



ELSEVIER

Contents lists available at ScienceDirect

## Psychiatry Research

journal homepage: [www.elsevier.com/locate/psychres](http://www.elsevier.com/locate/psychres)

## Prevalence of psychiatric disorders in the first trimester of pregnancy and factors associated with current suicide risk



Dayana Rodrigues Farias<sup>a,b</sup>, Thatiana de Jesus Pereira Pinto<sup>a,b</sup>,  
 Marcella Martins Alves Teofilo<sup>a,b</sup>, Ana Amélia Freitas Vilela<sup>a,b</sup>, Juliana dos Santos Vaz<sup>a</sup>,  
 Antonio Egidio Nardi<sup>c</sup>, Gilberto Kac<sup>a,b,\*</sup>

<sup>a</sup> Nutritional Epidemiology Observatory, Department of Social and Applied Nutrition, Institute of Nutrition Josué de Castro, Federal University of Rio de Janeiro, RJ, Brazil

<sup>b</sup> Graduate Program in Nutrition, Institute of Nutrition Josué de Castro, Federal University of Rio de Janeiro, RJ, Brazil

<sup>c</sup> Institute of Psychiatry, School of Medicine, Federal University of Rio de Janeiro, National Institute for Translational Medicine (INCT-TM), Brazil

### ARTICLE INFO

#### Article history:

Received 9 March 2013

Received in revised form

6 August 2013

Accepted 29 August 2013

#### Keywords:

Suicide  
 Depressive disorder  
 Anxiety  
 Agoraphobia  
 Pregnancy  
 Women  
 Parity

### ABSTRACT

This study aimed to describe the prevalence of psychiatric disorders and to identify the factors associated with Current Suicide Risk (CSR) in the first trimester of pregnancy. The Mini-International Neuropsychiatric Interview (M.I.N.I.) was employed to diagnose mental disorders in 239 women enrolled in a prospective cohort in Rio de Janeiro, Brazil. Serum lipids, leptin and socio-economic status were the independent variables. CSR, the dependent variable, was entered as binary (yes/no) variable into crude and adjusted Poisson regression models with robust variances. CSR was found to be the main psychiatric syndrome (18.4%), followed by agoraphobia (17.2%), major depressive disorder (15.1%) and generalized anxiety disorder (10.5%). Women with CSR showed higher mean levels of cholesterol (169.2 vs. 159.2;  $p=0.017$ ), high density lipoprotein (50.4 vs. 47.7;  $p=0.031$ ) and low density lipoprotein (102.8 vs. 95.6;  $p=0.022$ ) when compared to women without CSR. The adjusted regression model showed a higher prevalence ratio (PR) of CSR among pregnant women with generalized anxiety disorder ( $PR=2.70$ , 95% CI: 1.36–5.37), with  $\geq$  two parturitions ( $PR=2.46$ , 95% CI: 1.22–4.93), and with major depressive disorder ( $PR=2.11$ , 95% CI: 1.08–4.12). We have shown that generalized anxiety disorder, major depressive disorder and higher parity are associated with CSR in the first trimester of pregnancy.

© 2013 Elsevier Ireland Ltd. All rights reserved.

### 1. Introduction

The transition from pregnancy to motherhood is a unique life experience and can adversely affect women's psychological well-being (Bener et al., 2012). Depression and anxiety are among the most frequent mental disorders during and after pregnancy and may increase the risks of prolonged labor, low birth weight (LBW) and offspring malnutrition (Ishida et al., 2010; Nasreen et al., 2011; Bener et al., 2012).

Among mental disorders, suicide behavior affects between 3% and 14% of the obstetric population (Lindahl et al., 2005; Pinheiro et al., 2012). Current suicide risk (CSR) includes thoughts and suicide attempts, and the likelihood of CSR is higher among depressed and anxious pregnant women compared to ones

without these disorders (Asad et al., 2010). CSR has been associated with adverse outcomes such as premature labor, LBW, cesarean section and postpartum depression (Chaudron et al., 2001; Gentile, 2011).

Some studies have examined the combined effects of biological, lifestyle and social factors on the likelihood of suicide behavior during pregnancy. Factors such as violence between intimate partners, alcohol/drug abuse, being unmarried, unemployment, unintended pregnancy and a low level of social support have been associated with suicidal ideation (Pinheiro et al., 2012). Psychiatric disorders, such as major depressive disorder, panic disorder and generalized anxiety disorder, have also been reported as important determinants of suicide risk (Newport et al., 2007; Asad et al., 2010; Gavin et al., 2011).

