Beck Anxiety Inventory: A Correlation of Social and Obstetric Factors in High-Risk Pregnant Women in Recife, PE, Brazil

Liniker Scolfild Rodrigues da Silva[1], Eliana Lessa Cordeiro[2], Cristina Albuquerque Douberin[3], Arlley Araújo Dedier Barbosa[4], Laryssa Grazielle Feitosa Lopes[5], Phelipe Gomes de Barros[6], Josenilda Gusmão da Silva[7], Amaro Tobias Vasconcelos do Nascimento[8], Merliane Alves da Silva[9], Luana Camila Alves da Silva[10], Joel Azevedo de Menezes Neto[11], Ryan Matheus Cassimiro Lima[12]

[1]Medical Sciences College (FCM)/University of Pernambuco (UPE). Recife, Pernambuco, PE, Brazil.
E-mail: liniker_14@hotmail.com
[2]Federal University of Pernambuco (UFPE). Recife, Pernambuco, PE, Brazil.
[3]University of Pernambuco/State University of Paraíba (UPE/UEPB). Campina Grande, Paraíba, PB, Brazil.
[4]Health State Bureau of Paraíba (SES/PB). João Pessoa, Paraíba, PB, Brazil.
[5]University of São Paulo (USP). Recife, Pernambuco, PE, Brazil.
[6]University of São Paulo (USP). Recife, Pernambuco, PE, Brazil.
[7]Integrating College of Sertão (FIS). Serra Talhada, Pernambuco (PE), Brazil.
[8]Federal University of Alagoas (UFAL). Maceió, Alagoas, AL, Brazil.
[9]Higher Education Center of Patos (CEESP). Patos, Paraíba, PB, Brazil.
[10]College Alpha. Recife, Pernambuco, PE, Brazil.
[11]University Center Maurício de Nassau (UNINASSAU). Recife, Pernambuco, PE, Brazil.
[12]Health Training, Post-Graduation and Research Center (CEFAPP). Caruaru, Pernambuco, PE, Brazil.

Abstract— The present study aims to correlate social and obstetric factors with Beck anxiety inventory in high-risk pregnant women. This is a field research, a cross-sectional study of quantitative descriptive approach. The sample consisted of 112 pregnant women met in high-risk services in a maternity hospital in the city of Recife-PE, Brazil. Beck Anxiety Inventory (BAI), and sociodemographic and obstetric questionnaires were used. The data were analyzed descriptively and inferentially. There was need to use univariate Poisson regression model and two multivariate models, one for each dependent variable. The independent variables were selected if they presented p <0.20 (significant at 20%) in univariate regressions, being presented as tables. The adjustment of univariate and multivariate Poisson regressions with the variables selected in the bivariate study with p <0.20 for the proportion of patients with the presence of anxiety, emphasizing that, of the 6 variables included in the model, only religion was significant at 5% and, the values and intervals for the ratios between prevalence allow estimating that: the probability of a patient in the population selected to have anxiety is higher if the patient has no religion in relation to Catholics. There is need to develop strategies for prevention, diagnosis and treatment of anxiety disorder in pregnant women, since its development can affect the health of women and babies irreversibly, both psychologically and physically. Relaxation techniques can be stimulated as a way to improve the physical and mental condition of pregnant women, seeking a better quality of life and healthy evolution of pregnancy.

Keywords— Anxiety, Pregnant Women, Women's Health, High-Risk, Maternal-Fetal Relations.

I. INTRODUCTION

Pregnancy is a physiological phenomenon of women, characterized by the time of development of the embryo in the uterus, from conception to birth, lasting around 41 weeks. Women and health teams should understand this period as part of a life experience that involves physical and emotional changes. However, due to some risk factors, which may be due to lifestyle practice or pre-existing comorbidities, some pregnant women may have a higher probability of unfavorable evolution of pregnancy, which may reach the mother and fetus, thus characterizing a high-risk pregnancy [1, 2].

The difficulties of coping with physical, hormonal, psychological and social changes in pregnant women can generate damage in the health of the woman, the baby and significantly affect the relationship with her partner. Therefore, the mental health of pregnant women and puerperal women has been addressed because of the presence of anxiety disorders during the gestational phase [3].

Anxiety is defined as an unpleasant emotional state accompanied by somatic discomfort, which is related to fear, especially in relation to the future. Discomfort is often reported as physical sensations such as "butterflies in the stomach", "tight chest", and pointed out with involvement of biological or muscular arousal (tachycardia, increased respiratory frequency and depth, sweating and tremors), behavioral changes (difficulty concentrating and social interaction, etc.) [2].

