

Associations between a prior pregnancy loss and stress during the subsequent pregnancy and puerperal periods

Abstract

Objective: Considering that the abortion may result in significant psychological risks for women, the purpose of this study was to analyze associations between previous gestational losses and stress in subsequent pregnancy and postpartum.

Methods: A retrospective, descriptive and comparative cohort study with a sample of 62 pregnant women was conducted with data collected from pregnant population attended at the prenatal service of Maternity School Hospital of Universidade Federal do Rio de Janeiro (UFRJ). All responded to the Lipp Adult Stress Symptom Inventory (LSSI) at their 35th week of gestation during the pre-anesthetic consultation and the puerperium, and a sociodemographic questionnaire was applied. Sociodemographic data were analyzed and compared descriptively. Multivariate logistic regression models were adopted to analyze associations between previous gestational loss and stress during subsequent pregnancy and postpartum.

Results: Women with a history of loss were eight times more likely to be stressed in their puerperium ($p=0.01$; $OR=6.65$) than those with no previous loss. However, stress during gestation was not significantly higher in pregnant women with previous gestational loss when compared to pregnant women with no history of loss ($p=0.42$; $OR=0.46$).

Conclusion: Considering that woman with a history of gestational loss has more chance to present stress symptoms at postpartum, the perinatal attention to this group is important in subsequent pregnancies, adopting a careful clinical approach for the reproductive and mental health of this population.

Keywords: stress psychological, perinatal loss, pregnancy, puerperium, psychology, obstetric anesthesia

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Abbreviations: UFRJ, Universidade federal do rio de janeiro; LSSI, lipp's stress symptoms inventory for adults

Introduction

Generally, the pregnancy is understood as a happy and positive moment of women life and their partner and family, when all of them are waiting for a healthy baby. However, pregnancies can also be a period of vulnerability for women, especially when she lives stressful events with negative consequences for the mother-baby binomial¹. According to the literature, the high gestational stress is a risk for negative pregnancy outcomes, associated with preterm birth, low birth weight and problems for the children's neuropsychological development.¹⁻³

Additionally, history of abortion or previous pregnancy loss are associated with higher rates of emotional problems, such as stress during subsequent pregnancies.⁴⁻⁶ However, the association between pregnancy loss and gestational stress should be further investigated, because there is no consensus in the literature about the outcomes

for pregnant women and their baby. Although emotional distress has been associated with pregnancy loss, the effects on the maternal mental health at puerperium are not totally known⁴. Nevertheless, the women who have emotional problems during pregnancy tend to show psychological symptoms in the postpartum period.⁷ Therefore, women with a history of pregnancy loss also may be at increased risk for postpartum psychiatric disorders during a subsequent pregnancies.⁸

Considering that the gestational stress can be a risk for the mother-baby binomial, and the history of abortion or pregnancy loss is a risk for stress in subsequent pregnancies, the objective of this study was to analyze the association between a prior pregnancy loss and the stress during the pregnancy and puerperal periods.

Methods

This study was approved by the Maternity School Hospital's Institutional Review Board (CAAE 29114914.3.0000.5275). This manuscript adheres to the STROBE guidelines.

Participants

This is a retrospective cohort study based on secondary data collected at the pre-anesthetic consultation from a convenience sample of 62 pregnant women at their 3rd trimester, 20 with a history of perinatal loss and 42 without a prior pregnancy loss, recruited between July 2014 and November 2015. All of them were attended at the prenatal care service of Maternity School Hospital of Universidade Federal do Rio de Janeiro (UFRJ), that attends on demand around 95 pregnant women per month.

The sample included pregnant women with single pregnancy, normal results for fetal, maternal, clinical and laboratory tests (fasting glucose ≥ 95 mg/dl; postprandial glucose ≤ 140 mg/dl; cardiotocography with good vitality and obstetric ultrasound with normal liquid volume and fetal weight) and minimum levels of anxiety according to the Beck Anxiety Inventory–BAI.⁹ All participants were indicated for elective delivery according to the following clinical criteria: term pregnancy with mild or moderate hypertension (diastolic and systolic blood pressures: < 110 and 160 mm Hg, respectively), controlled diabetes mellitus; previous cesarean section and fetal breech presentation. Patients in use of sedative, anxiolytic, or psychoactive drugs, and with previous surgical complication, severe psychiatric illness, corticotherapy, and ongoing labor were excluded from this study.¹

Data collection

All participants signed the Free and Informed Consent Form approved by the Ethical Committee of the maternity hospital before the data collection. Sociodemographic data protocol was used to collect personal information, such as age, education level, marital relationship (≥ 12 months), employment, religion, parity and history of pregnancy loss. They also answered the Lipp’s Stress Symptoms Inventory for Adults (LSSI),¹⁰ that was used to evaluate stress symptoms at the 35th gestational week, and at the puerperium during their medical appointment one month after their delivery. This inventory is a

Brazilian normative scale that identifies signs and symptoms of stress, classified into four stages according to this growing order: alarm, resistance, almost-exhaustion and exhaustion. These stages of stress were based on the identification of physical, psychological and mixed symptoms that are typical of each stage of stress. In this study, stress was considered from the resistance stage or more.

