

**GRAVIDEZ NA ADOLESCÊNCIA: USO DE DROGAS NO TERCEIRO TRIMESTRE E PREVALÊNCIA DE TRANSTORNOS PSIQUIÁTRICOS**

**TEENAGE PREGNANCY: USE OF DRUGS IN THE THIRD TRIMESTER AND PREVALENCE OF PSYCHIATRIC DISORDERS**

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**RESUMO**

Objetivo: determinar a prevalência de transtornos psiquiátricos durante a gravidez através do Composite International Diagnostic Interview – CIDI e do uso de cocaína e maconha no terceiro trimestre através do exame de fio de cabelo em adolescentes de baixa-renda e descrever suas características sócio-demográficas.

Materiais e Métodos: 1000 adolescentes grávidas foram submetidas ao CIDI, Hair Analysis e a um questionário sócio-demográfico e sócio-econômico no centro obstétrico de um hospital público de São Paulo.

Resultados: Das 1000 pacientes entrevistadas, 53.6% tem baixa-renda, 60.2% abandonou a escola, 90.4% está desempregada e 92.5% é financeiramente dependente. 6% usaram drogas durante o terceiro trimestre da gravidez (maconha: 4%, cocaína: 1.7%, ambos: 0.3%). 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 sócio-econômica

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.

Conclusão: É necessária a implementação de políticas públicas preventivas para reduzir a gravidez na adolescência além de cuidados sociais e psiquiátricos a essa população em situação de risco.

## **ABSTRACT**

Objective: To determine the prevalence of psychiatric disorders during pregnancy of low-income teenagers using the Composite International Diagnostic Interview (CIDI). To determine cocaine and marijuana use by the same sample population during the third trimester of gestation using hair analysis and socio-demographics.

Materials and Methods: 1000 pregnant teenagers were evaluated using the CIDI, Hair Analysis and a socio-demographic and socio-economic questionnaire at the obstetric center of a public hospital in São Paulo, Brazil.

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%), Post Traumatic Stress Disorder (10.0% and Anxiety Disorder (5.6%).

Discussion: Unstructured families, dropping out of school, unemployment and a low level of professional training are all contributing factors to a continuation of a unfavorable socio-economic setting 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.

Conclusion: To reduce unwanted teenage pregnancy and the drug use and psychiatric disorders found in this population, education on prevention and public policies are necessary.

**KEY WORDS:** pregnancy in adolescence, cocaine, cannabis, mental disorders, cross-sectional studies.

## **TEENAGE PREGNANCY: USE OF DRUGS IN THE THIRD TRIMESTER AND PREVALENCE OF PSYCHIATRIC DISORDERS**

### **BACKGROUND**

The prevalence of teenage pregnancy has increased significantly in the last several year, particularly in poor countries<sup>1,2,3,4,5,6</sup>. School drop out and low levels of education are contributing factors, turning this prevalence into an important public health issue due to the higher incidence of obstetric complications observed in pregnant teenagers in comparison to the older mothers<sup>7</sup>.

The prevalence of drug use by adolescents in Brazil<sup>8</sup>, as well as in other countries<sup>9,10</sup> is of marked interest. This fact, obviously, has implications on the rates of use of these substances during the pregnancy of teenagers<sup>11,12</sup>. On the other hand, there is consistent evidence in scientific literature about the obstetric complications that the use of drugs during

pregnancy may cause to the baby and to the mother<sup>13,14,15</sup>. Though this subject is extremely relevant, there are few studies available concerning the prevalence of drug use during pregnancy. The few studies that do investigate this matter are not supported by biological methods for confirmation of self-reported information. Therefore, prevalence rates are often underestimated<sup>16</sup>.

There is also little information in scientific literature about the prevalence of psychiatric disorders in pregnant teenagers. Research, using Lilacs and Medline databases, showed few papers about this subject. Those available focused only on Depression and Anxiety Disorders, with diagnostic instruments designed for specific detection of these diseases<sup>17,18,19</sup>. Scientific articles about other psychiatric conditions in pregnant teenagers were not found. However, there are many references about the negative consequences of the psychiatric disorders with psychosocial damages for the newborn and for the mother herself<sup>20,21,22</sup> in international literature.