The association between suicide risk and biochemical parameters is still contradictory. Some studies with adults of both sexes have shown that lower serum total cholesterol (TC) and leptin concentrations are associated with suicide risk (Guillem et al., 2002; Atmaca et al., 2008; Olié et al., 2011), while other studies have found no association (Deisenhammer et al., 2004; Fiedorowicz and Coryell, 2007; D'Ambrosio et al., 2012). Although

\* Correspondence to: Nutritional Epidemiology Observatory, Department of Social and Applied Nutrition, Institute of Nutrition Josué de Castro, Federal University of Rio de Janeiro, Avenida Carlos Chagas Filho, 373, CCS, Bloco J2. Cidade Universitária, Ilha do Fundão. Rio de Janeiro, RJ 21941-902, Brazil.  
 Tel.: +55 2125626595; fax: +55 2122808343.

E-mail address: [gilberto.kac@gmail.com](mailto:gilberto.kac@gmail.com) (G. Kac).

the biological mechanisms are not elucidated (Olié et al., 2011), it has been hypothesized that low TC could impair serotonin transportation to brain cells, which can increase suicide and impulsive aggressive-behaviors (Deisenhammer et al., 2004; Atmaca et al., 2008). Regarding leptin concentrations, it is suggested that it can increase the lipid oxidation and decrease the synthesis of triglycerides (TG) (Deisenhammer et al., 2004; Atmaca et al., 2008), which can lead to a decrease in the lipid concentration (Atmaca et al., 2008). It is well known that during pregnancy, there is an increase in serum concentrations of TC, TG and low-density lipoproteins (LDL), although the high-density lipoprotein (HDL) pattern is still unclear (Chiang et al., 1995; King, 2000; Landázuri et al., 2006; Benítez et al., 2010). To our knowledge, there have been no studies so far that have evaluated the association between lipid profiles or other biochemical parameters, such as leptin, and CSR during pregnancy. Thus, the aims of this study were to describe the prevalence of psychiatric disorders during the first trimester of pregnancy and to identify the factors associated with CSR.

## 2. Methods

### 2.1. Study protocol and design

This study consists of a cross-sectional analysis of women in the first trimester of pregnancy who were enrolled in a prospective cohort and received prenatal care at a public health center in Rio de Janeiro, Brazil. The health center offers several different types of medical treatments. Recruitment was conducted between November 2009 and October 2011, and women who met the following eligibility criteria at enrollment were invited to participate: (1) being less than 13 weeks into the gestation period; (2) being between 20 and 40 years of age and (3) being free from any chronic diseases (except obesity, operationalized as a BMI  $\geq 30$  kg/m<sup>2</sup>). Of the women who were eligible, 93% ( $n=299$ ) agreed to participate. We excluded women who abandoned prenatal care ( $n=6$ ), presented twin pregnancies ( $n=4$ ), were diagnosed with an infectious or chronic disease in the baseline assessment ( $n=14$ ), were in use of antidepressant medication ( $n=4$ ), did not have completed Mini-International Neuropsychiatric Interview (M.I.N.I.) ( $n=29$ ) and reported miscarried before the baseline visit ( $n=3$ ). After exclusions, the final sample comprised 239 women. A questionnaire pertaining to their socioeconomic status, obstetric history and lifestyle was administered. One-on-one interviews with the women were conducted by trained researchers in a private room.

### 2.2. Psychiatric assessment

This study used the M.I.N.I. (version 5.0.0; Sheehan et al., 1998), a standard instrument consisting of a brief (15–30 min), structured interview to evaluate the existence of Axis I psychiatric disorders, as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 1994). This instrument is divided into a variety of modules (A–P), each of which contains a series of questions pertaining to one the following psychiatric disorders: phobia episodes, major depressive episodes, generalized anxiety disorder, manic and hypomanic episodes, obsessive-compulsive disorder, panic disorders, dysthymic disorder, post-traumatic stress disorder, alcohol dependence and nonalcoholic substance dependence, bulimia and anorexia nervosa. The subjects answered yes or no to each of the questions. The interviews were performed by medical doctors and medical graduate students trained for this purpose.

### 2.3. Current suicide risk

CSR was assessed based on the 'suicidality' level obtained from the M.I.N.I. This module contained six questions, and positive answers received a unique score as follows: "In the past month did you (1) think that would be better off dead or wish you were dead? (Score=1); (2) want to harm yourself or to hurt or to injure yourself? (Score=2); (3) think about suicide? (Score=6); (4) have a suicide plan? (Score=10); (5) attempt suicide? (Score=10)" and "(6) In your lifetime, have you ever made a suicide attempt? (Score=4)". Based on this instrument, level of suicidality was defined as low (1–5), moderate (6–9) or high ( $\geq 10$ ). CSR (no/yes) was the dependent variable, and a participant who gave a positive answer to at least one of these questions was considered to have a positive CSR.

