworthy that the missing data were disregarded for the performance of the statistical analyses.

This study was submitted and approved by the Ethics Committees for Research with Human Beings of the Federal University of São João del-Rei (CAAE number: 45585921.4.0000.5545) and the high complexity health center of the Midwest of Minas Gerais (CAAE number: 29298820.8.3001.5130).

RESULTS

A total of 52 distinct medical records met the inclusion criteria. These records correspond to different women, with no overlap between periods. Of the total sample, 18 records (34.6%) referred to care episodes before the COVID-19 pandemic (March 2019–January 2020), and 34 records (65.4%) referred to the period during the pandemic (February 2020–March 2021).

The sociodemographic information obtained indicated that 57.1% of the participants self-identified as having brown skin, 86.5% resided in urban areas, and 88.4% were single. The most prevalent age group was under 30 years, representing 78.8% of the sample (Table 1). The mean age of the pregnant women participating in the study was 25.7 years (SD: 6.7). The average age of pregnant women before the pandemic was 26.1 years (SD: 7.1) and during the pandemic it was 25.4 years (SD: 6.6), $p = 0.736$. There was no statistically significant difference between sociodemographic characteristics before and during the pandemic.

Regarding the occupation of pregnant women, housewife was the most frequent

(30.8%). When comparing this variable, before and during the COVID-19 pandemic, there was no statistically significant difference ($p = 0.719$).

Table 1. Distribution of pregnant women ($n=52$), according to data in the high complexity health center, located in the Midwest region of Minas Gerais, attended from March 2019 to March 2021.

Age group (years)	n	Before pandemic (%)	During pandemic (%)
15 – 20	16	11.5	19.2
21 - 25	11	5.8	15.4
26 - 30	14	7.7	19.2
31- 35	5	5.8	3.8
36 - 40	6	3.8	7.7
Origin	n	Before pandemic (%)	During pandemic (%)
Urban zone	45	28.8	57.7
Rural zone	7	5.8	7.7
Skin color	n	Before pandemic (%)	During pandemic (%)
White	13	4.1	22.4
Brown	28	22.4	34.7
Black	8	10.2	6.1
Yellow	3	0.2	0.8
Marital status	n	Before pandemic (%)	During pandemic (%)
Married	6	5.8	5.8
Single	46	28.8	59.6

It was observed in this study that tobacco and alcohol were the legal drugs most consumed by pregnant women, with 69.3% and 43.1%, respectively. Regarding illicit drugs, marijuana was the most frequently used by pregnant women (40.8%). There was simultaneous use of one or more drugs, mainly alcohol and tobacco (21.0 %) (Table 2).

Table 2. Characterization of the type of drugs of abuse used by pregnant women (n=52) in the high complexity health center, located in the Midwest region of Minas Gerais, attended from March 2019 to March 2021.

Drugs of abuse	n	Before pandemic (%)	During pandemic (%)	p*
Tobacco	36	23.1	46.2	0.771
Alcohol	22	13.7	29.4	0.651
Marijuana	17	8.3	27.1	0.286
Cocaine	20	14.3	26.5	0.771

Note: *Pearson Chi-squared test valor de $p < 0,05$

The median number of drugs of abuse used by all pregnant women in the study was two toxic agents (interquartile range =1-2.75). The median number of trimesters of pregnancy in which women used drugs of abuse before the pandemic was three trimesters (interquartile range = 2-3). The median number of comorbidities in pregnant women before the pandemic was one comorbidity (interquartile range = 1) and the median number of comorbidities in pregnant women during the pandemic was also one comorbidity (interquartile range = 1-2).

Of the 52 medical records analyzed, only 32 of pregnant women who used drugs of abuse during pregnancy presented with comorbidities. With regard to the comorbidities presented by the pregnant women, the presence of syphilis stands out, which affected 28,1 % of the study participants, aged between 18 and 30 years old (Table 3). The median number of comorbidities in all pregnant women in the study was one comorbidity (interquartile range = 1-2). There was no statistically significant difference when comparing the median number of comorbidities in pregnant women before and during the pandemic ($p = 0.130$).

Table 3. Distribution of comorbidities among puerperal women (n=32) dependent on drugs of abuse, in the high complexity health center, located in the Midwest region of Minas Gerais, attended from March 2019 to March 2021.

