Teenage pregnancy: use of drugs in the third trimester and prevalence of psychiatric disorders
Gravidez na adolescência: uso de drogas no terceiro trimestre e prevalência de transtornos psiquiátricos

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Abstract
Objective: To determine the prevalence of psychiatric disorders during pregnancy, the prevalence of cocaine and marijuana use during the third trimester of gestation and the socio-demographic characteristics of a population of low-income teenagers.
Method: One thousand pregnant teenagers were evaluated using the Composite International Diagnostic Interview, and a socio-demographic and socio-economic questionnaire at the obstetric center of a public hospital in São Paulo, Brazil. Hair sample was collected for analysis. Results: Of the 1000 pregnant teenagers interviewed, 53.6% were poor, 90.4% were unemployed, 92.5% were financially dependant and 60.2% dropped out of school. Those using drugs during the third trimester of pregnancy were equal to 6% (marijuana: 4%, cocaine: 1.7%, both: 0.3%). Those having at least one psychiatric disorder equaled 27.6%. The most frequent diagnoses were depression (12.9%), posttraumatic stress disorder (10.0%) and anxiety disorders (5.6%). Discussion: Unstructured families, dropping out of school, unemployment and a low level of professional training are all contributing factors to the maintenance of an unfavorable socio-economic environment in which there is a high prevalence of cocaine and marijuana use during the third trimester of pregnancy and an abnormally high incidence of psychiatric disorders.

Keywords: Pregnancy in adolescence; Substance-related disorders; Mental disorders; Psychosis substance-induced; Perinatal mortality (Public Health)

Resumo
Objetivo: Determinar, em adolescentes de baixa renda, a prevalência de transtornos psiquiátricos durante a gravidez, a prevalência de uso de cocaína e maconha no terceiro trimestre de gestação e descrever suas características sociodemográficas. Método: Mil adolescentes grávidas foram avaliadas por meio do Composite International Diagnostic Interview e de um questionário sociodemográfico e socioeconômico no centro obstétrico de um hospital público de São Paulo. Dessas, foi colhida amostra para análise de fios de cabelo. Resultados: Das mil pacientes entrevistadas, 53,6% têm baixa renda, 60,2% abandonaram a escola, 90,4% estão desempregadas e 92,5% são financeiramente dependentes, 6% usaram drogas durante o terceiro trimestre da gravidez (moca-nha: 4%, cocaína: 1,7%, ambos: 0,3%) e 27,6% tiveram ao menos um transtorno psiquiátrico. Os diagnósticos mais frequentes foram: depressão (12,9%), transtorno de estresse pós-traumático (10,0%) e ansiedade (5,6%). Discussão: Famílias desestruturadas, evasão escolar, desemprego e baixa capacitação profissional são fatores que contribuem para a manutenção desta situação socioeconômica desfavorável, cenário no qual são elementos importantes a alta prevalência de uso de cocaína e maconha no 3º trimestre da gravidez e de transtornos psiquiátricos.

Descritores: Gravidez na adolescência; Transtornos relacionados ao uso de substâncias; Transtornos mentais; Psicoses induzidas por substâncias; Mortalidade perinatal (Saúde Pública)

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Introduction
The use of illicit drugs by pregnant teenagers is of marked interest. Its is due to the fact that there is consistent evidence in the scientific literature that this behavior may cause complications to the unborn baby and the mother. This is particularly true for the use of cocaine. On the other hand, follow-up studies show that prenatal exposure to marijuana is associated with injury of the prefrontal region of the brain. Similarly, there is growing evidence about the negative consequences of mothers' psychiatric disorders during pregnancy and of its psychosocial damages for the newborn.

The main purpose of this study is to determine, in a low-income teenage population at the obstetric center of a public hospital of the city of São Paulo, Brazil, the prevalence of use of cocaine and marijuana during the third trimester of gestation, the prevalence of psychiatric disorders during the whole pregnancy and to describe the socio-demographic characteristics of this population.

Method
1. Sample
A convenience sample of 1000 pregnant teenage (age between 11 and 19) women inpatients was evaluated at the obstetric center of the Mario de Moraes Altenfelder Silva Maternity Hospital. It is a public hospital located in the northern region of the city of São Paulo, the largest city in Brazil. This hospital caters mostly to local people from a low-income population who cannot afford private medical care. The data collection started on July 24, 2001 and finished on November 27, 2002. No patient refused to participate.

2. Ethics
Informed consent was given by the participants after complete explanations about the procedures of the research, purposes and possible harms. The study was approved by the ethical committee of the hospital (Mario de Moraes Altenfelder Silva Maternity Hospital) and the ethical committee of the Universidade Federal de São Paulo (process no. 0931/02).

