

Perinatal outcomes in pregnant drug users attended at a specialized center

Marcos Benatti Antunes^{1,2}

Marcela de Oliveira Demitto³

Camila Padovani^{1,4}

Kelye Cristina de Moura Elias⁴

Antonio Carlos Monteiro de Miranda¹

Sandra Marisa Pelloso¹

Objective: to analyze the perinatal repercussions of drug use by pregnant women treated in a high risk outpatient clinic. **Method:** a case-control study in which 920 medical records were evaluated in the period 2012-2013. The case group consisted of pregnant women who used licit/illicit drugs (41) and the control group of non-user pregnant women (82). **Results:** pregnant women using drugs presented increased risk for prematurity (RR = 2.64, p = 0.02), low birth weight (RR = 5.42, p = 0.01) and low one-minute Apgar score (RR = 2.97, p = 0.01). **Conclusion:** the results indicate that pregnant women who use drugs have unfavorable perinatal outcomes during gestation.

Descriptors: Maternal-Child Nursing; Street Drugs; Pregnancy; Pregnancy Complications.

¹ Universidade Estadual de Maringá, Centro de Ciências da Saúde, Maringá, PR, Brazil.

² Prefeitura Municipal de Sarandi, Secretaria Municipal de Saúde, Sarandi, PR, Brazil.


³ Centro Universitário Cesumar, Maringá, PR, Brazil.

⁴ Santa Casa de Maringá, Maringá, PR, Brazil.

Corresponding author:

Marcos Benatti Antunes

E-mail: bena77i@gmail.com

 <https://orcid.org/0000-0002-5139-8827>

Desfecho perinatal em gestantes usuárias de drogas atendidas em um centro especializado

Objetivo: analisar as repercussões perinatais do uso de drogas por gestantes atendidas em um ambulatório de alto risco. **Método:** estudo caso-controle, no qual foram avaliados 920 prontuários, no período de 2012-2013. O grupo caso foi constituído pelas gestantes usuárias de drogas lícitas/ilícitas (41) e o controle por gestantes de risco não usuárias (82). **Resultados:** as gestantes usuárias apresentaram risco aumentado para prematuridade (RR=2,64, p=0,02), baixo peso ao nascer (RR=5,42, p=0,01) e baixo índice de Apgar no 1º minuto (RR=2,97, p=0,01). **Conclusão:** os resultados indicam que gestantes usuárias de drogas apresentam desfechos perinatais desfavoráveis à gestação.

Descritores: Enfermagem Materno-Infantil; Drogas de Abuso; Gravidez; Complicações na Gravidez.

Los resultados perinatales en mujeres embarazadas usuarios de drogas en un centro especializado

Objetivo: analizar los resultados perinatales de consumo de drogas por mujeres embarazadas en una clínica de alto riesgo. **Método:** estudio de casos y controles, que evaluó 920 registros médicos, en 2012-2013. El grupo de casos estaba compuesto de las mujeres embarazadas que drogas lícitas/ilegales (41) y el control del riesgo de las mujeres embarazadas no consumidoras (82). **Resultados:** las mujeres embarazadas que se encontraban en mayor riesgo de parto prematuro (RR = 2,64, p = 0,02), bajo peso al nacer (RR = 5,42, p = 0,01) y la puntuación de Apgar baja a 1 minuto (RR = 2,97, p = 0,01). **Conclusión:** los resultados indican que las mujeres embarazadas que tienen las drogas adversos del embarazo los resultados perinatales.

Descriptores: Enfermería Materno-infantil; Drogas Ilícitas; Embarazo; Complicaciones del Embarazo.

Introduction

The use of licit/illicit drugs has increased and has had far-reaching repercussions worldwide, affecting both men and women ranking among the 20 main causes of health problems cataloged by the World Health Organization (WHO). It is considered a significant problem of vulnerability and public health, reflecting on society through changes in the mental and social health of users⁽¹⁾. Although men have a (three-fold) greater tendency to use drugs compared to women, it has been common to see pregnant women using licit/illicit drugs. This latter observation turns the problem

of drugs even more pronounced, because exposure during pregnancy may compromise the integrity not only of the mother, but also of the fetus⁽²⁻³⁾.