Comorbidities	n	Before pandemic (%)	During pandemic (%)
Anemia	1	0	4
Asthma	2	0	8
Depression	2	0	8
Diabetes	2	4	4
Hypertension	7	8.3	20.8
Urinary infection	7	4.2	25
Syphilis	9	12.5	25
Group B streptococcus	2	0	8.3

Regarding newborn, children of mothers dependent on drugs of abuse, 19.6% of these babies were born prematurely, with less than 36 weeks of gestational age (Table 4). The median gestational age of all newborn in the study was 38 weeks (interquartile range = 36-39), compared to 38 weeks (interquartile range = 35.75-39.25) before the pandemic and 38 weeks (range interquartile = 36-39) during the pandemic, however with no statistically significant difference between the two moments. Furthermore, it was observed that 12.2 % of the newborn had low birth weight. They had an average weight of 2.614 kg (Standard Deviation SD: 0.752), being 2.533 kg (SD: 0.836) before the pandemic and 2.658 kg (SD: 0.713) during the pandemic ($p = 0.586$). The mean length of newborn studied was 45.7 cm (SD: 3.3), being 45.5 cm (SD: 3.6) before the pandemic and 45.8 cm (SD: 3.1) during the pandemic ($p = 0.754$).

With regard to the clinical outcomes of newborn, it was found that 73.4% of them were discharged from the hospital and 24.5% remained hospitalized for various reasons, among which were treatment due to prematurity, low birth weight, congenital infections or even institutional referral ($p = 0.751$).

Table 4. Clinical data referring to newborn, children of mothers dependent on drugs of abuse, in the high complexity health center, located in the central-west region of Minas Gerais, attended from March 2019 to March 2021. (n=52).

Gestational age (weeks)	n	Before pandemic (%)	During pandemic (%)
25 to 30	5	3.9	5.9
31 to 34	1	2.0	0
35 to 36	10	5.9	13.7
37 to 40	32	19.6	43.1
≥ 41	3	3.9	2.0
Weight according to gestational age	n	Before pandemic (%)	During pandemic (%)
SGA ^a	6	10.2	2.0
Adequate	42	22.4	63.3
LGA ^b	1	2.0	0
Length at birth (cm)	n	Before pandemic (%)	During pandemic (%)
≤ 40	4	6.4	2.1
41 to 43	5	4.3	6.4
44 to 45	8	0	17.0
46 to 47	14	14.9	14.9
48 to 50	15	6.4	25.5
> 50	1	2.1	0
Gender	n	Before pandemic (%)	During pandemic (%)
Female	19	10	28
Male	31	24	38
Clinical outcome	n	Before pandemic (%)	During pandemic (%)
Clinical discharge	36	26.5	46.9
Hospitalization at ICU ^c	12	8.2	16.3
Death	1	0	1

Note:^aSmall for gestational age; ^bLarge for gestational age; ^cIntensive Care Unit

Regarding data integrity, most variables showed a high completion rate. For newborns, the variables sex, gestational age, and birth weight had no missing data (0%), being recorded in all 52 analyzed medical records. A minimal absence of information was observed for the variables length (1 case; 1.9%) and Apgar score at 5 minutes (2 cases; 3.8%). Concerning maternal data, the variables age, marital status, and type of delivery were completely filled (100%). Information losses were identified only in the variables skin color (mother and newborn) and occupation, which were missing in 3.8% and 5.7% of the records, respectively. It should be noted that the variable presence of neonatal abstinence was collected according to the available clinical record, and no omissions were observed that would compromise the analysis of the final sample of 52 mother-child pairs.

DISCUSSION

This study evaluated the epidemiological and clinical profiles of pregnant women with psychoactive substance use disorders and their newborns, comparing these characteristics before and during the COVID-19 pandemic. A higher proportion of pregnant women with psychoactive substance use disorders was observed in the post-pandemic period (65.4%) compared to the pre-pandemic period (34.6%). This finding does not necessarily represent a net increase, as the study cannot determine whether these women were already using illicit substances prior to the pandemic or if their behavior changed as a result of the event. This distribution may be explained by the decline in the psychological well-being of families during the pandemic period¹⁸.

These results suggest that continuous and specialized prenatal care is essential to mitigate adverse maternal and neonatal outcomes associated with substance use. In light of these findings, consideration could be given to the systematic implementation of the SBIRT protocol (Screening, Brief Intervention, and Referral to Treatment), potentially integrated into a Trauma-Informed Care (TIC) framework. This dual approach may facilitate the early identification of risky substance use while addressing the underlying psychosocial stressors that often drive dependence, thereby encouraging treatment adherence through a harm reduction and non-stigmatizing model¹⁹. Given the high prevalence of comorbidities identified in this sample—notably syphilis (28.1%), hypertension (21.9%), and urinary tract infections (21.9%)—the involvement of a multidisciplinary team comprising obstetricians, mental health specialists, and social workers may be beneficial in managing these overlapping clinical risks.