3. Procedures
The patients were evaluated using the Composite International Diagnostic Interview (CIDI), 2.1 version and a socio-economic and socio-economic questionnaire. Hair samples were collected for analyses. The interviewers, the patients and the researchers did not know the results of hair analysis, CIDI or questionnaires.

1) Composite International Diagnostic Interview
The CIDI is a validated fully-structured diagnostic interview, which generates diagnoses according to the International Classification of Diseases – 10th version (ICD-10) and Diagnostic and the Statistical Manual of Mental Disorders – 4th version (DSM-IV). The version to detect diagnosis in the third trimester of gestation, 1 diagnosis. The number of detections of any psychiatric diagnoses (357) was, therefore, larger than the number of patients that received a psychiatric disorder diagnosis (276) because of the existence of comorbidities.

The prevalence of psychiatric diagnosis in this sample was 12.9% for Depression, 10.0% for Post-Traumatic Stress Disorder, 5.6% for Anxiety Disorders, 3.5% for Psychotic Disorders, 1.9% for Somatoform Disorders, 1.2% for Bipolar Disorder, 0.3% for Dissociative Disorders and 0.3% for Eating Disorders.

Discussion
The low frequency of formal marriage (7.2%) and high rates of couples who live together as a consequence of the pregnancy, without being married, found in this sample should be highlighted. Cultural and behavioral changes that have occurred in the last decades may explain this fact. Formal marriage seems to be no longer necessary to have a child. Besides, one could infer that these people did not plan to raise a family, it just happened by chance. Therefore, it is probable these children will not be born into an ideal environment.

High rates of school dropout (67.3%) as well as unemployment, associated to a low level of professional

Results
1. Socio-demographic characteristics
Table 1 shows the socio-demographic characteristics of this population.

2. Hair analysis
Hair analysis detected use of cocaine and/or marijuana in the third trimester of pregnancy in 6% of the patients. Forty patients used marijuana, 17 used cocaine and 3 used both drugs.

3. Distribution of psychiatric diseases in the sample
CIDI detected 276 patients with at least one psychiatric disorder (27.6%). Of these 276 patients, some had more than 1 diagnosis. The number of detections of any psychiatric diagnoses (357) was, therefore, larger than the number of patients that received a psychiatric disorder diagnosis (276) because of the existence of comorbidities.

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training in spite of the intention manifested to have some kind of qualification, largely contribute to this unfavorable socio-economic situation. The relation between teenage pregnancy and a low level of education has outstood in the specialized literature.

Other papers focusing on the prevalence of use of drugs among teenage students in Brazil show frequent use rates. These rates are around 2.6% for marijuana and 0.3% for cocaine when considering both genders and 2.5% and 1.3%, for marijuana and cocaine when considering lifetime use in female students. Therefore, prevalence of cocaine and marijuana use in the 3rd trimester of pregnancy found in this study (6%) can be considered high due to a series of circumstances involving pregnancy status. According to Ebrahim & Gfroerer, after the recognition of the pregnancy state, the rates of consumption of illicit drugs decreased from 6.4% to 2.8%, with more significant indexes of abstinence in the last quarter of pregnancy.

Limitations

Inferences of causality cannot be accomplished because of the design of this study (cross-sectional). For the same reason, there is a risk of a recall bias. The sample used in this research belongs to a single social class and a specific population. Generalization of the results must be carefully performed.

Some conditions like Conduct Disorders, Attention-Deficit/Hyperactivity Disorder and Oppositional Defiant Disorder were not investigated in this study, despite their importance in adolescence, because the instrument selected is not able to detect them. Of note also, hair analysis does not determine dependence or harmful use of the illegal drug, it only detects consumption during the period analyzed.

Conclusion

This research shows socio-demographic characteristics of low-income pregnant women that live in the northern zone of São Paulo - Brazil, predominantly poor, with low educational levels and high exposure to serious life events. These factors contribute to the higher vulnerability of this population to the onset of psychiatric diseases, such as depression, anxiety, PTSD and to the use of drugs (cocaine and marijuana). Our results of prevalence of use of marijuana and cocaine during the third trimester and of psychiatric disorders during the whole pregnancy concur with the scientific evidence found in international literature about the correlation between these conditions. School dropout, to have no professional qualification, being unemployed and being part of a low-income unstructured family seem to play an important role in this negative outcome. Controlled studies, however, should be performed to properly evaluate this subject.

This complex phenomenon, which is related to a great number of economical, educational and behavioral factors, has to be tackled as an important public health issue due to the existence of many kinds of possible harm both to the mother and to the newborn. This phenomenon requires the implementation of preventive public policies in order to reduce risk behaviors.

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