It is estimated that slightly more than 5% of the world's population (246 million people) aged 15-64 years used drugs in 2013, at a rate of one woman for every three male users, totaling 187,100 deaths in both sexes in the same year⁽²⁾. However, there are no global statistical data on the prevalence of pregnant women using drugs and perinatal outcomes.

In the gestational period, the use of licit/illicit drugs is considered a pre-existing clinical condition and, therefore, a risk for the binomial mother/fetus. In

an epidemiological survey described in the High Risk Pregnancy Manual for Technicians of the Ministry of Health (MH), in 108 cities and with more than 200,000 inhabitants, the prevalence of alcohol addicts was 12.3%, of whom 6.9% were women, 12.1% in the age group from 18 to 24 years, and 7.7% from 25 to 34 years. Thus, alcohol use increases during the period of fertility⁽⁴⁾.

In a study conducted in Paraná with 394 women, 18.28% reported using drugs during gestation, and cigarette and alcohol were the most used⁽³⁾. In another study carried out in Acre with 1797 prenatal consultations, 100 (5.56%) pregnant women were found to use drugs; among them, 2.61% used crack cocaine, 2.05% consumed alcoholic beverages, 1.22% smoked marijuana, 1.00% smoked cigarette, and 0.94% used cocaine⁽⁵⁾.

Pregnant women exposed to these substances have higher incidence of clinical and obstetric complications, attend to less prenatal consultations, and have more hospitalizations⁽⁶⁾. Moreover, there is the risk of early placental abruption, anxiety, affective disorders and in some cases even abortion⁽⁷⁾.

In view of this scenario and the problematization raised here about gestation and use of licit/illicit drugs, the objective of this study was to analyze the perinatal repercussions of drug use by pregnant women treated in a high risk outpatient clinic.

Methods

This is an exploratory, retrospective study with a quantitative approach of the case-control type, which had as a data source the medical records and cards of 920 women with pregnancy classified as high risk and treated in the period from 2012 to 2013 in an outpatient clinic in the South of Brazil. Data on perinatal outcomes were obtained through the Childbirth Registry Book of Reference Maternity linked to this outpatient clinic.

The inclusion criteria were: delivery at gestational age greater than 20 weeks; women with pregnancy classified as high risk by the Primary Health Care (PHC); and having given birth at the reference hospital linked to this outpatient clinic.

The pregnant women were divided into two groups, the Case Group and the Control Group. The first group consisted of all the pregnant women enrolled in the outpatient clinic with a pre-existent condition of using licit/illicit drugs and who gave birth in the said maternity ward. The control group included pregnant women who were attended at the high risk outpatient clinic with

any level of risk, except for the pre-existing condition of using licit/illicit drugs, who had given birth in the same maternity, followed up and homogenized according to age of the pregnant women of the Group. In addition, a paired sample, one case for two controls, was used in order to ensure greater comparability between groups.

A pre-determined form was used for data collection. The form was based on the High Risk Pregnancy Manual of the MH⁽⁴⁾, as well as prior knowledge related to the information contained in the medical records. After collection, data were transcribed in a Microsoft Office Excel 2010® spreadsheet.

The analyses were carried out between the Case Group (CAG) of pregnant women users of licit/illicit drugs and the Control Group (COG) of pregnant women non-users of licit/illicit drugs. The study variables were: Low birth weight (LBW) (Newborn weigh < 2,500g); one-minute Apgar score (less than 7); five-minute Apgar score (less than 7); Prematurity (babies born before 37 weeks); Normal Birth and Cesarean Delivery.

Statistical analyses were performed with the aid of the Epi Info software version 3.5.1. The relative risk (RR) in the 95% confidence interval (CI) was compared, and the Chi-square test and the Fisher's exact test were used to test the association between variables at the level of significance $p < 0.05$.

