

## Drug-using nursing mothers and breastfeeding outcome: a cohort study\*

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**Objective:** to identify the breastfeeding outcome for mothers that use licit and illicit drugs, to verify the severity of their dependence and to relate this to the breastfeeding duration.

**Method:** cohort study with 108 women. The Alcohol Smoking and Substance Involvement Screening Test was used to establish drug dependence. Breastfeeding maintenance was assessed on the 7<sup>th</sup>, 15<sup>th</sup> and 30<sup>th</sup> days of life. To assess the breastfeeding continuity, Kaplan-Meier and Cox survival analysis was used. **Results:** 42.6% of the mothers presented an score indicative of abuse for marijuana and 37.0% for cocaine. The mean length of breastfeeding was 28.8 days. The abuse of tobacco and alcohol represented, respectively, 6.6 and 11.0 times more risk of discontinuing the breastfeeding.

It was not possible to establish this relationship in relation to marijuana and cocaine. **Conclusion:** the mothers that used drugs practiced exclusive breastfeeding, even those that used marijuana and cocaine in an abusive way. Drug use, even if legal, represents a risk for early weaning.

**Descriptors:** Breast Feeding; Street Drugs; Maternal-Child Nursing; Nursing Care; Drug Users.

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## Nutrizes usuárias de drogas e o desfecho da amamentação: estudo de coorte

**Objetivo:** conhecer o desfecho do aleitamento materno de mães usuárias de drogas lícitas e ilícitas, verificar a gravidade da dependência e relacionar com o tempo de aleitamento. **Método:** estudo de coorte com 108 mulheres. Utilizou-se o *Alcohol Smoking and Substance Involvement Screening Test* (ASSIST) para estabelecer a dependência a drogas. A manutenção da amamentação foi avaliada no 7º, 15º e 30º dias de nascimento. Para avaliar a continuidade do aleitamento materno, utilizou-se análise de sobrevivência de Kaplan-Meier e de Cox. **Resultados:** a maconha teve escore de uso abusivo para 42,6% das mães e a cocaína para 37%. A média de aleitamento foi de 28,8 dias. O uso abusivo de tabaco e álcool representou, respectivamente, 6,6 e 11 vezes mais risco de descontinuar a amamentação. Não foi possível estabelecer a mesma relação para maconha e cocaína. **Conclusão:** as mães usuárias de drogas praticaram o aleitamento exclusivo, mesmo aquelas que consomem maconha e cocaína de modo abusivo. O consumo de drogas, mesmo lícitas, representa um risco para o desmame precoce.

**Descritores:** Aleitamento Materno; Drogas Ilícitas; Enfermagem Materno-Infantil; Cuidados de Enfermagem; Usuários de Drogas.

## Nutrices consumidoras de drogas y resultado de la lactancia materna: un estudio de cohorte

**Objetivo:** conocer el resultado de la lactancia materna para las madres que consumen drogas lícitas e ilícitas, verificar la gravedad de la dependencia y relacionarla con la duración de la lactancia materna. **Métodos:** estudio de cohorte con 108 mujeres. Se utilizó el *Alcohol Smoking and Substance Involvement Screening Test* para establecer la adicción a las drogas. El mantenimiento de la lactancia materna se evaluó a los 7, 15 y 30 días de vida. Para evaluar la continuidad de la lactancia materna se utilizó el análisis de supervivencia de Kaplan-Meier y Cox. **Resultados:** la marihuana tuvo una puntuación de uso abusivo para el 42,6% de las madres y la cocaína el 37%. El promedio de lactancia fue de 28,8 días. El consumo abusivo de tabaco y alcohol representaba, respectivamente, 6,6 y 11 veces más riesgo de interrumpir la lactancia materna. No fue posible establecer la misma relación para la marihuana y la cocaína. **Conclusión:** las madres que consumen drogas han practicado la lactancia materna exclusiva, incluso las que abusan de la marihuana y la cocaína. El consumo de drogas, incluso las lícitas, representa un riesgo para el destete precoz.

**Descriptorios:** Lactancia Materna; Drogas Ilícitas; Enfermería Materno-infantil; Atención de Enfermería; Consumidores de Drogas.

