Exploring the relationship of perinatal depression regarding body image dissatisfaction, intuitive eating, and gestational and social factors in high-risk pregnancy

Explorar a relação da depressão perinatal com a insatisfação com a imagem corporal, a alimentação intuitiva e os fatores gestacionais e sociais na gravidez de alto risco

Explorar la relación entre la depresión perinatal y la insatisfacción con la imagen corporal, la alimentación intuitiva y los factores gestacionales y sociales en embarazos de alto riesgo

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ABSTRACT
To assess the prevalence of depressive symptoms and associated factors (i.e.: intuitive eating, body image dissatisfaction, and gestational and sociodemographic factors) in high-risk pregnant women. This cross-sectional study included 139 pregnant women, assisted by high-risk prenatal care in a university hospital in northeastern Brazil between January and May 2021. Self-report instruments were used to evaluate depressive symptoms, body image dissatisfaction, and intuitive eating (i.e.: Beck Depression Inventory, Body Shape Questionnaire, and Intuitive Eating Scale-2). Depressive symptoms were found in 33.09% of the sample, especially among women with lower education. Depressive symptoms, body image dissatisfaction, and intuitive eating were correlated (p<0.001; depression and body image dissatisfaction r=0.53; depression and intuitive eating r=-0.32; body image dissatisfaction and intuitive eating r=-0.39). Women presenting more depressive symptoms made more choices based on emotional reasons and with less attention to body-food congruence. This study has unveiled a notable occurrence of depressive symptoms within the examined group of high-risk pregnant women, particularly among those with limited educational backgrounds. The findings also highlight that positive eating behaviors, such as intuitive eating, and body image satisfaction are less displayed when there are high levels of depressive symptoms. These results emphasize the critical necessity for understanding of depression correlations with behaviors capable of exerting an influence on, or exacerbating, clinical conditions among high-risk pregnant individuals remains imperative.

Keywords: body image, depression, eating behavior, pregnant women.

RESUMO
Avaliar a prevalência de sintomas depressivos e fatores associados (i.e.: alimentação intuitiva, insatisfação com a imagem corporal e fatores gestacionais e sociodemográficos) em gestantes de alto risco. Este estudo transversal incluiu 139 gestantes, assistidas pelo pré-natal de alto risco em um hospital universitário no nordeste do Brasil entre janeiro e maio de 2021. Foram utilizados instrumentos de autorrelato para avaliar sintomas depressivos, insatisfação com a imagem corporal e alimentação intuitiva (i.e.: Inventário de Depressão de Beck, Questionário de Forma Corporal e Escala de Alimentação Intuitiva-2). Os sintomas depressivos foram encontrados em 33,09% da amostra, especialmente entre as mulheres com menor escolaridade. Os sintomas depressivos, a insatisfação com a imagem corporal e a alimentação intuitiva foram correlacionados (p<0,001; depressão e insatisfação com a imagem corporal r=0,53; depressão e alimentação intuitiva r=-0,32; insatisfação com a imagem corporal e alimentação intuitiva r=-0,39). As mulheres que apresentavam mais sintomas depressivos faziam mais escolhas com base em razões emocionais e com menos atenção à congruência corpo-alimento. Este estudo revelou uma ocorrência notável de sintomas depressivos no grupo examinado de gestantes de alto risco, principalmente entre aquelas com formação educacional limitada. Os resultados também destacam que os comportamentos alimentares positivos, como a alimentação intuitiva e a satisfação com a imagem corporal, são menos exibidos quando há altos níveis de sintomas depressivos. Esses resultados enfatizam a necessidade crítica de compreender as correlações entre depressão e comportamentos capazes de exercer influência ou exacerbar condições clínicas entre gestantes de alto risco.