The study respected the Directives and Norms Regulating Research Involving Human Beings of the National Health Council (resolution CNS 466/2012) and was approved according to Opinion nº 681317/2014.

Results

Among the 920 records of pregnant women included in the study, 5.8% (53) presented the use of licit/illicit drugs as a pre-existing condition, which caused them to be referred to the high risk outpatient clinic for follow-up of specialized prenatal care. Of these, 4.5% (41) had the delivery at the reference hospital and were included in the study. The COG was selected from the 920 pregnant women who did not present the risk of drug use, paired by age with the CAG, two women in the COG for every women in the CAG, resulting in 82 (8.9%) women, according to Figure 1.

In both groups, the predominant age group was between 19 and 35 years (68.3%); with regard to race, the prevalence was of white color in the CAG (58.5%) and in the COG (68.3%). Regarding the conjugal situation, the CAG had a predominance of women who did not live with a partner (61.0%), while in COG there was a prevalence of women living with a

partner (62.2%); in terms of schooling, pregnant women attended less than 8 years of schooling in the CAG (56.1%) and COG (57.3%). The results related to the family income showed that the majority of women using licit/illicit drugs (56.1%) did not have any income, while in the COG, the majority (53.7%) had income of one to two minimum wages. The pregnant women had attended to one to three consultations at the specialized clinic in the CAG (56.0%) and COG (47.6%). Regarding the number of pregnancies, including the current one, it

was found that the CAG had a predominance of four to five pregnancies (36.6%) and COG of two to three pregnancies (48.8%) (Table 1).

In the analyses of the groups, women who presented the use of licit/illicit drugs as a pre-existing clinical condition were at increased risk for prematurity (RR = 2.64, $p = 0.02$), low birth weight (RR = 5.42, $p = 0.01$) and low one-minute Apgar score (RR = 2.97, $p = 0.01$) when compared to high-risk pregnant women in the control group (Table 2).

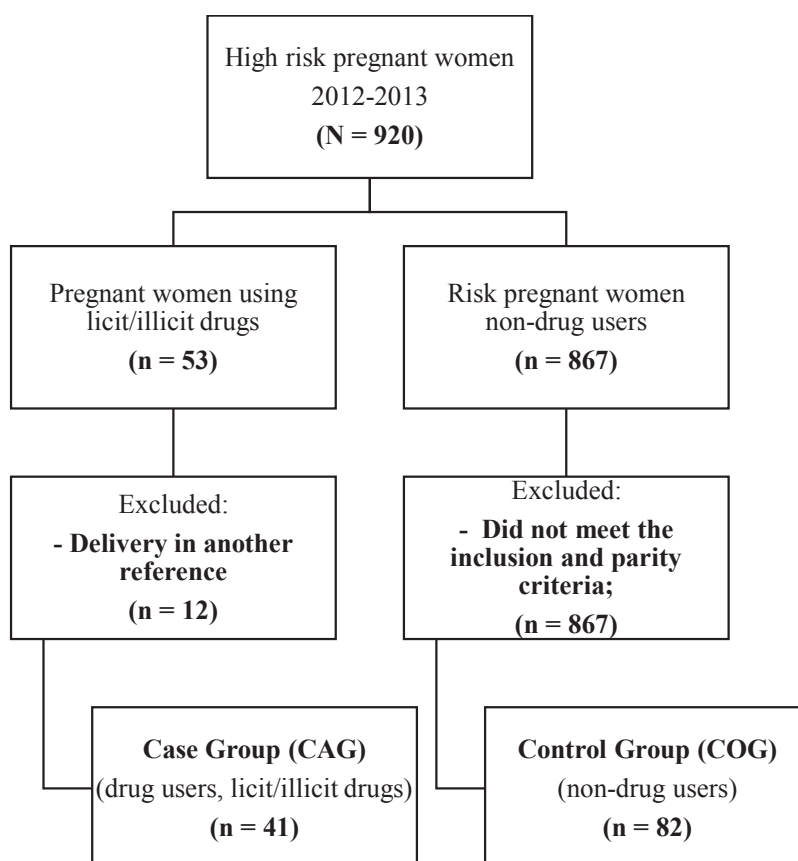


Figure 1 - Composition of the sample

Table 1 - Characteristics of high risk pregnant women in the Case Group (users of licit/illicit drugs and the Control Group (non-drug users) followed-up at the risk outpatient clinic in Maringá, PR, Brazil, 2014