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

## **MATERIALS AND METHODS**

### **Sample**

A convenience sample of 1000 pregnant inpatient teenage (age between 11 and 19) were used from Mario de Moraes Altenfelder Silva Maternity Hospital. This is a Public Hospital of the district of Cachoeirinha located in the north region of the city of São Paulo,

approximately 8 Km from downtown, whose population is composed by low-income people who cannot afford private medical care. This is the best place to access the sample population because it is the only public maternity hospital in the district.

Cachoeirinha has a population of 147649 inhabitants, with demographic density of 352.9 / Km<sup>2</sup> and monthly income per family of R\$ 874.21 (approximately U\$ 362.74 in June 2005). 10.21 % of this population (15075) is made up of people from 15 to 19 years of age<sup>23</sup>. Seade Foundation – State System of Data Analysis, an official institute of the Brazilian government, developed an index through demographic data. This index is based on population growth, taxes, the proportion of teenagers among district population, school drop out, family income, pregnancy and violence among the adolescents. Cachoeirinha district has one of the highest indexes of vulnerability<sup>23</sup>.

The data collection started on July 24, 2001 and finished on November 27, 2002.

### **Subjects**

Eligible subjects were teenage (age 10 to 19, according to World Health Organization criteria) inpatient pregnant women at the obstetric center of a public hospital in São Paulo, Brazil. No patient refused to participate in this research.

### **Ethics**

All participants were fully informed about the procedures of the research by the interviewers and were only included in the study if they gave informed consent after explanations about the purposes and possible harms were given. When the participant disclosed any important information on violence or their mental health, interviewers offered resources of help, including the social and mental health team of the hospital or other external resources. The study was approved by the ethical committee of the hospital

(Hospital Maternidade Mario de Moraes Altenfelder Silva) and the ethical committee of Federal University of Sao Paulo.

### **Procedures**

The patients were evaluated using the Composite International Diagnostic Interview, 2.1 version – CIDI, Hair analysis and a socio-demographic and socio-economic questionnaire. The interviewers, the patients and the researchers did not know the results of hair analysis, CIDI or the questionnaires. The identification of the patients was coded by numbers according to the order of inclusion in the study.

- Composite International Diagnostic Interview:

CIDI<sup>24</sup> is a validated<sup>25,26</sup> and fully structured diagnostic interview developed by the "Joint Project of World Health Organization (WHO) and Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) on Diagnosis and Classification of Mental Disorders and Alcohol and Drug Related Problems". Its main features are: it is devised for use in epidemiological and trans-cultural fields, it can be used also by non-medical staff, it has a modular structure, and it gives diagnoses simultaneously according to International Classification of Diseases – 10<sup>th</sup> version (ICD-10) and Diagnostic and Statistical Manual of Mental Disorders – 4<sup>th</sup> version (DSM-IV), covering respectively 39 and 32 diagnoses on Axis I. The version of detection of diagnosis in the last 12 month, which is a period that includes the pregnancy time, was used.

- Hair analysis for cocaine and marijuana use detection

Interviewers were given specific training for hair sample collecting. Each sample was composed of about 50 hairs, according to specific standard procedures for better performance in detection and security, with no esthetic harm, analyzing consumption of

cocaine and marijuana in the last 3 months.

Analysis of hair samples<sup>27,28,29,30</sup> in this study was done through the combination of Enzyme-Linked Immunosorbent Assay (ELISA) and Gas Chromatography Mass Spectrometry (GCMS), methods for, respectively, tracing and confirmation of use of cocaine and / or marijuana, at Tricho-Tech, a laboratory in Cardiff – UK. Cut off limits (sensitivity) adopted were 0.2 ng/mg of hair for cocaine and 0.025 ng/mg of hair for cannabis. Specificity of the tests is 100% for both drugs.