## Introduction

Exclusive breastfeeding (EBF) is recommended from birth to the 6<sup>th</sup> month of life, as it is considered adequate nutrition for the healthy growth of the child and reduces infant morbidity and mortality<sup>(1)</sup>. Breastfeeding (BF), especially exclusive breastfeeding, is fundamental for the reduction of infant morbidity and mortality rates, which is one of the reasons why it has been stimulated, supported and promoted by national and international institutions. However, there is no consensus among the literature regarding the indication BF for children of mothers that use illicit drugs. There is a lack of uniformity in the opinion of experts and no consensus on this matter<sup>(2-3)</sup>. The divergence of opinions, including those of public entities responsible for health guidelines and standards, makes it difficult for healthcare providers that face multiple challenges in guiding these mothers<sup>(3-4)</sup>.

The *Ministério da Saúde* (MS - Ministry of Health) emphasizes in its guidelines on breastfeeding the divergence of opinion between the American Society of Pediatrics that contraindicates the use of psychoactive substances in lactation and the position of the World Health Organization (WHO) that does not consider breastfeeding contraindicated and recommends that nursing mothers do not use these substances<sup>(5)</sup>. The *Sociedade Brasileira de Pediatria* (Brazilian Society of Pediatrics), in turn, is not in favor of mothers that use drugs breastfeeding their children. It advises that mothers that consume drugs should occasionally stop breastfeeding for a period that varies according to the drug consumed<sup>(6)</sup>. However, mothers that use drugs, even those that have a desire to breastfeed, have no control over themselves to avoid the consumption of these substances, or even manage the desirable time interval between consumption and breastfeeding, which would put infants at risk. This reality and the lack of quality services to support mothers that use drugs hinder the decision of the healthcare provider to offer guidance on breastfeeding<sup>(6)</sup>.

One study highlighted that there is a lot of confusion in the scientific community on this topic and that there are cases of clinical effects of toxicity in children breastfed by dependent mothers, however, there are few studies that confirm the real risks for the child<sup>(7)</sup>. Furthermore, no publications were found that evidence the outcome of breastfeeding by mothers that use drugs, which justifies the questions in this study: do mothers that use legal and illegal drugs breastfeed their children? Is there a relationship between the degree of drug dependence and the duration of breastfeeding?

The aims of this study were: to identify the outcome of breastfeeding for mothers that use licit and illicit drugs, to verify the severity of dependence and to relate it to the duration of breastfeeding.

## Method

This cohort study was carried out in a medium-sized hospital, located in the eastern sector of the city of São Paulo, which is part of the Brazilian Nation Health System and caters for mothers that use drugs. The data were collected by the researcher in the second half of 2015. Participants of this study were 108 puerperal women. The sample size was calculated using the STATS Program, considering the monthly mean number of deliveries (296), an error of 5% and a confidence level of 95%. The 108 women participants met the following inclusion criteria: confirmation that they were illicit drug users; being in the puerperium (24 to 48 hours postpartum); being able to respond to the questionnaires; breastfeeding at discharge; and agreeing to participate in the study for 30 days after the baby was born.

Three instruments were used for the data collection: one for the sociodemographic, obstetric and lifestyle habits of women, which encompassed the variables: marital status, age, education, ethnicity, religion, engagement in paid activity, pregnancies, births, abortions, number of pre-natal consultations and alcohol and tobacco use.

The second instrument was the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). This test was developed by several researchers, under the coordination of the World Health Organization (WHO) and aims to detect the use of alcohol, tobacco and other psychoactive substances. The instrument has been translated into several languages, including Brazilian Portuguese, and tested for its reliability and ease of application<sup>(8)</sup>. The psychometric properties of the Brazilian version of the ASSIST proved satisfactory, with its application recommended for patients of primary and secondary care services. The instrument is structured around eight questions about the use of nine classes of psychoactive substances (tobacco, alcohol, marijuana, cocaine, stimulants, sedatives, inhalants, hallucinogens and opioids). Each answer corresponds to a score, which varies from 0 to 4, and the total sum of the scores can vary from 0 to 20. According to the score obtained, the user receives a risk rating, from 0 to 3 indicating occasional use, from 4 to 15 abuse and a score above 16 being suggestive of dependence<sup>(8)</sup>.

The third instrument was applied only at meetings to monitor the practice of breastfeeding by the mothers (7<sup>th</sup>, 15<sup>th</sup> and 30<sup>th</sup> days) and consisted of the variables: type of breastfeeding practiced and use of drugs in the breastfeeding period, with a space for observations of the researcher.