Palavras-chave: imagem corporal, depressão, comportamento alimentar, gestantes.
RESUMEN
Evaluar la prevalencia de síntomas depresivos y factores asociados (es decir, alimentación intuitiva, insatisfacción con la imagen corporal, factores gestacionales y sociodemográficos) en mujeres embarazadas de alto riesgo. Este estudio transversal incluyó 139 mujeres embarazadas que asistieron a la atención prenatal de alto riesgo en un hospital universitario en el noreste de Brasil entre enero y mayo de 2021. Se utilizaron instrumentos de autoinforme para evaluar los síntomas depresivos, la insatisfacción con la imagen corporal y la alimentación intuitiva (es decir, el Inventario de Depresión de Beck, el Cuestionario de Forma Corporal y la Escala de Alimentación Intuitiva-2). Se detectaron síntomas depresivos en el 33,09% de la muestra, especialmente entre las mujeres con menor nivel de estudios. Los síntomas depresivos, la insatisfacción con la imagen corporal y la alimentación intuitiva estaban correlacionados (p<0,001; depresión e insatisfacción con la imagen corporal r=0,53; depresión y alimentación intuitiva r=-0,32; insatisfacción con la imagen corporal y alimentación intuitiva r=-0,39). Las mujeres con más síntomas depresivos hicieron más elecciones basadas en razones emocionales y con menos atención a la congruencia cuerpo-alimentación. Este estudio reveló una notable presencia de síntomas depresivos en el grupo examinado de mujeres embarazadas de alto riesgo, especialmente entre las que tenían un nivel educativo limitado. Los resultados también ponen de relieve que las conductas alimentarias positivas, como la alimentación intuitiva y la satisfacción con la imagen corporal, se manifiestan en menor medida cuando existen altos niveles de síntomas depresivos. Estos resultados enfatizan la necesidad crítica de comprender las correlaciones entre la depresión y los comportamientos capaces de influir o exacerbar las condiciones clínicas entre las mujeres embarazadas de alto riesgo.

Palabras clave: imagen corporal, depresión, conducta alimentaria, gestantes.

1 INTRODUCTION
The gestational period is a time of psycho-emotional vulnerability for pregnant women to develop mood disorders (UGUZ et al., 2019), especially among those with obstetric complications (RODRIGUES et al., 2016; TSAKIRIDIS et al., 2019). High-risk pregnant women experience heightened mental distress, given that their condition increases the likelihood of adverse outcomes for the health of the mother, fetus, or newborn (RODRIGUES et al., 2016).

High-risk pregnant women require specialized and more attentive care to effectively manage comorbidities, including conditions like diabetes, hypertension, and obesity (RODRIGUES et al., 2016). However, depression may affect a pregnant woman’s ability to look for prenatal care and to build maternal bonding with the infant (VAN NIEL; PAYNE, 2020). Untreated perinatal depression threatens the physical health of both the mother and the fetus, increasing risks of maternal suicide, gestational hypertension, preeclampsia, spontaneous
miscarriage, delayed neonatal development, preterm delivery, fetus mortality, and behavior disturbances in the baby (GELAYE et al., 2016; VAN NIEL; PAYNE, 2020).

Notably, depression can instigate the adoption of maladaptive health behaviors, including alterations in eating patterns (DUNCOMBE et al., 2008). Such behavioral shifts can subsequently elevate the risk of excessive gestational weight gain (HARTLEY et al., 2018) and contribute to body dissatisfaction (LINDE et al., 2022). Depressive symptoms are related to overeating associated with emotional eating (VAN STRIEN, 2018), this behavior has mediated the relation between depression and the development of obesity (KONTTINEN et al., 2019). Studies have highlighted increased emotional eating in pregnant women facing public health crises, associated with excess gestational weight gain (ZHANG et al., 2020). Pregnant people may have difficulties adapting to their new weight and body concept (SHLOIM et al., 2015) and when gestational weight gain is excessive the body dissatisfaction is increased (HILL et al., 2023).

Pregnant women with depression are less willing to take care of their health and engage in behaviors that may pose health risks (BONARI et al., 2004). Moreover, considering the significant underdiagnosis of depression in Brazil, these risks may be higher (FAISAL-CURY; RODRIGUES; MATIJASEVICH, 2021). In addition, suffering with perinatal depression is wrapped between stigmas and natural changes that makes screening difficult for health professionals and relatives (VAN NIEL; PAYNE, 2020). Therefore, identifying new opportunities for screening the risk of perinatal depression becomes a crucial aspect of care. Thus, the objectives of the current study were to assess the prevalence of depressive symptoms among high-risk pregnant women, and to explore potential connections between intuitive eating behavior, body image dissatisfaction, gestational factors, and sociodemographic variables and the risk of depression within this group.