Brazil is the country with the highest rate of people with anxiety disorders in the world and the fifth in cases of depression. According to estimates by the World Health Organization (WHO), 9.3% of Brazilians have some anxiety disorder, whose triggering factors include socioeconomic (poverty and unemployment), and environmental factors, such as lifestyle in large cities [4].

Epidemiological research data in the general population revealed that women of reproductive age have a significantly higher risk than men of developing a lifelong anxiety disorder [5]. It is estimated that 20% of women present anxiety symptoms during pregnancy and, due to its frequent confusion with organic problems, and because women are ashamed to present these complaints, anxiety is underdiagnosed during the pregnancy phase [6].

Given the high anxiety rate in pregnant women, Aaron Beck, considered one of the most influential psychotherapists of all time, created an inventory consisting of a self-report scale to discern common anxiety symptoms. In view of the above, the present study aims to correlate social and obstetric factors with Beck anxiety inventory in high-risk pregnant women.

II. METHODS

This is a field research, cross-sectional study with a quantitative approach instrument of the data descriptive type. It seeks to correlate social and obstetric factors with Beck anxiety inventory.

Pregnant women aged over 18 years met in high-risk care services at the Maternity of the Agamenon Magalhães Hospital (HAM) were included; puerperal women, pregnant women with any previous mental disorder and/or with hearing impairment unable to read were excluded.

The research was a census and the study population consisted of 126 pregnant women referred to the high-risk sector of the institution. However, only 112 pregnant women could be interviewed, excluding: 8 for refusal to participate in the study, 3 for abandoning the institution, 1 for having a previous diagnosis of mental disorder and 2 for being underage.

The study was carried out at the HAM Maternity, located in the III Health District of the City of Recife-PE, being a reference in high-risk care in the Maternity service.

Data collection was performed through visits from April to June 2016, after approval by the Research Ethics Committee (REC) of HAM under the CAAE n. 53579916.2.0000.5197. It was preceded by the signing of the Informed Consent Form (ICF) by the study subjects. The research is part of a study of the Residency Completion Work (RCW), entitled: ASSOCIATION BETWEEN SELF-ESTEEM AND ANXIETY LEVELS IN HIGH-RISK PREGNANT WOMEN IN A REFERENCE MATERNITY IN THE CITY OF RECIFE, PERNAMBUCO, BRAZIL, authored by: Liniker Scolfild Rodrigues da Silva. The same seeks to meet the recommendations of Resolution 466/12 of the National Health Council/Ministry of Health (CNS/MS).

The women were approached after admission to the high-risk sector in the maternity of the HAM, being offered explanations about the participation in the study, its risks and benefits, confidentiality, as well as their withdrawal during the process of questioning related to the collection instruments. The Beck Anxiety Inventory (BAI) or Beck Anxiety Scale (BAS) was applied, created by Aaron Beck, considered one of the most influential psychotherapists of all time and who transformed psychiatry and psychology around the world. His cognitive therapy proved to be invaluable in the treatment of a wide

variety of disorders [7]. It was validated for Brazil by Cunha in 2001 [8].

This instrument is ideal for application in psychiatric patients, although it has been used in clinic and research with non-psychiatric patients and in the general population. It is based on a self-report scale proposed by Beck to discern common symptoms of anxiety. It corresponds to a scale in which the total score is the sum of scores from (0 to 63) with 21 items in total, through the following questions: "Not at all (It doesn't bother me)"; "Mildly (It didn't bother me much)"; "Moderately (It wasn't pleasant at times)"; and "Severely (It bothered me a lot)". The results can be: 0 to 9 – minimal anxiety; 10 to 16 – mild anxiety; 17 to 29 – moderate anxiety; and 30 to 63 – severe anxiety [9].

Then, a checklist questionnaire was applied to the Sociodemographic and Obstetric Data Collection (SODC) for the analysis of biopsychosocial factors, elaborated by the researchers of this research.

The data were analyzed descriptively and inferentially. To evaluate the percentages of unsatisfactory self-esteem, a univariate Poisson regression model and two multivariate models were adjusted, one for each dependent variable. The independent variables were selected if they presented $p < 0.20$ (significant to 20%) univariate regressions. The program used for data typing and the elaboration of statistical calculations was the Statistical Package for the Social Sciences (SPSS) version 23.0.