The data were collected in two stages. In the first, the mothers were approached in the puerperium, interviewed individually in a private place and the sample characterization instruments and ASSIST applied. The second stage was the monitoring that took place on the 7<sup>th</sup>, 15<sup>th</sup> and 30<sup>th</sup> days after delivery, the mothers were interviewed on the

return consultations scheduled for these periods, at the institution's breastfeeding clinic, when they were asked about the use of illicit drugs and the type of breastfeeding practiced up to that moment. In addition, there was a space for the researcher's notes on their observations. Kaplan-Meier and Cox survival analysis models were used to assess breastfeeding continuity (semi-parametric model). For all statistical tests, a significance level of 5% ( $p < .05$ ) was adopted. Statistical analyses were performed using the SPSS 20.0 and Stata 12 programs. The ethical principles for research involving human subjects of Resolution 466/12 of the National Health Council in Brazil were followed. The study was approved under Authorization No. 665.183.

## Results

The sociodemographic profile of the mothers presented a mean age of 23.7 years ( $SD$  6.0), with a predominant age group between 20 and 29 years (62%). The majority were with a partner (51.9%), white (52.9%) and without paid activity (75.9%). They presented low levels of education with predominance of incomplete elementary education (33.3%) and 41.7% professed the Catholic religion. Obstetric data showed that 67.6% had never had an abortion, 87.0% performed prenatal care and 42.6% were primiparous. Of those that performed prenatal care, 94 (64.9%) attended five or more consultations. However, 13.0% did not attend any consultations. Regarding life habits, the majority of the women were smokers (58.3%) and did not consider themselves alcoholics (57.4%).

The risk classification of the mothers, carried out in the puerperium for the use of legal and illegal drugs through the application of the ASSIST, is shown in Table 1.

Table 1 - Distribution of the number and percentage of mothers, according to the categories of the ASSIST\* score for the use of legal and illegal substances, Guarulhos, SP, Brazil, 2015 ( $n=108$ )

| Variable      | Category (score)                 | n   | (%)  |
|---------------|----------------------------------|-----|------|
| Tobacco       | Occasional use (0 to 3)          | 98  | 90.7 |
|               | Abuse suggestion (4 to 15)       | 10  | 9.3  |
|               | Occasional use (0 to 3)          | 101 | 93.5 |
| Alcohol       | Abuse suggestion (4 to 15)       | 06  | 5.6  |
|               | Dependency suggestion (16 to 20) | 01  | 0.9  |
| Marijuana     | Occasional use (0 to 3)          | 61  | 56.5 |
|               | Abuse suggestion (4 to 15)       | 46  | 42.6 |
|               | Dependency suggestion (16 to 20) | 01  | 0.9  |
| Cocaine       | Occasional use (0 to 3)          | 63  | 58.4 |
|               | Abuse suggestion (4 to 15)       | 40  | 37.0 |
|               | Dependency suggestion (16 to 20) | 05  | 4.6  |
| Amphetamines  | Occasional use (0 to 3)          | 108 | 100  |
|               | Occasional use (0 to 3)          | 107 | 99.1 |
| Inhalants     | Abuse suggestion (4 to 15)       | 01  | 0.9  |
|               | Occasional use (0 to 3)          | 107 | 99.1 |
| Sedatives     | Occasional use (0 to 3)          | 107 | 99.1 |
|               | Abuse suggestion (4 to 15)       | 01  | 0.9  |
| Hallucinogens | Occasional use (0 to 3)          | 108 | 100  |
| Opiates       | Occasional use (0 to 3)          | 108 | 100  |
| Total         |                                  | 108 | 100  |

\*ASSIST = Alcohol, Smoking and Substance Involvement Screening Test

It was evident that the majority of the mothers had scores compatible with occasional use for all the types of drugs analyzed. Scores suggestive of abuse were identified with higher percentages for marijuana ( $n=46$ ; 42.6%) and cocaine ( $n=40$ ; 37.0%).

Regarding breastfeeding, of the 108 mothers that composed the sample, 86 (79.6%) attended the return visit on the 7<sup>th</sup> day, 75 (69.4%) on the 15<sup>th</sup> day and 57 (52.7%) on the 30<sup>th</sup> day. The mean duration of exclusive breastfeeding was 28.8 days (95%CI=[27.8; 29.9]). At the time of hospital discharge, the 108 mothers (100%) that participated in the study were exclusively breastfeeding. At the first return consultation, 22 mothers did not attend the consultation, equating to a loss of 20.4%. Of those that returned, 55 (64.0%) were EBF. The majority of the mothers that returned on the 15<sup>th</sup> and 30<sup>th</sup> day had continued EBF (57.3% and 52.7%, respectively). However, the loss increased with the continuity of the monitoring (30.6% on the 15<sup>th</sup> day and 47.3% on the 30<sup>th</sup> day). Of the mothers that were monitored until the 30<sup>th</sup> day (57), there were nine cases of discontinuity of breastfeeding (15.8%). All the mothers that discontinued breastfeeding, in all periods analyzed, used tobacco, alcohol, marijuana and cocaine (Table 2).