Group	Drug users (licit/illicit) n = 41		Control Group (non-drug users) n = 82	
	n	%	n	%
Age				
10 to 18 years	04	9.7	08	9.7
19 to 35 years	28	68.3	56	68.3
36 years and over	09	22.0	18	22.0

Table 1 continues on next page...

Group	Drug users (licit/illicit) n = 41		Control Group (non-drug users) n = 82	
	n	%	n	%
Variables				
Race/color				
White	24	58.5	56	68.3
Black	02	4.9	02	2.4
Brown	15	36.6	24	29.3
Conjugal situation				
She lives with his partner	16	39.0	51	62.2
She does not live with his partner.	25	61.0	31	37.8
Education				
< 8 years	23	56.1	47	57.3
≥ 8 years	18	43.9	35	42.7
Income (Minimum wage)*				
No income	23	56.1	36	43.9
1 - 2	17	41.4	44	53.7
> 2	01	2.5	02	2.4
Number of consultations†				
1 - 3	23	56.0	39	47.6
4 - 6	09	22.0	33	40.2
≥ 7	09	22.0	10	12.2
Number of pregnancies‡				
1	12	29.3	30	36.6
2 - 3	14	34.1	40	48.8
4 - 5	15	36.6	12	14.6

*Minimum wage: R\$ 788.00; †Specialized prenatal consultations at the High Risk Outpatient Clinic; ‡Includes current gestation

Table 2 - Analysis of the perinatal outcomes of the case and control groups evaluated in the gestational risk outpatient clinic. Maringá, PR, Brazil, 2014

Variables	Groups				RR*	CI† (RR*)	X ²	P	
	Drug users (n = 41)		Control (n = 82)						
	n	%	n	%					
Prematurity (< 37 weeks)	16	43.2	70	24.8	2.64	1.14	6.06	5.40	0.02‡
Low birth weight (< 2500g)	7	17.1	3	3.7	5.42	1.32	22.22	6.58	0.01††
One-minute Apgar score (< 7)	12	29.3	10	12.2	2.97	1.15	7.65	5.42	0.01‡

Table 2 continues on next page...

Variables	Groups				RR*	CI† (RR*)	X ²	P	
	Drug users (n = 41)		Control (n = 82)						
	n	%	n	%					
Five-minute Apgar score (< 7)	4	9.8	3	3.7.1	2.84	0.60	13.37	1.89	0.16
Normal birth	9	22.0	27	32.9	0.57	0.23	1.17	1.36	0.20
Cesarean delivery	32	78.0	55	67.1	1.74	0.73	4.17	1.59	0.20

*Relative risk; †CI- Confidence Index; ‡p significant considering a level of significance of 5%

Discussion

The repercussions resulting from the use of licit/illicit drugs during pregnancy have been highlighted in several studies, however, few presented the perinatal outcomes compared to other vulnerable groups during pregnancy and this is due to the scarcity of services specialized in high risk pregnancies.

In this study, it was possible to compare two groups (Case and Control) of women from a specialized outpatient clinic that offers assistance focused on high risk pregnancy. It is worth noting that the service belongs to secondary health care (SHC). Despite the targeted care, all pregnant women should continue prenatal follow-up in primary health care (PHC), that is, in their Basic Health Units (BHU) of origin, in order not to lose the bond with the staff of their area.

Despite all the follow-up from PHC and SHC, the use of licit/illicit drugs by pregnant women causes lower adherence to services and discontinuation of treatments proposed by the health team. This behavior is most often associated with psychosocial problems or other gestational risks, affecting pregnant women in obstetric interferences and generating unfavorable maternal and perinatal outcomes⁽³⁾.