2 METHODS
2.1 PARTICIPANTS AND PROCEDURE

This consists of a transversal observational study conducted with pregnant women in a reference university hospital for high-risk prenatal care. Between January and May 2021, 207 pregnant women were recruited on the day of their prenatal follow-up appointment in the city Recife, Brazil. During that period, Brazil experienced the pandemic of the new coronavirus
(SARS-CoV-2) aggravated by significant social and economic inequalities and reached frightening levels in virus transmission (SOTT; BENDER; DA SILVA BAUM, 2022).

All women who filled both of the following criteria were invited to participate in the study: (1) older than 18 full years old; and (2) assisted by the hospital’s high-risk prenatal care program. Participants were invited to answer self-report instruments on paper while waiting for their medical appointment. All of them signed an Informed Consent Form. The study was approved by the Ethics Committee of the Federal University of Pernambuco’s University Hospital (Decision nº 31892920.0.3001.8807).

2.2 MEASURES

2.2.1 Depressive symptoms

The intensity of depressive symptoms was measured through the Beck Depression Inventory (BDI) (BECK et al., 1961), using its Portuguese version validated for the Brazilian population (GORESTEIN; ANDRADE, 1998). This self-report instrument consists of 21 items with four alternative answer options about how the individual was feeling in the previous two weeks. The existence or lack of a previous mood disorder diagnosis was not considered for interpretation of the results. For scores equal to or less than 15, we considered no mood disorder was present (absent); above 15 were considered as dysphoria (sudden and transient change in mood); and the term “depression” was used for results above 20 points, as in a previous study with a similar sample (MEIRELES et al., 2017) and as recommended in the literature (KENDALL et al., 1987).

2.2.2 Social-demographic data, gestational aspects, and anthropometric measurements

Social-demographic and gestational data were collected by self-report questionnaires. Those data were used for sample characterization and test correlation with depression risk. The factors collected were age, gestational age, marital status, educational level, employment, planned pregnancy, twin pregnancy, and current physical activity.

Anthropometric data (i.e., height, current weight, and pre-gestational weight) were consulted for each pregnant woman in the document filled in by the health team for prenatal follow-up and reported through the self-report questionnaire.
2.2.3 Intuitive eating

Intuitive eating behavior was assessed through the Portuguese version of Intuitive Eating Scale-2 (IES-2), validated, and approved in terms of its psychometric properties observed among the Brazilian women population (DA SILVA et al., 2020). This tool measures intuitive eating by analyzing food choice over 4 domains (TYLKA; KROON VAN DIEST, 2013): (1) Unconditional Permission to Eat (UPE); (2) Eating for Physical Rather Than Emotional Reasons (EPR); (3) Reliance on Hunger and Satiety Cues (RHSC); and (4) Body-Food Choice Congruence (B-FCC). It is a self-report instrument of 23 items answered on a five-point Likert scale. The final score is obtained by calculating the mean between all items, and a higher score indicates a higher degree of intuitive eating (TYLKA, 2006).

2.2.4 Body image dissatisfaction

Body image dissatisfaction in pregnant women was measured through the Body Shape Questionnaire (BSQ) (COOPER et al., 1987), using the Portuguese version validated for the Brazilian population (DI PIETRO; XAVIER DA SILVEIRA, 2009). This tool measures concerns over body shape and the perception of one’s own weight over the previous four weeks. The questionnaire consists of 34 items answered on a six-point Likert scale.

2.3 EXCLUSION CRITERIA

The study’s exclusion criteria included: (1) assessment instruments for depressive symptoms containing invalid answers (i.e., incomplete questionnaires and/or with more than one alternative chosen per item); and (2) pregnant women who could not read or understand the questionnaires.

2.4 STATISTICAL ANALYSIS

The dependent and ordinal variables in this study were the BDI, BSQ and IES-2 scores. The tested factors were BMI, marital status, education level, gainful employment, number of pregnancies, planned pregnancy, current physical activity, and gestational trimester. Descriptive analyses were carried out, and continuous variables are shown as mean and standard deviation. Data were tested for normality using the Shapiro-Wilk test, and for homoscedasticity using the Levene test. For comparison between two and several samples were used a Mann-Whitney test.
and Kruskal-Wallis test, respectively, and for a post-hoc pairwise comparison, the Dunn Test. Correlations between variables were tested using the Spearman Correlation Test. Data were analyzed through the Statistical Package for the Social Sciences (SPSS) software version 25.0. In all cases, the significance level used was p<0.05.

3 RESULTS

The final sample included 139 high-risk pregnant women, with mean age of 28.69±6.57 years. Depressive symptoms and body dissatisfaction were found in 33.09% and 29.10% of the sample, respectively (table 1). The IES-2 score ranged from 1.61 to 4.57, averaging 3.27±0.56.

Depressive symptoms, body image dissatisfaction, and intuitive eating scores exhibited a low-to-moderate significant correlation (p<0.001; depressive symptoms and intuitive eating r=-0.32; depressive symptoms and body dissatisfaction r=0.53; body image dissatisfaction and intuitive eating r=-0.39). As for intuitive eating subscales, UPE, EPR and B-FCC were negatively correlated to depressive symptoms and/or body image dissatisfaction (table 2).

Table 1 – Classification of the high-risk pregnant women sample according to categories for depressive symptoms and body image dissatisfaction, and mean scores for intuitive eating.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>%</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depressive Symptom</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>93</td>
<td>66.91%</td>
<td>3.27</td>
<td>0.56</td>
</tr>
<tr>
<td>Dysphoria</td>
<td>13</td>
<td>9.35%</td>
<td>3.48</td>
<td>0.76</td>
</tr>
<tr>
<td>Depression</td>
<td>33</td>
<td>23.74%</td>
<td>3.20</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>Intuitive Eating</strong>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General score</td>
<td>95</td>
<td>70.90%</td>
<td>3.11</td>
<td>1.00</td>
</tr>
<tr>
<td>UPE</td>
<td>16</td>
<td>11.94%</td>
<td>3.35</td>
<td>0.79</td>
</tr>
<tr>
<td>EPR</td>
<td>14</td>
<td>10.45%</td>
<td>3.09</td>
<td>0.79</td>
</tr>
<tr>
<td>RHSC</td>
<td>9</td>
<td>6.72%</td>
<td>3.11</td>
<td>1.00</td>
</tr>
<tr>
<td>B-FCC</td>
<td>33</td>
<td>23.74%</td>
<td>3.11</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Body Image Dissatisfaction</strong>b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>95</td>
<td>70.90%</td>
<td>3.11</td>
<td>1.00</td>
</tr>
<tr>
<td>Low</td>
<td>16</td>
<td>11.94%</td>
<td>3.20</td>
<td>0.92</td>
</tr>
<tr>
<td>Moderate</td>
<td>14</td>
<td>10.45%</td>
<td>3.11</td>
<td>1.00</td>
</tr>
<tr>
<td>Severe</td>
<td>9</td>
<td>6.72%</td>
<td>3.11</td>
<td>1.00</td>
</tr>
</tbody>
</table>

aN: 116. bN: 134.
Source: The authors.

Table 2 – Spearman’s correlation coefficient (rho) for the analyzed variables.

<table>
<thead>
<tr>
<th></th>
<th>BDI</th>
<th>BSQ</th>
<th>IES-2</th>
<th>UPE</th>
<th>EPR</th>
<th>RHSC</th>
<th>B-FCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>-</td>
<td>0.53***</td>
<td>-0.32***</td>
<td>-0.04</td>
<td>-0.33***</td>
<td>-0.14</td>
<td>-0.19*</td>
</tr>
<tr>
<td>BSQ</td>
<td>-</td>
<td>-</td>
<td>-0.39***</td>
<td>-0.25**</td>
<td>-0.27***</td>
<td>-0.15</td>
<td>-0.17</td>
</tr>
</tbody>
</table>

N: 113. ***p<0.001; **p<0.01; *p<0.05.
Source: The authors.
The sample was of pregnant women with only one fetus (93.02%) with mean gestational age was 26.82±8.67 weeks. The mean pregestational and current BMI were 27.10±6.50 kg/m2 and 29.81±6.41 kg/m2, respectively. All factors of table 3 had tested differences using BDI scores for each group. BDI scores had significant differences among the education level of women (p<0.05; H: 9.33) and pairwise comparison can be found in figure 1.