Furthermore, establishing a specialized clinical flow that prioritizes these women for infectious disease screening and intensive fetal growth monitoring could serve as a strategic path to address the observed rates of prematurity (19.6%) and low birth weight (12.2%), fostering a coordinated safety net for the mother-infant dyad¹⁹.

Regarding the variables age group, occupation, area of occurrence, and skin color, it was observed that the percentage of pregnant women under 30 years of age who reported using illicit substances totaled 78.8%, with 25% before the pandemic and 53.8% during the pandemic, a difference of 28.8%. These findings are consistent with Young-Wolff et al.²⁰, who pointed out that younger pregnant women, younger than 30 years, have a higher prevalence of drug use, and factors such as ethnicity, occupation and area of occurrence showed insignificant differences.

This study demonstrates that drug use among pregnant women is a concern, with confirmation of the use of tobacco, alcohol, marijuana, and cocaine (Tabela 2). Tobacco and alcohol were the most commonly used legal drugs among pregnant women, at 69.3% and 43.1%, respectively. Regarding illicit drugs, marijuana was the most frequently used by pregnant women (40.8%). There were reports of simultaneous use of one or more drugs, polydrug use; in this study, the following were reported: use of alcohol and cigarettes; cigarettes and marijuana; alcohol, cigarettes, and marijuana; alcohol, cigarettes, marijuana, and cocaine; marijuana, cocaine, and cigarettes; and marijuana and cocaine. However, in this present study, the main form of polydrug use was the combination of alcohol and tobacco (21%; n=19). These results are consistent with previous literature highlighting the high prevalence of substance co-exposure. For instance, Pavesi et al. (2023)²¹ observed that the consumption of alcohol and tobacco is a frequent reality among mothers attended by the Unified Health System (SUS), often leading to adverse perinatal outcomes. Although our study identified a broader spectrum of polydrug use—including combinations of cannabis and cocaine—the predominance of the alcohol-tobacco dyad aligns with national trends where these legal substances serve as the primary contributors to chemical exposure during the gestational period²¹.

The deleterious effect, therefore, is cumulative and each drug has peculiarities regarding the impact on the newborn of drug-dependent mothers. The effect of tobacco (nicotine) is associated with negative pregnancy outcomes such as miscarriage, ectopic pregnancy, premature rupture of membranes, placental abruption, placenta previa, intrauterine growth restriction, premature birth, low birth weight, stillbirth, and perinatal death. Tobacco also

affects the neurological and neurobehavioral system. In addition, it can cause childhood obesity, hypertension, diabetes, and respiratory complications²². Wells et al.²² demonstrated that the health impacts of children exposed to nicotine are multiple and irreversible, reflecting poor school and behavioral performance.

In the present study, important percentages of prematurity, low birth weight, and prolonged hospitalization of the newborn were identified. In fact, with regard to the gestational process itself, tobacco consumption (nicotine) increases the probability of low birth weight, size incompatible with gestational age, premature birth, stillbirth, and admission to intensive care units. Its use contributes to serious fetal outcomes such as anencephaly, microcephaly, learning and cognitive disorders (especially problems executing commands), depression, and aggression. Pregnancy-related outcomes include intrauterine growth restriction, oligohydramnios, low birth weight, preeclampsia, premature rupture of membranes, preterm delivery, postpartum hemorrhage, and stillbirth. Associated maternal outcomes are: higher rate of maternal death and hospitalizations²².

In the present research, alcohol consumption by pregnant women was also identified in 43.1% of the participants. It is estimated that about 10% of all pregnant women in the world consume alcohol during pregnancy, and one in 67 of these gives birth to a newborn with Fetal Alcohol Syndrome⁹. A recent literature review reinforces the impact of alcohol on the health of newborns and throughout their lives. Different fetal alcohol disorders were identified, including loss of microglia which can lead to cognitive deficits, low birth weight, and other neurological alterations²³.

Investigations corroborate the findings of this study regarding the use of marijuana by pregnant women and reaffirm its implications regarding low birth weight, size incompatible with gestational age, premature birth, stillbirth, and admission to intensive care units²⁴, severe fetal outcomes such as anencephaly, microcephaly, learning and cognitive disorders (especially problems executing commands), depression and aggression²⁵. The study by Sainz et al.²⁶ suggests discontinuing use during the gestational period for better health conditions.