Table 2 - Results of the multivariate Cox regression model, Guarulhos, SP, Brazil, 2015 ( $n=108$ )

| ASSIST*                          | Risk Ratio (95%CI)†  | P value |
|----------------------------------|----------------------|---------|
| Tobacco                          |                      |         |
| Does not use (reference)         | 1.00                 | -       |
| Occasional use (1 to 3)          | 0.00‡                | 0.99    |
| Abuse suggestion (4 to 15)       | 6.64 (1.59 - 27.83)  | 0.01    |
| Alcohol                          |                      |         |
| Does not use (reference)         | 1.00                 | -       |
| Occasional use (1 to 3)          | 0.00‡                | 0.99    |
| Abuse suggestion (4 to 15)       | 0.00‡                | 0.99    |
| Dependency suggestion (16 to 22) | 11.01 (1.28 - 94.68) | 0.02    |

\*ASSIST = Alcohol, Smoking and Substance Involvement Screening Test; †95%CI = 95% Confidence Interval; ‡It was not possible to estimate the 95% confidence interval due to lack of accuracy

The Cox regression model presented (Table 2) has the ASSIST classifications for tobacco and alcohol of the mothers that attended the consultations as the predictor variables (significant at 10% in the univariate analysis). In the Cox model, the survival function is expressed as a function of risk (hazard function) and the model is interpreted as a ratio of the risk functions. The ASSIST classification for tobacco - suggestive of abuse ( $p=0.01$ ) and alcohol - suggestive of dependence ( $p=0.02$ ) remained significant in the final model (Table 2). It was found that the mothers with a suggestion of abusive use of tobacco presented 6.6 times more risk of discontinuing breastfeeding than those that did not use tobacco, and the mothers with a suggestion of

alcohol dependence presented 11.0 times more risk of discontinuing breastfeeding than those that did not use alcohol. It was not possible to establish the risk for marijuana and cocaine in the analyzed periods, as there was no discontinuity of breastfeeding.

## Discussion

No studies related to drug use and its relationship with the continuation of breastfeeding were found, which makes comparisons with the research data in question difficult. The majority of the women (87.0%) performed prenatal care, which represents an opportunity to detect drug use, provide guidance and refer the user to a support service, when necessary. The healthcare providers that offer care to women in the postpartum period need to be alert to signs of their involvement with psychoactive drugs, to ensure adequate intervention. The American College of Gynecology and Obstetrics recommends that all women be screened for the use of illicit drugs, alcohol and tobacco during prenatal care<sup>(9)</sup>. However, not all healthcare providers know the instruments for detecting illicit drugs or are qualified to carry out interventions with this type of clientele, which would require preparation for interventions, even brief ones<sup>(10-11)</sup>.

In this study, according to the ASSIST result, marijuana and cocaine were the drugs identified with consumption suggestive of abuse. A qualitative study carried out with puerperal drug users also identified that marijuana, and cocaine/crack were the most used illicit drugs and that the women had difficulty with abstinence during the pregnancy<sup>(12)</sup>, which would probably continue to occur during the period of breastfeeding.

In the current study, during the monitoring period, it was observed that all the mothers that discontinued breastfeeding in all periods analyzed were using tobacco, alcohol, marijuana and cocaine. Regarding tobacco and alcohol, the majority of the mothers consumed them. For some healthcare providers this consumption is not considered relevant and importance is not given to advising the women about their risks during the lactation period. However, in this study, the mothers with use of tobacco suggestive of abuse were 6.6 times more at risk of discontinuing breastfeeding and mothers with use of alcohol suggestive of dependence increased this risk to 11.0 times.

A study that analyzed the causes of early weaning identified an association between alcohol consumption during pregnancy and the discontinuation of breastfeeding<sup>(13)</sup>. Another study of 157 lactating women identified that 12.0% used alcohol, however, all were considered to be at low risk for disorders caused by the consumption. Although the authors consider this percentage to be low, the infants were exposed to risk with their mothers habit<sup>(14)</sup>.