These drugs were chosen because they are 2 of the most common drugs in Brazil. Alcohol, inhalants and nicotine are also frequently used, but they cannot be traced by hair analysis though methods for detection of the latter one are being improved and maybe it will be possible in the future.

- Socio-demographic questionnaire.

This questionnaire was adapted to Brazilian culture and developed from the instrument used in Perinatal Needs Assessment (PNA)<sup>31</sup>, a large study done in California, containing information about:

- Identification: age, address, place of birth.
  - Marital status.
  - Schooling, rate of school drop out, employment.
- Socio-economic classification:

A Brazilian socio-economic classification was used, which is based on the head of the household's education, the number of domestic electric tools in the household and family income. It classifies individuals in 5 different categories (A to E). This variable was recoded to three categories: high (A and B), middle (C) and low (D and E)<sup>32</sup>.

## **RESULTS**

Over the period of this study, 492 consecutive days, 4108 admissions occurred in the obstetric center of the hospital. 1000 adolescents (24.3%) were considered eligible. The prevalence of births among teenagers over the general population was 24.34%.

There were 920 live births (8 twins – 0.8%), 10 stillborns (1%) and 70 (7%) curettages post-abortion.

### **Socio-demographic characteristics:**

Table 1 shows socio-demographic characteristics of this population

### **Hair Analysis**

Hair analysis detected use of cocaine and/or marijuana in third trimester of pregnancy in 6% of the patients. 40 used marijuana, 17 used cocaine and 3 used both drugs.

### **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 diagnoses detected (349) is, therefore, larger than the patients with psychiatric disorders (276) because of the existence of comorbidities.

Table 2 shows the distribution of psychiatric diseases in the sample.

## **DISCUSSION**

Most teenagers analyzed in this study are low-income people who cannot afford private medical care and they live in the north region, where the hospital is located. As Cachoerinha Maternity Hospital is the only public maternity of that area, the choice of that



place was strategic.

North zone of São Paulo includes several districts with the largest indexes of youth vulnerability<sup>23</sup>. During the period of this study, high rates of pregnant teenagers admitted for delivery over older mothers (24.3%) is congruent with the data presented by other Brazilian studies<sup>3,4,5,6</sup>, that show the growing prevalence of pregnancy of adolescents, particularly among the younger ones and it confirms that this is a phenomenon that has to be faced as an important public health issue.

Low frequency of formal marriage (7.2%) and high rates of couples that live together as a consequence of the pregnancy, without being married, should be highlighted, though 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. On the other hand, 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 drop out (67.3%) as well as unemployment, associated to a low level of professional training in spite of the intention manifested of some kind of qualification, contribute largely to this unfavorable socio-economic situation. The relation between teenage pregnancy and a low level of education has been outstanding in the specialized literature<sup>33,34,35</sup>(errata nº 1). International experiences with preventive programs were developed based on this fact.

Other papers focusing on the prevalence of use of drugs among teenage students in Brazil show frequent use rates around 2.6% for marijuana and 0.3% for cocaine when considering both genders<sup>8</sup> and 2.5% and 1.3%, for marijuana and cocaine use by female students<sup>36</sup>. So, 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, 2003<sup>37</sup> 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 the pregnancy. Such behavior can be extended to the population of this study, because the psychological mechanism of protection of the baby that rules it seems to be the same.

A study from Sweden on pregnant adult women<sup>38</sup> found that Psychiatric disorders were present in 14.1%, Depression in 10.2% and Anxiety disorders in 6.6% of patients. In non-pregnant teenagers, prevalence of Depression found in another study that took place in France<sup>39</sup> was 5.0%. So, prevalence of psychiatric disorders in teenage pregnant women in the population studied (27.6%) can be considered high and is extremely alarming considering the fact that most of them had never been treated at all.

There is consistent evidence in the literature about the correlation between poverty, low education, poor social and familiar support, teenage pregnancy, use of drugs and psychopathology<sup>40,41</sup>. In our sample, poor education and low level of professional training may play an important role in unemployment. These factors contribute largely to this unfavorable socio-economic status, creating a situation of lack of perspectives in life. Using drugs and getting pregnant may be an attempt to change their reality and psychiatric disorders may be a reaction outcome.