Cocaine was also consumed by pregnant women in the present study. Although it is not the objective of this article to discuss the implications of drug abuse during pregnancy, it is relevant to discuss the topic. The repercussions of this practice include many teratogenic effects, including malformations of the heart, central nervous system, gastrointestinal tract, and limbs. Other long-term impacts include behavioral, language, and cognitive impairments²⁷.

Outcomes that directly involve pregnancy with cocaine use include premature birth, premature rupture of membranes, preeclampsia, placental infarction, premature birth, low birth weight and incompatibility with gestational age, and intrauterine death²⁸⁻²⁹.

Regarding the concomitant use of drugs of abuse among dependent pregnant women, this study was in line with the research carried out by Sainz²⁶, since, although in the American territory there has been a reduction in the consumption of substances such as tobacco compared to data from previous years, consumption of multiple drugs of abuse by populations at risk, especially pregnant women, remains unchanged. The main reported combination drugs were alcohol and tobacco, and tobacco and marijuana³⁰. In contrast, the study by Lipsett³¹ talks about chemical dependence and limited access to health services, as contributing factors for the inclusion of this population in a continuous use of multiple drugs and increased exposure to toxic agents. Lipsett³¹ points out that their studies even extrapolates the pregnant-newborn binomial and includes the consumption of multiple substances by the partner within a family microsphere as a possible contributing factor to these results.

A relevant discussion is about the association of intrinsic stressors to the COVID-19 pandemic, such as difficulty in accessing health and social well-being, leading to an increase in the consumption of licit and illicit substances, reinforcing the need for public practices that reduce this deficit in attention and care for this significant portion of the population³². It is necessary to invest in practices and interventions that optimize the treatment of stress and depression generated during the pandemic period, especially among puerperal women³³.

The study by Jones et al.³⁴ correlates the barriers faced by people with drug addiction to specialized health services during the COVID-19 pandemic and the importance of rapid interventions. Thus, these authors emphasize the importance of creating hybrid strategies, integrating physical interventions and online formats, which aim to provide these populations at risk with access to health services in times of high stress and acute withdrawal symptoms as a way of reducing from the high volume of demand to face-to-face services to more appropriate management of these patients.

The COVID-19 pandemic represents a period in which stressors associated with the clinical outcomes of the disease, combined with environmental factors, such as the impairment of family well-being and the scarcity of specialized health resources, together represented a major impact on the health of a significant portion of the global population. These different mechanisms have a distinct impact on members of the population and, together with chemical

dependency, have become an additional source of anxiety, depressive symptoms, and social isolation³⁵. These elements are commonly significantly associated with greater consumption of licit and illicit substances, such as alcohol and marijuana¹⁵.

Regarding comorbidities, these findings are consistent with previous data because, although no significant association was found between drug abuse and comorbidities, some participants presented comorbidities. Indeed, substance abuse is closely correlated with the existence of other comorbidities, such as psychiatric disorders related to depression, generalized anxiety disorders, and post-traumatic stress disorder¹⁹. Furthermore, a prior history of trauma and negative experiences in the past is commonly associated in this population, reinforcing the need for a multidisciplinary approach³⁶. It is worth highlighting that the prevalence of substance abuse has been elevated in recent research, also showing an association with social issues and gestational morbidities, indicating that possible conditions in these patients are investigated and that screenings are carried out rigorously to avoid deleterious repercussions on puerperal management and postnatal care for newborn⁴.

Analyzing the anthropometric results related to newborn of mothers dependent on drugs of abuse, they were consonant with those previously described in the previous data. For example, discusses the finding of low birth weight as a direct correlation between exposure to the use of licit and illicit substances during pregnancy and subsequent difficulty in weight gain in the postnatal period. This study also suggests the intersection between mothers with high consumption of substances with more nutritionally deficient diets that contributed to low birth weight in addition to the effect of teratogens themselves⁸. Serwatka *et al.*³⁷ delimit the higher incidence of low birth weight associated with the consumption of substances during the gestational period as a direct effect of certain drugs such as cocaine, which generates growth restriction and which culminates in newborn who fail to achieve developmental milestones and goals towards attaining adequate weight gain. Although no significant association was found between drug abuse and comorbidities, some of the participants had comorbidities.