The Brazilian Society of Pediatrics, in its classification of substance use risk during lactation, considers nicotine as possibly compatible with lactation, alcohol as possibly dangerous and other drugs such as marijuana, cocaine, crack and methamphetamines as dangerous, however, explicitly recommends that mothers that regularly make abusive use of drugs should not breastfeed their children. For occasional users, it suggests the suspension of breastfeeding for a variable time according to the drug consumed<sup>(6)</sup>.

It is essential that the healthcare providers that accompany women during the puerperal period are sure of the guidelines and recommendations of the health agencies regarding breastfeeding and the consumption of legal and illegal substances in order to guarantee resolute care. The monitoring of the breastfeeding continuity of the mothers that composed the sample identified a mean length of exclusive breastfeeding of 28.8 days. Considering that the follow-up took place up to the 30<sup>th</sup> day, this is an important result considering that the national survey on BF of children aged 0 to 6 months identified a median of 54.1 days of EBF<sup>(15)</sup>. The ideal way to assess the outcome of EBF would be to continue monitoring until the child's 6<sup>th</sup> month. On the other hand, it was noticed, during the follow-up consultations, that the mothers were withdrawn and that they reported feeling that the healthcare providers treated them differently to other mothers, which perhaps justified the losses in the continuity of the monitoring. This feeling was highlighted in a study that found that people that use drugs are often discriminated against<sup>(16)</sup>.

Considering that mothers that regularly use drugs breastfeed their children, as shown in the study, it is necessary to consider the importance of guaranteeing support for these women in protecting their health and that of their babies. However, the low quality of services to users in health care in our environment, does not guarantee the abstinence necessary to maintain breastfeeding<sup>(6)</sup>.

The results of the present study do not make it possible to associate the duration of the maintenance of BF with the use of marijuana and cocaine, however, it demonstrates the chances of mothers giving up breastfeeding their children when they consume tobacco or alcohol. Therefore, based on these data and the literature<sup>(17)</sup>, it can be inferred that mothers with drug addiction continue BF for less time. A study carried out in Australia, which analyzed results of children exposed to amphetamine during pregnancy, found that mothers that used drugs were significantly less disposed to breastfeeding than those that did not use drugs (27.0% and 41.6%, respectively)<sup>(17)</sup>.

Some publications<sup>(4,7,18)</sup> claim that there is insufficient evidence regarding the detection of cocaine

and marijuana in breast milk to safely recommend the withdrawal of BF, although there is evidence that, even in a small percentage, breast milk may contain the drug consumed by the mother, therefore exposing the child to these substances<sup>(7,16,18)</sup>. A review study on mothers that consumed crack/cocaine found that breastfeeding and the care of newborns of nursing mothers dependent on these drugs are aspects that must be approached with great care. The article also highlighted that the *Hospital de Clínicas de Porto Alegre* does not recommend BF for these mothers<sup>(19)</sup>. This guidance differs from that provided in the hospital where the present study was carried out, which did not have this prohibition in its protocol, that is, the mothers, even when consuming drugs, were encouraged to breastfeed, oriented about the risks and referred to the chemical dependents monitoring service. These mothers were also instructed to return to the breastfeeding clinic, however, there was no special care directed toward them, due to their condition, nor control over the continuity of drug use, BF and treatment adherence.

Among the limitations of this study, the limited number of mothers that continued to attend return consultations until the end (52.8%) stands out, which greatly reduced the sample for the proposed monitoring. This clientele, in general, has difficulty to continue attending health activities.

## Conclusion

The mothers that used licit or illicit drugs breastfed their children and the majority of them that attended the follow-up consultations after the delivery continued EBF. The ASSIST test showed scores compatible with occasional use for all the drugs analyzed in the majority of the women and suggestive of abusive use of marijuana and cocaine. The use of tobacco and alcohol were risk factors for early weaning. It was not possible to establish this relationship for marijuana and cocaine, due to the length of time monitoring the women.

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## Author's Contribution

Study concept and design: Silmara Fatima Teixeira Ribeiro, Rosa Aurea Quintella Fernandes. Obtaining data: Silmara Fatima Teixeira Ribeiro. Data analysis and interpretation: Silmara Fatima Teixeira Ribeiro and Rosa Aurea Quintella Fernandes. Statistical analysis: Rosa Aurea Quintella Fernandes. Drafting the manuscript: Silmara Fatima Teixeira Ribeiro, Rosa Aurea Quintella Fernandes. Critical review of the manuscript as to its relevant intellectual content: Rosa Aurea Quintella Fernandes.

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