### **LIMITATIONS:**

Data about psychopathology was entirely based on self-reporting and this carries a risk of under-reporting or even distorted reporting. The collection of the data was largely retrospective, so results may be influenced by a recall bias. All the procedures recommended by CIDI Organization were implemented, so accuracy of data can be assured

as long as respected by the limitations of the instrument that was used. Though structured diagnostic interview instruments can give a standard diagnosis, there is always a risk of misclassification.

Some conditions like Conduct Disorders (CD), Attention-Deficit/Hyperactivity Disorder (ADHD) 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.

It is necessary to point out that hair analysis does not determine dependence or harmful use of the illegal drug, it only detects consumption during the period analyzed.

Due to the design of this study, cross-sectional analysis of temporal relationships of the disorders is not possible. Therefore, inferences of causality cannot be done.

The sample used in this research belongs to a single social class and a specific population. Generalization of the results must be done carefully.

## **CONCLUSION**

This research shows socio-demographic characteristics of low-income people that live in the north zone of São Paulo - Brazil, predominantly poor, with low educational levels and high exposure to serious life events contribute to this population being more vulnerable to the onset of psychiatric diseases, such as depression, anxiety, PTSD and to the use of drugs (cocaine and marijuana.). The results of use of marijuana and cocaine during the third trimester of pregnancy and psychiatric disorders concur with the scientific evidence found in international literature about the correlation between these conditions. Dropping out of

school, having no professional qualification, unemployed and being part of a low-income unstructured family seems to play an important role in this negative outcome. Controlled studies, however, should be performed to answer this question properly.

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

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Table 1 – Socio-demographic characteristics of a population of low income teenage pregnant women at the obstetric center of a public hospital in São Paulo, Brazil.

<b>Characteristics</b>	<b>N</b>	<b>%</b>
<b>District where she lives (n=993)</b>		
North zone – São Paulo city	932	93.9
Other places	61	6.1
<b>Marriage</b>		
Married	72	7.2%
Single	919	91.9%
Widow / separated	9	0.9%
<b>Marital status (n=1000)</b>		
Live with the partner (Legally married or not)	627	62.7
Do not live with the partner	364	36.4
Widow / separated	9	0.9
<b>Economical class (N=995)</b>		
High (A and B)	66	6.6%
Medium (C)	395	39.8%
Low (D and E)	534	53.6%
<b>Head of household (n=945)</b>		
Partner	445	47.1%
Parents	377	39.9%
Herself	71	7.5%
Partner and parents	35	3.7%
others	17	1.8%
<b>Current job (n=994)</b>		
Yes	96	9.6%
No	898	90.4%
<b>Professional qualification (n=997)</b>		
Yes	88	8.8%

No	909	91.2%
<b>Teenagers in need of professional qualification</b> (n=995)		
Yes	492	49.4%
No	503	50.6%
<b>Current student</b> (n=999)		
Yes	327	32.7%
No	672	67.3%
<b>Pregnancy as a cause of school dropping out</b> (n=649)		
Yes	391	60.2%
No	258	39.8%
<b>Schooling (years)</b>	8	
<b>Age</b>	17	

Table 2 – Prevalence of ICD-X psychiatric disorders along the last 12 month in a population of low-income teenage pregnant women at the obstetric center of a public hospital in São Paulo, Brazil.

<b>Diagnosis (ICD – X)</b>	<b>Cases</b>	<b>%</b>
<b>Depression</b>	129	12.9
<b>Post Traumatic Stress Disorder</b>	100	10.0
<b>Anxiety disorders</b>	56	5.6
<b>Psychotic disorders</b>	35	3.5
<b>Somatoform disorders</b>	19	1.9
<b>Bipolar disorders</b>	12	1.2
<b>Dissociative disorders</b>	3	0.3
<b>Eating Disorders</b>	3	0.3
<b>TOTAL</b>	357	35.7