Finally, the result regarding neonatal outcomes, which found that 24.5% remained hospitalized, corroborated the studies analyzed, such as that conducted by Gibbons³⁸, which discusses the continuous cycle of socioeconomic vulnerability and the severity of these cases, culminating in longer hospital stays. The author associates teenage pregnancy and the high rate of substance abuse with the insertion of most of these pregnant women into situations of greater social vulnerability and the abandonment of studies during this period of life, contributing to

participation in socioeconomic activities with lower remuneration compared to society in general. These findings reflect the data obtained in the sample, avoiding generalizations.

The work carried out by Lipsett³¹ addresses the continuous lack of availability of resources both in the educational areas and access to health services for these people, which contributes to neglect of care for newborn and these families in general. And, consequently, there is less adherence to, and damage to the therapeutic plan.

The present investigation has limitations that should be acknowledged. Firstly, as the study relied on secondary data extracted from medical records, it is susceptible to information bias and underreporting of substance use. The absence of standardized clinical protocols and diagnostic instruments in the documented services often resulted in superficial notes, potentially underestimating the actual prevalence of dependence. These challenges were likely exacerbated by the restrictions of the COVID-19 pandemic, which impacted healthcare dynamics and data consistency.

Secondly, the small sample size, restricted to a single health center, reduces statistical power and limits the generalizability of the results. This limitation is inherent to the challenges of accessing comprehensive records for pregnant women dependent on drugs, a highly vulnerable population often characterized by socioeconomic instability, inconsistent prenatal care, and the stigma associated with substance use. Fear of legal or social repercussions frequently leads to the omission of use, further reducing the number of documented cases. Furthermore, the cross-sectional design does not allow for inferences of causality or the tracking of individual behavioral changes over time.

Despite these limitations, this study provides significant insights into a vulnerable population. By detailing the clinical profile and comorbidities of pregnant women who use psychoactive substances, these findings offer a valuable evidence-based foundation for the development of targeted maternal and child health policies. The results of this study are relevant for reflections on clinical practice in women's and children's health care, in particular, bringing indicators for the improvement of care protocols. In fact, given the phenomenon of drug addiction in pregnant women, there is a need for early interventions, in order to avoid catastrophic consequences in the growth and development of these children, as highlighted by study on the vulnerability of this population within prenatal care services³⁹.

CONCLUSION

The present investigation did not identify a statistically significant difference in the epidemiological and clinical profile of drug-dependent pregnant women and their newborn, before and during the COVID-19 pandemic. However, it showed a high percentage of drug-dependent pregnant women, especially those under 30 years of age, single, and living in urban areas. Tobacco and alcohol were the drugs most used by the participants. The findings indicate the presence of comorbidities among these women, such as syphilis and hypertensive disorders, as well as adverse neonatal outcomes, including preterm birth and low birth weight.

Identifying and delineating the profile of pregnant women dependent on drugs of abuse and their newborn is of paramount importance, since there is a lack of knowledge about this area, in addition to great underreporting and underestimation of this population and the implications for the newborn. The evaluation and description of these patients in a reference hospital allow us to glimpse and identify their main singularities in these cases. Understanding about this niche will offer support for further prevention and health promotion actions in this group of great social vulnerability.

Based on these findings, it is proposed that health services strengthen the integration between mental health and obstetric care through a multidisciplinary approach. The high prevalence of clinical comorbidities and adverse neonatal outcomes suggests that public health policies should prioritize intensified prenatal monitoring for this group, ensuring early screening for infectious diseases and specialized nutritional support. Furthermore, it is essential to promote continuous education for healthcare professionals to improve the quality of clinical records and reduce the stigma surrounding substance use in pregnancy, thereby facilitating the creation of a safer and more effective care network for the mother-infant dyad.

Therefore, these results reinforce the need for targeted public health strategies to support pregnant women with substance dependence and mitigate the associated risks for maternal and neonatal health, with particular emphasis on prenatal care.

Acknowledgements

The authors would like to thank the Federal University of São João del-Rei, Campus Centro-Oeste Dona Lindu for support. This work was carried out with the support of the Research Support Foundation of the State of Minas Gerais (*Fundação de Amparo à Pesquisa do Estado de Minas Gerais - FAPEMIG*) and the Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES*) – Brazil – Financing Code 001.

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Submitted: March 5, 2025

Accepted: March 16, 2026

Published: July 16, 2026

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All authors approved the final version of the manuscript.	
Conflict of Interest:	There is no conflict of interest.
Funding:	This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001 and Research Support Foundation of the State of Minas Gerais (Fundação de Amparo à Pesquisa do Estado de Minas Gerais - FAPEMIG).

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Editor: Matias Nunes Frizzo. PhD

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