In this sense, the active search for patients who miss prenatal consultations and the follow-up of multidisciplinary teams are important actions for the reintegration of pregnant women using licit/illicit drugs in the indicated treatments. Moreover, the search favors the health team to provide accurate diagnoses and care with positive perspectives on maternal and perinatal outcomes.

In this study, there was significant statistical data in the analysis of the outcomes prematurity ($p = 0.02$) and low birth weight ($p = 0.01$), corroborating with a meta-analysis of 31 studies published from 1966 to 2009, in which cocaine use during pregnancy was associated with preterm birth odds ratio (OR: 3.38; 95% CI: 2.72-

4.21); low birth weight (OR: 3.66; 95% CI: 2.90-4.63); small-for-gestational-age children (OR: 3.23; 95% CI: 2.43-4.30); lower gestational age at delivery (-1.47 week; 95% CI: -1.97 to -0.98 week); and low birth weight (-492g, 95 % CI: -562 to -421 g)⁽⁸⁾.

Besides cocaine, the use of crack during pregnancy also leads to intrauterine growth retardation, low birth weight, and increased risk of preterm birth⁽⁹⁻¹⁰⁾. In turn, in another study it was observed that the pregnant women who used crack could have complications related to placental abruption, uterine rupture, hepatic rupture, cerebral ischemia, infarction and death. Another illegal drug commonly consumed by pregnant women, with an annual prevalence of use of between 2.6 and 5.0%, is marijuana. Its effect on the newborn (NB) coincided with poor neural tube development and possible anencephaly cases⁽⁶⁾.

However, in a case control study conducted in Piauí, with 168 puerperae, 24 smokers (case) and 144 non-smokers (control), there was no statistically significant difference for gestation time (38.63 ± 0.31 ; 39.08 ± 0.11) and birth weight (3011 ± 1.98 ; 3110 ± 0.55). However, smokers presented lower one-minute and five-minute Apgar scores (1': 7.04 ± 0.19 , 8.25 ± 0.09 ; and 5': 8.83 ± 0.24 , 9.69 ± 0.078 , $p < 0.001$) and greater number of cesarean sections (54.17%)⁽¹¹⁾.

In disagreement with these data, a survey⁽¹²⁾ carried out in Japan on the adverse effects of cigarette use by women and men on perinatal outcomes in deliveries performed between 1997 and 2010 identified low birth weight, small-for-gestational-age children, and smaller cephalic circumference as effects of smoking mothers, while the effects of the smoking fathers were small-for-gestational-age children and smaller cephalic circumference. In the adjusted model, both smoking mothers and fathers showed associations with low birth weight (OR = 1.64; 95% CI: 1.18-2.27).

In addition to the abovementioned drugs, alcohol consumption has increased in the female audience.

Although few effects have been identified during the first hours of life, there is a great concern about the long-term consequences of this combination. In a study carried out in São Paulo with 150 puerperal women, 20.7% were alcohol users according to the T-ACE questionnaire, and a statistically significant association was identified with low fetal growth, with female fetuses apparently more susceptible to the effects of alcohol⁽¹³⁾.

In this sense, it is possible to infer that the use of licit/illicit drugs during the pregnancy represents a toxicological risk to the mother/fetus binomial. The aforementioned studies indicate unfavorable outcomes in gestation, not to mention that the affective attachment between the binomial will potentially be hampered because the RN will depend on the care of the health team. It is worth emphasizing that the only contact of the fetus with the outside since the embryonic phase is the mother, and after birth this contact is vital, because besides the affective bond, drug use may impair breastfeeding due to the behavioral imbalance presented by the mother and/or by the side effects that certain drugs can cause to the newborn.

Conclusion

The results presented herein invigorate the literature regarding the unfavorable outcomes caused by the use of licit/illicit drugs on the NB. This reinforces nursing care and guidelines during prenatal care in the case of usual risk in the primary care and/or specialized outpatient clinics of secondary care. It is important that the professionals know the profile of the pregnant women or the prenatal outpatient clinic in their area as well as the different types of drugs and their effects, providing the necessary support to the women in order to avoid, treat and/or eliminate this risk/addiction from their lives.