Statistical analysis

All data was processed and analyzed using the R programming for data science version 3.3.1 for statistical analysis. Sociodemographic data were analyzed descriptively in terms of means and standard deviations, and comparatively between groups of women with and without history of pregnancy loss, using Student’s t and Chi-square tests. Multivariate logistic regression models, controlling age, education level and parity, were used to analyze differences between pregnancy and puerperium stress scores between the two groups, and to verify the influence of history of pregnancy loss in puerperium stress.

Results

Descriptive and comparative analysis of sociodemographic data between groups are show on the Table 1.

Except for the age, no significative differences between pregnant women with and without a history of perinatal loss were found.

About the stress, 87% of the total sample presented symptomatology of stress during the pregnancy. Among them, 31% had a history of pregnancy loss. Related to the postpartum stress, 56% of the sample presented stress at the puerperium, and 45% of them reported history of pregnancy loss.

Data from logistic regression models (unadjusted and adjusted, controlling age and education level) were in the Table 2.

Table 1 Sociodemographic data according to the history of perinatal loss groups

	With history of perinatal loss (n=20)	Without history of perinatal loss (n=42)	p-value*
Age (years)	M (SD)-R 35.65 (5.49)–23-44	M (SD)-R 31.85 (6.17)–16-44	0.00**
	n (%)	n (%)	
Education level			
Less than Elementary School	03 (15)	06 (14.3)	
Elementary School	06 (30)	08 (19)	0.38
High School	10 (50)	22 (52.4)	
Higher Education	01 (5)	06 (14.3)	
Occupation			
Employed	12 (60)	26 (61.9)	0.89
Unemployed	08 (40)	16 (38.1)	
Marital relationship			
<12 months	05 (25)	14 (33.3)	0.51
≥ 12 months	15 (75)	28 (66.7)	

M, mean; SD, standard deviation; R, range; *p-values computed from Student’s t-test and Chi-square; **significant p-value ($p < 0,05$)

Table 2 Associations between history of pregnancy loss and stress at the pregnancy and the puerperium

Outcome	Pregnancy loss	OR	p-value	OR	p-value
		[95% CI]		[95% CI]	
		Adjusted model	Unadjusted model		
Stress in pregnancy	No	1	-	1	-
	Yes	0.46 [0.07, 3.04]	0.42	0.6 [0.12, 2.96]	0.53
Stress in puerperium	No	1	-	1	-
	Yes	6.65 [1.62, 27.26]	0.01*	4.4 [1.26, 15.39]	0.02*

*significant p-value (p<0,05)

In adjusted model, the stress in pregnancy for women with previous perinatal loss was not significantly higher than for pregnant women without history of perinatal loss (p=0.53; OR=0.6 [95% CI: 0.12, 2.96]), different from the puerperium period (p=0.02; OR=4.4 [95% CI: 1.26, 15.39]). Controlling age and education level, the stress in pregnancy was still not significant higher in pregnant women with previous perinatal loss, than at the puerperium (p=0.42; OR=0.46 [95% CI: 0.07, 3.04]). Pregnant women with previous perinatal loss have six more chances of having stress symptoms at their puerperium than pregnant women without history of perinatal loss (p=0.01; OR=6.65 [95% CI: 1.62, 27.26]).

Results of the model to verify the influence of pregnancy loss history in the postpartum stress can be observed on the Table 3.

The permanence of stress is not significant (p=0.07; OR=2.83 [95% CI: 0.91, 8.78]) in unadjusted model. However, controlling age and education level, the permanence of stress was significant (p=0.03; OR=4.22 [95% CI: 1.16, 15.38]), and women with previous pregnancy loss have almost five more chance to be continued stressed after their delivery than pregnant women without history of pregnancy loss.