III. RESULTS

Upon assessing social characteristics, among the interviewees, the age group between 21 and 25 years predominated, corresponding to 43 (38.4%). Regarding marital status, 40 (36.7%) were married and 38 (33.9%) were in stable union /living together. Regarding the level of education of the women in the study, 47 (42.0%) reported having complete secondary education. When asked about family income, 53 (47.3%) receive one minimum wage, while only 3 (2.7%) have a family income above three minimum wages. Regarding housing, 92 (82.1%) reside in urban areas and 102 (91.1%) live at a house. Regarding social distribution according to occupation and its type, 76 (67.9%) have some occupation and among the types, there was a predominance of "Housekeeper" with 45 (40.2%). Regarding the variable religion, 57 (50.9%) claimed to be evangelical.

In relation to the health distribution of the interviewees, there was a higher prevalence in the variable of patients of preterm gestational age (< 34 weeks), 60

(53.6%). Regarding the number of pregnancies, there was a slight difference between the variables, with a tie between first and second pregnancy with 28 (25.0%). Regarding the number of deliveries, there was also a slight difference between the variables, with a tie in the variables 0 and 1 deliveries, with 28 (25%). When asked about the number of abortions, 80 (71.4%) reported never having had an abortion.

Regarding the delivery route of previous pregnancies, the vaginal route presented the highest percentage of the non-choice of this route with 58 (51.8%) reporting that it was not the delivery route, and when questioned about the number of vaginal deliveries, the number of 1 delivery predominated with 33 (29.5%). Also, on this variable, as the number of deliveries increases, the number of vaginal deliveries decreases. Regarding cesarean surgery, 58 (51.8%) chose it as a way of delivery and, concerning the number of cesarean deliveries, the number of 1 delivery predominated with 42 (37.5%), reducing the prevalence with the increase in the number of deliveries.

Regarding pregnancy planning, 73 (65.2%) reported that the pregnancy was undesired/unplanned. Regarding the reason that the pregnant women were admitted to the high-risk sector, a higher frequency of the variable single preterm pregnancy was observed with 71 (63.4%), followed by urinary tract infection with 49 (43.8%) and gestational systolic arterial hypertension with 32 (28.6%).

Table 1 shows the results of the adjustment of univariate and multivariate Poisson regressions with the variables selected in the bivariate study with p < 0.20 for the proportion of patients with the presence of anxiety, emphasizing that, of the 6 variables included in the model, only religion was significant at 5% and the values and intervals for the ratios between prevalence allowed estimating that: the probability of a patient in the population selected to have anxiety is higher if the patient has no religion in relation to Catholics.

Table. 1: Results of univariate and bivariate Poisson regressions for the proportion of high-risk pregnant women with anxiety in the maternity ward of the HAM. Recife, PE, Brazil. 2016.

Variable	Univariate PR (95% CI)	P value	Multivariate (Adjusted) PR (95% CI)	P value
Education		0.065		0.305
Up to primary education	1.33 (0.98 - 1.79)		1.18 (0.86 - 1.64)	
Secondary/higher education	1.00		1.00	
Family income (MW†)		0.164		0.382
Less than one	1.48 (0.97 - 2.27)	0.071	1.31 (0.81 - 2.12)	0.270
One	1.35 (0.94 - 1.96)	0.109	1.28 (0.89 - 1.83)	0.183
More than one	1.00		1.00	
Occupation		0.172		0.780
Yes	1.00		1.00	
No	1.23 (0.91 - 1.65)		1.04 (0.77 - 1.40)	
Religion		0.029*		0.036*
Catholic	1.00		1.00	
Evangelical	0.85 (0.60 - 1.21)		0.90 (0.63 - 1.30)	0.592
No religion	1.42 (1.04 - 1.94)		1.38 (0.97 - 1.95)	0.073
Previous vaginal deliveries		0.107		0.234
Yes	1.28 (0.95 - 1.73)		1.20 (0.89 - 1.63)	
No	1.00		1.00	
Type of pregnancy		0.163		0.581
Desired / Planned	1.00		1.00	
Undesired / Unplanned	1.28 (0.90 - 1.82)		1.11 (0.77 - 1.58)	

Source: Created by the authors.

(*) Significant at 5%. (†) Minimum Wage.

IV. DISCUSSION

The results of the present study revealed that anxiety is present more frequently in younger women, corroborating the study by Silva et al., [6], who observed a 35% higher risk for younger pregnant women, which can be explained by the lower maturity of younger mothers in coping with difficulties and changes in the period of pregnancy. Regarding marital status, in the present study, the number of women married/in stable union and family income of one minimum wage predominated, a result also found in the study by Santos et al., [10], but, in their study, there was no significant difference between socioeconomic statuses, which was also found in the present study.

Regarding education, anxiety disorder is more frequent in pregnant women who have complete secondary education in relation to women with higher education, corroborating the study by Santos et al., [10], who found that the group with primary education had higher levels of depression when compared to the secondary education group.

Furthermore, Silva et al., [6], state in their study that low schooling influences the ability to solve problems, affecting the psychological state and consequently raising the risk for developing anxiety disorder. When questioned about the type of occupation, in our study, women who reported being "housekeepers" prevailed, corroborating the study by Candido, et al., [2], who found that the vast majority of women did not work outside the home, caring for the home and children.

Regarding the health status of pregnant women, the present study revealed a higher anxiety index among women who were in their first and second pregnancy, which corroborates the study by Arrais, Araujo and Schiavo [11], stating that primigravidas may be more likely to develop anxiety and depression symptoms.

Concerning the number of abortions suffered, the vast majority reported having never faced the experience, which corroborates the finding of Santos et al., [10], but their study unveiled that women who reported previous abortions presented more depressive symptoms in relation to the group that did not report experience with abortion, thus reaffirming that this variable is related to the symptomatological development of depression.

In relation to the delivery route, there was a higher prevalence of cesarean surgery, and, when the vaginal delivery route was chosen, as the number of deliveries increased, its prevalence decreased. This corroborates the finding in the study by Kottwitz, Gouveia and Gonçalves [12], which before the birth of the child, most women chose the vaginal route, however, when asked what they would prefer for a next pregnancy, there was an increase in the preference for cesarean surgery.

Concerning pregnancy planning, in the present study, most women did not plan pregnancy, corroborating

the finding of Santos, et al., [10], whose study revealed that 81.5% of the interviewees did not plan pregnancy, which suggests non-adherence to family planning proposed by primary health care, aimed mainly at younger, low-income women, which contributes to health promotion, helping users with information necessary to choose an appropriate contraceptive method according to Bezerra et al., [13].

Regarding the health of pregnant women and the reasons that led to hospitalization in the high-risk sector, the present study observed the high rate of reports of preterm pregnancy, which corroborates the study by Belfort, et al., [14] who confirmed that psychological factors are associated with low birth weight. Souza et al., [15], investigated in their study the endocrine and psychological factors that raise the incidence of prematurity. Scientific evidence suggests that anxiety increases the secretion of the corticotrophin-releasing hormone (CRH), which interacts with prostaglandins and oxytocin, which are mediators of uterine contraction, consequently increasing the risk of premature labor and the rates of preterm newborns.

Among all variables in a bivariate study, only religion was significant, estimating that it is less likely for women to develop anxiety in the group that reported having religion. Corroborating the studies of Gonçalves et al., [16]; and Senicate; Azevedo and Barros [17]; and Hefti [18], presenting a significant result and demonstrating that the relationship between religion and mental health evidences, in general, a lower prevalence of mood and anxiety disorders when subjects engage with religious practices, because such practices provide greater psychological well-being.

V. CONCLUSION

The results of the present study revealed a negative influence of anxiety in the interviewees, significantly influencing the health of pregnant women and fetuses. Younger women, with lower education level and lower family income, are more likely to develop anxiety disorder during pregnancy. Nevertheless, women who have religious practice are less likely to develop anxiety, taking into account the well-being reported. In the evaluation of the main reason that led to the hospitalization of pregnant women in the high-risk sector, preterm pregnancy prevailed, reaffirming that the health of the fetus is strongly influenced by the mother's health.

Thus, there is need to develop strategies for prevention, diagnosis, and treatment of anxiety disorder in pregnant women, since its development can affect the health of women and babies irreversibly, both psychologically and physically. Since this public needs more attention from health professionals, this diagnosis can be made in primary health care, aiming to prevent the hospitalization of pregnant women in high-risk units.

Pregnancy, even when in a good process of evolution, can cause anxiety in pregnant women, when the degree of psychic status of a high-risk pregnant woman is evaluated, the possibility of developing the disorder is even greater. Therefore, nurses and their respective staff play a fundamental role in interventions in high-risk pregnant women. Relaxation techniques can be stimulated as a way to improve the physical and mental condition of pregnant women, seeking a better quality of life and healthy evolution of pregnancy.

It is essential that there be more researches focused on the impact that anxiety disorder generates in pregnant women, seeking improvement in women's health care and reduction of prematurity rates.

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