The limitation of the present study comes from the fact that it involved secondary data, which depends on the records made by health professionals, and also the size of the sample because they are pregnant women followed-up at an outpatient clinic that provides specific prenatal care for high risk pregnancies.

The results found in this study show that pregnant women who use licit/illicit drugs are susceptible to presenting as unfavorable perinatal outcomes such as prematurity, LBW and low one-minute Apgar score, compromising the vitality of the newborn and of the mother. Therefore, further studies are suggested to investigate the neonatal and infantile consequences resulting from the use of licit/illicit drugs during pregnancy, as well as the follow-up of these children

during breastfeeding, hospitalizations and development up to one year of life.

References

1. World Health Organization (WHO). Global health risks: mortality and burden of disease attributable to selected major risks. Geneva: WHO; 2009. [cited 2016 May 6]. Available from: http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf
2. United Nations Office on Drugs and Crime (UNODC). World drug report 2015. New York, United Nations; 2015. [cited 2016 May 13]. Available from: <https://www.unodc.org/lpo-brazil/pt/frontpage/2015/06/relatorio-mundial-sobre-drogas-de-2015--o-uso-de-drogas-e-estavel--mas-o-acesso-ao-tratamento-da-dependencia-e-do-hiv-ainda-e-baixo.html>
3. Kassada DS, Marcon SS, Pagliarini MA, Rossi RM. Prevalence of drug abuse among pregnant women. *Acta Paul Enferm.* 2013;26(5):467-71. doi: <http://dx.doi.org/10.1590/S0103-21002013000500010>
4. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Ações Programáticas Estratégicas. Gestaç o de alto risco: manual t cnico. 5. ed. Bras lia, DF; 2012. [Acesso 10 mai 2016]. Dispon vel em: http://bvsms.saude.gov.br/bvs/publicacoes/manual_tecnico_gestacao_alto_risco.pdf
5. Maia JA, Pereira LA, Menezes FA. Conseq ncias do uso de drogas durante a gravidez. *Rev Enferm Contempor nea.* 2015;4(2):121-8.
6. Botelha APM, Rocha RC, Melo VH. Uso e depend ncia de coca na/crack na gesta o, parto e puerp rio. *Rev Femina.* 2013;41(1):23-32.
7. Portela GLC, Barros LM, Frota NM, Landim APP, Caetano JA, Farias FLR. Percep o da gestante sobre o consumo de drogas il citas na gesta o. *SMAD, Rev. Eletr nica Sa de Mental  lcool Drog.* 2013;9(2):58-63.
8. Gouin K, Murphy K, Prakesh SS. Effect of cocaine use during pregnancy on low birth weight and preterm birth: systematic review and meta-analyses. *Am J Obstet Gynecol.* 2011; 204(4):340.e1-340.e12.
9. Marques ACPR, Ribeiro M, Laranjeira RR, Andrada NC. Abuso e depend ncia: crack. *Rev Assoc M d Bras.* 2012;58(2):141-53.
10. Alencar JCG, Junior CAA, Matos AMB. "Crack Babies": uma revis o sistem tica dos efeitos em rec m-nascidos e em crian as do uso do crack durante a gesta o. *Rev Pediatria SOPERJ.* 2011;12(1):16-21.
11. Sousa JRPC, Macedo LC, Neto JDVN. Os efeitos do tabagismo sobre a incid ncia de partos pr -termos. *Rev Interdisciplinar.* 2011;4(3):9-13.

12. Inoue S, Naruse H, Yorifuji T, Kato T, Murakoshi T, Doi H, et al. Impacto of maternal and paternal smoking on birth outcomes. *J Public Health. (Oxf)*. 2016; 1-10.
13. Freire TM, Machado JC, Melo EV, Melo DG. Efeitos do consumo de bebida alcoólica sobre o feto. *Rev Bras Ginecol Obstet*. 2005;27(7):376-81. doi: <https://doi.org/10.11606/issn.1806-6976.v9i2p58-63>