### 2.4. Independent variables

A structured questionnaire was administered to measure the following independent variables: socioeconomic status, i.e., monthly per capita family income in tertiles of Brazilian currency (Reais); socio-demographic status, i.e., age (20–29, 30–40 years), education ( $\geq 9$ ,  $\leq 8$  years), marital status (married or stable relationship, single), self-reported skin color (white, brown or black) and home density (number of people per bedroom:  $< 2$ ,  $\geq 2$ ); lifestyle: current smoking habit (no, yes) and current alcohol consumption (no, yes); obstetric history: previous history of abortion (no, yes) and parity (0, 1,  $\geq 2$ ); and mental health [questions pertaining to the following psychiatric disorders: major depressive episode (no, yes), agoraphobia (no, yes) and generalized anxiety disorder (no, yes)].

The occurrence of violence between intimate partners was measured using the Conflict Tactics Scales (CTS-1) (Hasselmann and Reichenheim, 2003). For the current analysis, the following variables were considered: verbal aggression (no, yes) and general physical aggression (no, yes).

The social support construct was measured using a scale developed by the Medical Outcomes Study (MOS) (Grip et al., 2005). This scale consists of five social support dimensions: material (four questions), the provision of practical resources and material assistance; affective (three questions), physical demonstrations of love and affection; social and affective interaction (four questions), the presence of people with whom one can relax and enjoy oneself; emotional (four questions), the presence of a social network that satisfies emotional needs and provides encouragement during difficult moments in life; and informational, the presence of people who can advise, inform and guide (four questions). Social support was treated as a dichotomous variable, with a cutoff point based on the lower quartile: material ( $> 60$ ,  $\leq 60$ ), affective ( $\geq 86.7$ ,  $< 86.7$ ), interaction ( $> 70$ ,  $\leq 70$ ), emotional ( $> 67.5$ ,  $\leq 67.5$ ) and informational ( $\geq 70$ ,  $< 70$ ).

Additionally, women were asked questions about the number of close friends they had (0–1,  $\geq 2$ ), the number of close relatives they had (0–1,  $\geq 2$ ), their family (first-degree relative) history of depression (no, yes) and their family (first-degree relative) history of suicide (no, yes). Data for these variables were obtained through the following questions: "How many relatives do you feel comfortable to talk with about almost everything?"; "How many friends do you feel comfortable to talk with about almost everything?"; "In your family, is there someone who suffers from depression or has ever suffered from depression in the past (only first-degree relatives)?", and "In your family, is there a history of suicide (only first-degree relatives)?".

The women were weighed using a digital scale (Filizola Ltd., São Paulo, Brazil) in the first trimester ( $\leq 13$  gestational weeks), and their stature was measured twice using a Seca Portable Stadiometer (Seca Ltd., Hamburg, Germany). All anthropometric measurements were conducted in a standardized manner and taken by trained interviewers. Weight gain during first trimester varies around 0.5–2 kg and may be considered small (Krasovek and Anderson, 1991; IOM, 2009). Furthermore, women's pre-pregnancy Body Mass Index (BMI) classifications using the measured weight in the first trimester when compared to the self-reported pre-pregnancy weight revealed a high kappa coefficient [0.86 (95CI%: 0.81–0.90)] according to a very recent study (Holland et al., 2012). Thus, BMI (weight [kg]/stature [m<sup>2</sup>]) measured between the 5th and 13th weeks of pregnancy was used as pre-pregnancy BMI. This study used the cutoff points proposed by the Institute of Medicine (IOM, 2009) to classify the initial nutritional status of the women.

### 2.5. Blood sample analysis

Blood samples were collected after a fast of 12 h. The samples were centrifuged at 1500g for 5 min. Plasma and serum samples were separated and stored at  $-80$  °C until analysis was performed. Serum TC (mg/dL) and TG (mg/dL) levels were assessed using the Trinder enzymatic colorimetric methods, and high-density lipoprotein cholesterol (HDL; mg/dL) was assessed using the enzymatic colorimetric-accelerator selective detergent method (Labtest/Diagnostica S.A., Brazil). LDL (mg/dL) was then calculated (Friedewald et al., 1972). Plasmatic leptin concentration (ng/dL) was measured with the ELISA method using commercial kits (Linco Research, St. Charles, Missouri, USA).

### 2.6. Statistical analysis

The data were entered twice using the Census and Survey Processing System (CSPro) software, version 4.1.002. Consistency was checked to correct systematic errors. The statistical analyses were performed in STATA, version 10.1.

The prevalence of each diagnosed psychiatric disorder was evaluated first. Subsequently, the sample was characterized by calculating the absolute and relative frequencies of CSR, based on all of the independent variables. The strengths of association were estimated in terms of crude and adjusted prevalence ratios (PR) and their respective 95% confidence intervals (CI) using Poisson's regression with robust variance. Variables with  $p$ -values  $< 0.20$  were added into the multiple regression model. In the final model, the level of statistical significance was set at 5% ( $p < 0.05$ ). The mean and median values of the lipid variables were compared using the  $t$ -test and the Mann–Whitney  $U$  test, respectively.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات