

## DEPRESSIVE SYMPTOMATOLOGY AMONG PREGNANT WOMEN ATTENDED IN PRIMARY HEALTH CARE IN SOUTHERN SANTA CATARINA / BRAZIL: PREVALENCE AND ASSOCIATED FACTORS

Daniela Quedi Willig<sup>1</sup>, Fernanda Volpato de Oliveira<sup>2</sup>, Laura Botega Wiggers<sup>3</sup>,  
Rafaela Zumblick Machado<sup>4</sup>, Valentina Fretta Zappellini Bittencourt<sup>5</sup>,  
Betine Pinto Moehlecke Iser<sup>6</sup>

**Highlights:** (1) 25% of pregnant women had depressive symptoms in primary health care. (2) Unplanned pregnancy and low education were linked to maternal depression. (3) Primary care plays a key role in screening and supporting vulnerable pregnant women.

PRE-PROOF

(as accepted)

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<sup>1</sup> Universidade do Sul de Santa Catarina – UFSC. Tubarão/SC, Brazil. <https://orcid.org/0000-0002-5442-5085>

<sup>2</sup> Universidade do Sul de Santa Catarina – UFSC. Tubarão/SC, Brazil. <https://orcid.org/0000-0001-9350-5056>

<sup>3</sup> Universidade do Sul de Santa Catarina – UFSC. Tubarão/SC, Brazil. <https://orcid.org/0000-0002-9293-9079>

<sup>4</sup> Universidade do Sul de Santa Catarina – UFSC. Tubarão/SC, Brazil. <https://orcid.org/0000-0003-0749-6320>

<sup>5</sup> Universidade do Sul de Santa Catarina – UFSC. Tubarão/SC, Brazil. <https://orcid.org/0000-0003-4177-7265>

<sup>6</sup> Universidade do Sul de Santa Catarina – UFSC. Tubarão/SC, Brazil. <https://orcid.org/0000-0001-6061-2541>

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## **ABSTRACT**

**Objective:** This study aimed to evaluate the presence of depressive symptoms in pregnant women who underwent prenatal care at the Family Health Strategy Units (ESF) in the municipality of Tubarão/SC, from August to December 2022. **Method:** This is an observational epidemiological study with a cross-sectional design, carried out with pregnant, primiparous or multiparous women with gestational age above 27 weeks who agreed to participate in the study and underwent prenatal care in the city of Tubarão/SC. The researchers elaborated a protocol for data collection and the depressive symptomatology was evaluated using the Edinburgh Postpartum Depression Scale (EPDS), a validated and self-administered instrument. For the association between the variables of interest, Pearson's Chi-Square or Fisher's Exact test was used and the pre-established confidence interval was 5%,  $p \leq 0.05$ . **Results:** There was a prevalence of depressive symptoms in 25% of the evaluated pregnant women. There was an association between the EPDS instrument and: ethnicity, education, family income and planned pregnancy. Non-Caucasian pregnant women had a higher occurrence of depressive symptoms, as well as those with less education, low income and those who had not planned the pregnancy. **Conclusions:** In view of the prevalence of depressive symptoms found among the interviewees, the importance of the priority role of the Family Health Strategy (ESF) teams in minimizing the vulnerability of women in the peripartum period is evident.

**Keywords:** prepartum period, depression, pregnancy, screening

## **INTRODUCTION**

Pregnancy is a time of great transformation and triggers a series of intra and interpersonal changes in a woman's life. The complexity of this phase is conferred by the interweaving of psychosocial, emotional and behavioral aspects. Furthermore, the countless physical changes and hormonal fluctuations that occur during pregnancy have a direct impact on women's mental health<sup>1</sup>.

Although it is often portrayed as a time of happiness and anticipation, not all women experience this phase with ease. The greater emotional vulnerability of this period has a potential catalyst in the development of psychological disorders, such as depression<sup>2</sup>. One in

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every five women is affected during pregnancy by this pathogen, making it considered a highly prevalent mental health problem<sup>3</sup>.

Although the specific mechanisms are still poorly understood, it is believed that these symptoms are exacerbated by the high rate of oscillation of peptides and steroid hormones that occur during pregnancy, causing serious repercussions for both the mother and the development of the conceptus<sup>3,4</sup>. This pathology can trigger intrauterine developments with extended effects, which affect everything from fetal development and growth to childhood, culminating in delays in cognitive and language maturation; and behavioral problems in growing children<sup>5</sup>.

Regarding obstetric complications, this condition is associated with an increased risk of premature birth, a higher incidence of cesarean section, pre-eclampsia, gestational diabetes mellitus; greater propensity to smoke and alcohol use<sup>3,5</sup>.

In the emotional and psychological aspect, prenatal depression is characterized by persistent sadness, lack of interest or pleasure in daily activities, changes in appetite and sleep, feelings of guilt, hopelessness and low self-esteem, which can promote disability in approximately 6.2% of life years. Furthermore, these symptoms significantly affect the pregnant woman's quality of life, interfering with her self-care, interpersonal relationships and the bond with the developing fetus<sup>5-7</sup>.

Despite the adverse consequences, importance and prevalence of this pathology, signs of depressive symptoms during pregnancy often go unnoticed and are underdiagnosed, and with this, many women suffer invisibly, with their psychological well-being neglected by health professionals during the period. pre-delivery<sup>7</sup>. This is due to the lack of awareness about the importance of mental health during this period, the stigma associated with mental illness during pregnancy and the lack of systematic screening in primary health care services<sup>8,9</sup>.

This effective screening depends on validated, culturally appropriate and easy-to-use tools, recommending early and systematic monitoring of pregnant women, welcoming, listening and valuing their demands. The Edinburgh Postnatal Depression Scale (EPDS) is considered an approved instrument for detecting postpartum depression and is also used to screen for symptoms of depressed mood in the prenatal period<sup>10,11</sup>.

Considering the above and the importance of the topic for the health of the mother-child binomial, the present study aimed to evaluate the presence of depressive symptoms in pregnant women monitored in primary health care who underwent prenatal care in the Health Strategy

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Units of the Family (ESF) in the municipality of Tubarão/SC, from August to December 2022. Through this, it is expected to provide relevant and practical information for health professionals, aiming at early detection and comprehensive care for pregnant women.

## **METHODS**

This is an observational epidemiological study with a cross-sectional design, carried out with pregnant women who received prenatal care at the Family Health Strategy Units (ESF) in the city of Tubarão/SC, from August to December 2022. The present study is linked to a doctoral thesis entitled “Intention, Self-efficacy in breastfeeding, duration of breastfeeding and factors for weaning: cohort study”, approved by the Research Ethics Committee under opinion number 5.366.560.

Primiparous or multiparous pregnant women with a gestational age above 28 weeks were included, regardless of age, who agreed to participate in the study by signing the Free and Informed Consent Form and/or Free and Informed Assent Form, in the case of women under 18 years of age. Pregnant women with the following situations were excluded: multiple fetuses, changes in understanding or verbal expression that limited responses to data collection protocols, medical contraindication to breastfeeding due to infectious disease or medication use, foreign women and pregnant women who gave their children to adoption.

After authorization from the municipality's Municipal Health Department and approval from the Research and Ethics Committee, data was collected via analysis of the pregnant woman's booklet, the electronic medical record e-Sus APS® (Primary Health Care) and application of a protocol prepared by the researchers composed of socioeconomic data (age, self-reported color, education, marital status, profession, family income, work activity), gynecological (menarche, coitarche, parity, previous breastfeeding), obstetric (parity, planned pregnancy, prenatal care, family support, desire and guidance on breastfeeding), presence of previous comorbidity, social habits and physical activity.

Depressive symptoms were assessed using the validated instrument - Edinburgh Postpartum Depression Scale (EPDS). It is an instrument that assesses the woman's emotional aspects in the last seven days, consisting of ten questions ranging from zero to three points according to the intensity of the symptoms, the result can range from zero (best situation) to 30 (worst situation). To sum up the questions, the value 12 is used as the cut-off point ( $\geq 12$  points).

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indicates the probability of depression). The scale's questions address symptoms relating to depressed or dysphoric mood, sleep disturbance, loss of pleasure, ideas of death and suicide, decreased performance and guilt<sup>8-9</sup>.

The EPDS is a highly reliable instrument, easy to apply and interpret, with great accessibility and simplicity for incorporation into the clinical routine, and can be applied by professionals in primary health care with the purpose of identifying and sequentially evaluating the intensity of depressive symptoms during pregnancy, and, in particular, screening for major depressive disorder<sup>10,11</sup>.

The division of gestational trimesters contained in the Pregnant Woman's Card of the Ministry of Health was considered: first trimester until the 13th week; second from 14th to 26th; and third from 27th on<sup>12</sup>. For the number of prenatal appointments, the recommendations of the Ministry of Health (MS)<sup>13,14</sup> were followed. Regarding the concept of adolescence, this work followed the WHO definition, which defines this period of life as that between 10 and 19 years old<sup>15</sup>.

The collected data was compiled in an electronic spreadsheet using Excel® software and statistically treated using the Statistical Package for the Social Sciences (SPSS®) version 21.0 for Windows (IBM Corp. Armonk, NY, USA). Quantitative variables were described with measures of central tendency and dispersion, while qualitative variables were described in absolute numbers and proportions. To verify the association between the variables of interest, Pearson's Chi-Square or Fisher's Exact test was applied, and the level of statistical significance adopted was 5% ( $p < 0.05$ ).

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**RESULTS**

The study sample consisted of 120 pregnant women, with a mean age of 27.95 years ( $\pm 6.07$  years), between 16 and 43 years. More than half of the sample came from the municipality of Tubarão/SC (58.3%) and the median salary was R\$3000, ranging from R\$600 to R\$8000 (IQR R\$2000).

Regarding sociodemographic data and the practice of physical activity, there was a predominance of Caucasian ethnicity, married or stable union marital status, women with over nine years of education, who worked and did not perform physical exercise. Regarding social habits during pregnancy, the use of tobacco and alcohol had the same prevalence (5%) (Table 1).

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**Table 1** – Distribution of the sample according to sociodemographic characteristics and social habits of pregnant women who underwent prenatal care at Family Health Strategy Units in the city of Tubarão/SC, from August to December 2022.

<b>Maternal characteristics</b>	<b>n = 120</b>	<b>(%)</b>
<b>Maternal Age (years)</b>		
< 27	52	43,3
≥ 27	68	56,7
<b>Ethnicity</b>		
Caucasian	93	77,5
Non caucasian	27	22,5
<b>Marital Status</b>		
Married or Stable Union	117	97,5
Single	3	2,5
<b>Education (years)</b>		
> 9	109	90,8
≤ 9	11	9,2
<b>Labor Activity</b>		
Yes	69	57,5
No	51	42,5
<b>Practice of Physical Activity</b>		
Yes	25	20,8
No	95	79,2
<b>Tobacco use</b>		
Yes	6	5
No	114	95
<b>Alcohol use</b>		
Yes	6	5
No	114	95

Table 2 presents the obstetric, pre-pregnancy and gestational characteristics of the sample. The majority of pregnant women were multiparous with a median of one previous vaginal birth (min. 1 - max. 4), one previous cesarean section (min. 1 - max. 4) and at least one previous abortion (min. 1 - max. 5). Regarding previous comorbidities, 17.5% of the sample reported the presence of pathology, the most prevalent being: asthma (33.3%), diabetes mellitus

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(19%) and hypothyroidism (14.3%). The presence of psychiatric disorders was seen in 7.5% of pregnant women and drug treatment was the most used therapy (88.9%).

When evaluating pregnancy planning, it was found that the majority of women had not planned. However, almost all reported having received family support, as well as mentioning the desire to breastfeed their child (Table 2).

Regarding prenatal care, it was found that more than half of pregnant women had six or more prenatal consultations, with a median of seven consultations (min. 1-max. 20). However, less than half received guidance on breastfeeding in primary care (Table 2). When asked about participation in a course for pregnant women, only 14.5% (n=17) mentioned having participated.

Evaluating the participants' satisfaction with the care received at the ESF, it was seen that 88.3% (106) of pregnant women were satisfied with the assistance received.



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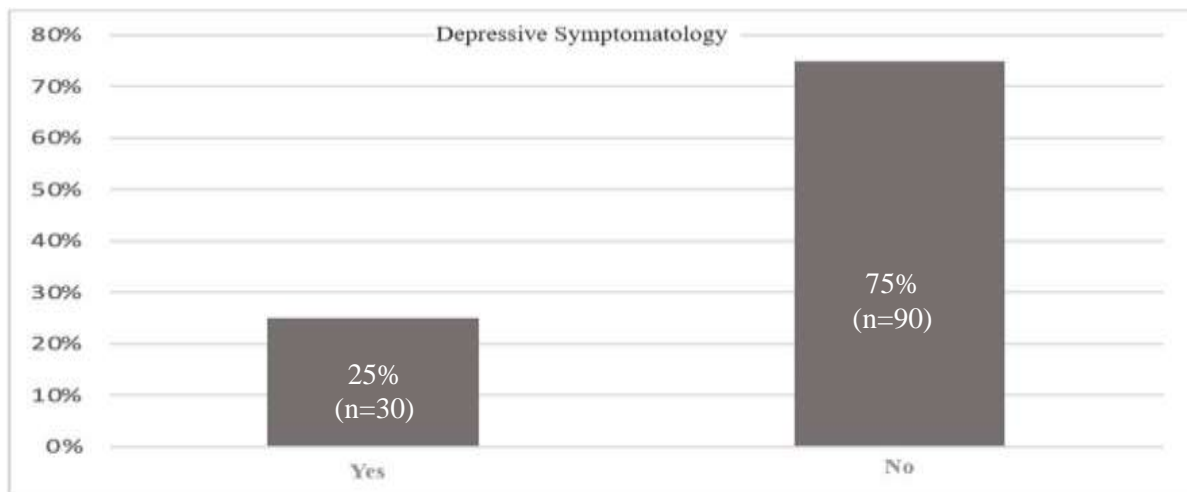
**Table 2** – Obstetric, pre-pregnancy and gestational characteristics of patients who underwent prenatal care at Family Health Strategy Units in the city of Tubarão/SC, from August to December 2022.

<b>Maternal characteristics</b>	<b>n = 120</b>	<b>(%)</b>
<b>Parity</b>		
Primiparous	36	30
Multiparous	84	70
<b>Previous comorbidity</b>		
Yes	21	17,5
No	99	82,5
<b>Presence of psychiatric disorders</b>		
Yes	9	7,5
No	111	92,5
<b>Planned pregnancy</b>		
Yes	49	40,8
No	71	59,2
<b>Family support</b>		
Yes	108	90
No	12	10
<b>Desire to breastfeed</b>		
Yes	118	98,3
No	2	1,7
<b>Pre natal appointments</b>		
≥ 6	89	74,2
< 6	31	25,8
<b>Orientation about breastfeeding</b>		
Yes	49	40,8
No	71	59,2

When evaluating the EPDS score, the median found was six points, with a range from 0 to 23 points. However, when evaluating the presence of depressive symptoms, it was found that 25% (n= 30) of the patients had symptoms (Figure 1) .

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**Figure 1** – Prevalence of depressive symptoms according to the Edinburgh Postpartum Depression Scale score applied to pregnant women who underwent prenatal care at Family Health Strategy Units in the city of Tubarão/SC.



Source: prepared by the authors (2023).

Tables 3, 4 and 5 present, respectively, the relationship between the EPDS instrument classification and the biographical, obstetric and socioeconomic maternal characteristics of the pregnant women. There was an association between the overall instrument score and the following variables: self-reported race, education, family income and planned pregnancy. Non-white pregnant women had a higher incidence of depressive symptoms ( $\chi^2$  2.69, df 1,  $p=0.01$ ), as did those with lower education ( $\chi^2$  6.68, df 1,  $p=0.01$ ), those with lower income ( $\chi^2$  5.25, df 1,  $p=0.02$ ) and those who had not planned the pregnancy ( $\chi^2$  12.52, df 1,  $p<0.01$ ).

In Tables 3 and 4, it was possible to observe that, despite the absence of statistically significant difference, pregnant women under 27 years of age exhibited a relatively higher prevalence of depressive symptoms compared to those aged 27 or over ( $\chi^2$  2.89, df 1,  $p=0.089$ ). Similarly, pregnant women without a partner presented a slightly higher prevalence of depressive symptoms compared to those who were married or in a stable union ( $\chi^2$  2.04, df 1,  $p=0.15$ ). Furthermore, primiparous pregnant women demonstrated a tendency to have a higher prevalence of depressive symptoms compared to multiparous women ( $\chi^2$  1.90, df 1,  $p=0.168$ ). Finally, although not statistically significant, a slightly higher prevalence of depressive symptoms was observed among pregnant women who were not working compared to those who were working ( $\chi^2$  2.84, df 1,  $p=0.594$ ).

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**Table 3** – Relationship between the Edinburgh Postpartum Depression Scale classification and the characteristics of pregnant women who underwent prenatal care at Family Health Strategy Units in the city of Tubarão/SC.

Sample characteristics	Presence of depressive symptoms				p
	Yes		No		
	n	%	n	%	
<b>Maternal age (years)</b>					
<27	17	32,7	35	67,3	0,08
≥ 27	13	19,1	55	80,9	
<b>Ethnicity</b>					
Caucasian	20	21,5	73	78,5	<b>0,01*</b>
Non caucasian	10	37	17	63	
<b>Marital Status</b>					
Married or Stable Union	21	22,1	74	77,9	0,15
Single	9	36	16	64	
<b>Labor Activity</b>					
Yes	16	23,2	53	76,8	0,59
No	14	27,5	37	72,5	
<b>Education (years)</b>					
> 9	2	6,9	27	93,1	<b>0,01*</b>
≤ 9	28	30,8	63	69,2	
<b>Monthly family income</b>					

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>3 thousand reais	9	15,8	48	84,2	<b>0,02*</b>
≤ 3 thousand reais	19	34,5	36	65,5	

**Parity**

Primiparous	12	33,3	24	66,7	0,16
Multiparous	18	21,4	66	78,6	

**Planned pregnancy**

Yes	4	8,2	45	91,8	<b>0,00*</b>
No	26	36,6	45	63,4	

**Legend:** \*The value  $p < 0,05$  represents statistical significance.

**Table 4** – Relationship between the Edinburgh Postpartum Depression Scale classification and the obstetric characteristics of pregnant women who received prenatal care at Family Health Strategy Units in the city of Tubarão/SC.

Sample characteristics	Presence of depressive symptoms				
	Yes		No		p
	n	%	n	%	
<b>Parity</b>					0,16
Primiparous	12	33,3	24	66,7	
Multiparous	18	21,4	66	78,6	
<b>Planned pregnancy</b>					<b>&lt;0,01*</b>
Yes	4	8,2	45	91,8	
No	26	36,6	45	63,4	

**Caption:** \*A p-value  $< 0.05$  represents statistical significance.

Source: Prepared by the authors (2023).

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**Table 5** – Relationship between the Edinburgh Postpartum Depression Scale classification and the socioeconomic characteristics of pregnant women who received prenatal care at Family Health Strategy Units in the city of Tubarão/SC

Sample characteristics	Presence of depressive symptoms				
	Sim		Não		p
	n	%	n	%	
Labor Activity					0,59
Yes	16	23,2	53	76,8	
No	14	27,5	37	72,5	
Education (years)					0,01*
> 9 years	2	6,9	27	93,1	
≤ 9 years	28	30,8	63	69,2	
Monthly family income					0,02*
>3 thousand reais	9	15,8	48	84,2	
≤ 3 thousand reais	19	34,5	36	65,5	

**Caption:** \*A p-value <0.05 represents statistical significance.

Source: Prepared by the authors (2023).

## DISCUSSION

A significant prevalence of women with depressive symptoms during pregnancy was observed in this study. It was found that 25% of pregnant women experienced episodes of subsyndromal depression or elevated depressed mood. The same prevalence was found by Bonatti et al.<sup>3</sup> and SILVA et al.<sup>6</sup> who found the presence of depressed mood affecting one in every five women during the gestational period.

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However, worldwide, estimates of the prevalence of prenatal depression vary widely. Dadi et al.<sup>16</sup>, carried out a comprehensive review, including ten systematic reviews based on 306 primary studies, to examine the global prevalence of depression in the prenatal stage, finding a prevalence range of 15 to 65% in low-income and middle-income countries and 17% prevalence grouped in high-income countries. The observed variation raises important questions about the influence of several factors that may contribute to this condition. Cultural differences, such as attitudes and beliefs regarding mental health and pregnancy, can affect the perception and disclosure of prenatal depression, as well as the diagnostic criteria used in studies and the characteristics of the samples studied.

Regarding ethnicity, the largest portion of respondents were Caucasian (77.5%, 93). However, non-Caucasians, who represented 22.5% of the sample, had a higher prevalence of depressive symptoms (37%) compared to white mothers (21.5%). This finding can be attributed to the fact that black women experience inequalities more intensely, being more exposed to risk factors for triggering depressive disorders, especially during pregnancy<sup>6,17</sup>.

Regarding the education level of the interviewees, it was evident that most of the women had a good level of education, this result is in accordance with the Continuous National Household Sample Survey (PNAD)<sup>18</sup>, which demonstrated, in Santa Catarina, a number average of 9.7 years of study for people over 25 years old. Furthermore, it was seen that the majority of interviewees carried out 57.5% of work activities, a figure higher than that found by the 2022 Social Indicators Synthesis, which found, in Brazil, an employment level of 51.2%<sup>19</sup>. However, in this study, there was no association between professional occupation and the presence of significant depressive symptoms.

It is worth mentioning that depressive symptoms encompass several economic and social factors that have been related to the occurrence of mental disorders in the perinatal period, among which low maternal education and precarious socioeconomic conditions are among the most commonly cited<sup>1</sup>. In the present study, it was possible to identify a relationship between low maternal educational level and a greater occurrence of depressive symptoms, as well as a monthly family income less than or equal to R\$3,000.00. Research carried out by Lima et al<sup>1</sup>, showed that higher education was a protective factor, reducing the occurrence of depressive manifestations by 14.3% per year of study. This finding can possibly be explained by the greater adversities faced throughout life by individuals with lower educational levels

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due to fewer employment opportunities, limited access to higher-paying positions and greater difficulties in social and economic terms. This financial fragility can be a contributing factor to a state of sadness and hopelessness, amplifying in an unfavorable way the coping with stressful situations, such as pregnancy.

Regarding pregnancy planning, it was seen that the majority of women (59.2%) had no intention of getting pregnant, and, among these, the prevalence of depressive symptoms was four times higher (36.6%) when compared to those who planned gestation (8.2%). Corroborating the findings of the present study, Muskens et al.<sup>20</sup> identified, in a longitudinal cohort throughout the perinatal period, that among women with depressed mood, 36.9% became pregnant unintentionally. Another study also carried out in Brazil found that unplanned pregnancy, as well as lack of psychological support, were factors related, in adjusted analysis, to the greater presence of depressive symptoms<sup>21</sup>. Therefore, there is a need for public health actions to encourage family planning, since this measure would aim to prevent unplanned pregnancies and the factors triggered by them.

Regarding care for pregnant women in the ESF, more than half of those interviewed had six or more gynecological prenatal consultations, with a median of seven consultations. This finding is in line with what is recommended by the Ministry of Health<sup>14</sup> of at least six consultations in this phase.

Still, even with the pregnant woman's sustained involvement in the Unified Health System provided by prenatal care, less than half received guidance on breastfeeding during assessments in primary care and only 14.5% mentioned having participated in breastfeeding groups.

These findings are alarming and highlight the importance of quality care. Prenatal care is essential to ensure a healthy pregnancy and to provide essential guidance to pregnant women, including information on breastfeeding. In addition, participation in pregnancy groups can provide a supportive environment and exchange of experiences that contributes to women's emotional well-being during pregnancy, clarifying doubts, offering emotional support and providing a space to discuss issues related to motherhood.<sup>22</sup>

It is important to highlight that primary care is the ideal environment to welcome and guide pregnant women. It is often the first sustained point of contact for these women with health services, which offers the opportunity to establish a relationship of trust and continuous

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pre- and post-pregnancy support, enabling early detection of warning signs and the implementation of appropriate interventions<sup>7,9</sup>.

The findings of this study highlight the burden of prenatal depression, emphasizing to health professionals the importance of monitoring pregnant women, especially during prenatal care, given its consequences for both maternal and child well-being, as well as its potential impact on pregnancy outcomes and fetal development. In addition, these findings elucidate the relevance of implementing effective screening tools during prenatal assessments, aiming at the early detection of significant depressive symptoms and enabling appropriate interventions to mitigate these impacts.

As limitations, it is worth noting that this study did not analyze the variable of whether or not pregnant women had COVID-19, although some pregnancies may have occurred during the pandemic. However, previous studies have indicated a possible increase in the occurrence of perinatal depression during and after the COVID-19 pandemic, which may be linked to fear of infection, as already shown in another study. In addition, such studies conducted in the post-pandemic period have shown prevalence rates similar to those found in this study.

## **CONCLUSION**

This study found that the profile of pregnant women treated in primary care in the city studied was Caucasian women, over 27 years old, with a partner, who were working and with more than nine years of study.

A prevalence of depressive symptoms was found in 25% of the pregnant women evaluated. There was an association between the EPDS instrument and: ethnicity, education, family income and planned pregnancy. Non-Caucasian pregnant women had a higher incidence of depressive symptoms, as did those with less education, low income and those who had not planned their pregnancy.

It should be noted that, in prenatal care, the integration of different health professionals, such as doctors, nurses, psychologists and social workers, is essential to guarantee a multidisciplinary and comprehensive approach, aiming to promote the health and well-being of both the woman and the fetus. In this way, the importance of the priority role of the Family Health Strategy (ESF) teams in minimizing the vulnerabilities of women in the peripartum period is evident, offering appropriate interventions and treatment approaches in primary care.



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Daniela Quedi Willig: Conceptualization; Data curation; Formal analysis; Methodology; Project administration; Resources Supervision; Validation; Writing – review & editing.

Fernanda Volpato de Oliveira: Conceptualization; Investigation; Resources; Visualization; Writing – original draft.

Laura Botega Wiggers: Conceptualization; Investigation; Resources; Visualization; Writing – original draft.

Rafaela Zumblick Machado: Conceptualization; Investigation; Resources; Visualization; Writing – original draft.

Valentina Fretta Zappelini Bittencourt: Conceptualization; Investigation; Resources; Visualization; Writing – original draft.

Betine Pinto Moehlecke Iser: Formal analysis, Project administration Supervision; Validation; Writing – review & editing.

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**Corresponding author:**

Fernanda Volpato de Oliveira

Universidade do Sul de Santa Catarina (UNISUL)

Av. José Acácio Moreira, 787 - Bairro Dehon – CEP: 88704-900 Tubarão/SC, Brazil.

[fervolpatoolv@gmail.com](mailto:fervolpatoolv@gmail.com)

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