Discussion

According to our findings, the stress during pregnancy is not higher for women with a previous perinatal loss, but the stress in puerperium can be higher for women with previous perinatal loss than for women without a history of this loss. In a cohort study, Chojenta et al.,⁴ found that women with a previous pregnancy loss were more likely to experience sadness or low mood on a subsequent pregnancy but not during the postpartum phase. The association between puerperal stress and previous perinatal loss was also observed in another study relating postpartum psychiatric disorders and past pregnancy loss.⁸ These findings can be related to the pregnant women's worries about another abortion or perinatal loss. The women with previous pregnancy losses usually have concerns about their baby has fetal malformations.^{5,11} According to Kolte et al.,⁶ the emotional stress is highly prevalent among women with recurrent pregnancy loss, followed by depression symptoms.

However, in our study, significant associations between stress in pregnancy among women with or without previous pregnancy loss were not found, that can be explained because a large part of the sample has systemic diseases associated with pregnancy and the negative emotional state during pregnancy can be related to the woman concerns about the fetal development.¹¹ Besides that, this

stress was measured at the last trimester (35th week) of gestation, when those women could be less stressed and worried because the fetal malformations or other gestational risks related to a perinatal loss can be minimized. These findings can be supported by a Brazilian study that found relations between the routine of prenatal tests and women emotional state during pregnancy. According to this study, the prenatal routine, with screening tests during all gestation, offers a support to pregnant women and decreases their fear feelings of a new loss or fetal malformation.⁵ It is important to highlight that the stress in pregnancy, as well as at the puerperium, is a complex and multifactorial phenomenon, and should be investigated with qualitative instruments, like interviews that can investigate women's perceptions based on their self-report.

Actually, the perinatal loss is a shocking event in a woman's life, which has an important impact on their mental health resulting on negative psychological outcomes, like depression.⁴⁻⁶ According to Hunter, Tussis and MacBeth,¹² the history of perinatal loss may be associated with anxiety and depression in subsequent pregnancies, but not with the stress during pregnancy. Also, according to a Brazilian study, stress in pregnancy and puerperium is related to the postnatal depression, increasing the probability of postpartum depression when stress increases.¹³

Thus, it is clear that there is no consensus in the literature about the association between pregnancy loss and gestational stress, but a previous loss has been associated with women mental disorders in future pregnancies.^{4-6,12} So, our findings highlight even more the importance to provide integral assistance, including a psychological follow-up after each pregnancy loss of women. This can help them coping with this negative experience and elaborating a new symbolic meaning for this life event. Obviously, this can help those women with previous pregnancy loss to have a positive experience in subsequent pregnancies. Moreover, this multi professional assistance can have impact on the mother-baby relationship, preventing the negative outcomes of stress for baby, like preterm birth, low birth weight and problems for the children's neuropsychological development¹⁻³ as well as to women's emotional experience at the postpartum.⁸

Some limitations of the study should be acknowledged. First, the study sample included women with miscarriage (fetal death before 24 weeks' gestation), as well as women who had stillbirth (when a baby is born dead after 24 weeks' gestation) and women who had an induced abortion. Although women fear of a new perinatal loss are common regardless of the previous loss type,⁵ women's worries may be higher when the pregnancy is in the same period in which the loss of the

previous pregnancy occurred. Second, data of mental health history of those women were not collected, that can affect the results. The stress or other mental disorders could be existed prior to the perinatal loss or even in this present pregnancy. Third, the pregnant women in the sample have an indication of elective delivery and this may increase the level of stress. Fourth, a large part of this sample already presented stress, regardless of the history of perinatal loss, which can be explained due to their systemic diseases. Finally, the time from the women's prior pregnancy loss to the present pregnancy was not measured, nor the time that those women had other pregnancy between both pregnancy loss and present pregnancy. This time is an important factor to improve the coping of grief, and a healthy pregnancy in the middle may bring more security for pregnant women.

Although these findings cannot be totally generalized, our results show that women who had a previous gestational loss can present a higher risk of mental disorders in subsequent pregnancies, especially in the postpartum period. This highlights the importance of a multiprofessional assistance to this population in order to minimize the negative consequences for the women's life, the baby and child development, and the motherhood experience.

Conclusion

In this study, it was observed that the stress in pregnancy was not higher in pregnant women with a history of gestational loss, but pregnant women with a history of pregnancy loss have more chances to have stress symptoms at their postpartum. Considering the impact of perinatal loss on a woman's life and that these finds must be confirmed, longitudinal studies need to be done, analyzing the consequences of pregnancy losses by following the maternal mental health since the beginning of pregnancy until the childbirth and the late postpartum.

Contributions

Vivas, F and Cunha, ACB contributed in all steps of this manuscript; Gribel GPC contributed with all data collected, interpretation of data and final revision; and Faus DP contributed with processing, analysis and interpretation of data, and final revision.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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