Table 3 – Characterization of high-risk pregnant women and statistical results of the factors with BDI scores.

<table>
<thead>
<tr>
<th>Sample characterization</th>
<th>N (%)</th>
<th>BDI Score Mean (SD)</th>
<th>Statistical Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With a partner (Common-law marriage or Married)</td>
<td>90 (64.75%)</td>
<td>13.67 (11.21)</td>
<td>p=0.48</td>
</tr>
<tr>
<td>Single (Unmarried, Divorced or Widow)</td>
<td>49 (35.25%)</td>
<td>12.27 (10.64)</td>
<td>U: 1101.5</td>
</tr>
<tr>
<td><strong>Education level</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incomplete elementary school</td>
<td>10 (7.87%)</td>
<td>20.8 (15.70)</td>
<td>p=0.025</td>
</tr>
<tr>
<td>Complete elementary school</td>
<td>20 (15.75%)</td>
<td>14.35 (10.15)</td>
<td>H: 9.33</td>
</tr>
<tr>
<td>Complete high school</td>
<td>81 (63.78%)</td>
<td>13.56 (10.85)</td>
<td>H: 9.33</td>
</tr>
<tr>
<td>Complete university</td>
<td>16 (12.60%)</td>
<td>6.87 (6.33)</td>
<td></td>
</tr>
<tr>
<td><strong>Gainful employment</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48 (35.00%)</td>
<td>12.23 (10.60)</td>
<td>p=0.56</td>
</tr>
<tr>
<td>No</td>
<td>89 (65.00%)</td>
<td>13.18 (10.08)</td>
<td>U: 2006.5</td>
</tr>
<tr>
<td><strong>Pregnancy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First pregnancy</td>
<td>36 (25.90%)</td>
<td>10.89 (9.28)</td>
<td>p=0.31</td>
</tr>
<tr>
<td>Second or more pregnancy</td>
<td>103 (74.1%)</td>
<td>13.42 (11.29)</td>
<td>U: 1642.5</td>
</tr>
<tr>
<td><strong>Planned pregnancy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>51 (36.69%)</td>
<td>13.04 (10.95)</td>
<td>p=0.71</td>
</tr>
<tr>
<td>No</td>
<td>88 (63.31%)</td>
<td>12.60 (10.82)</td>
<td>U: 2159.5</td>
</tr>
<tr>
<td><strong>Current physical activity</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24 (17.52%)</td>
<td>14.58 (11.29)</td>
<td>p=0.32</td>
</tr>
<tr>
<td>No</td>
<td>113 (82.48%)</td>
<td>12.49 (10.81)</td>
<td>U: 1181</td>
</tr>
<tr>
<td><strong>Gestational trimester</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st trimester</td>
<td>16 (11.68%)</td>
<td>14.44 (11.24)</td>
<td>p=0.63</td>
</tr>
<tr>
<td>2nd trimester</td>
<td>39 (28.47%)</td>
<td>12.72 (12.02)</td>
<td>H: 0.92</td>
</tr>
<tr>
<td>3rd trimester</td>
<td>82 (59.85%)</td>
<td>12.62 (10.32)</td>
<td></td>
</tr>
<tr>
<td><strong>Classification according to pre-gestational BMI</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>8 (5.93%)</td>
<td>8.37 (5.93)</td>
<td>p=0.30</td>
</tr>
<tr>
<td>Normal range</td>
<td>44 (32.59%)</td>
<td>12.04 (10.88)</td>
<td>H: 3.68</td>
</tr>
<tr>
<td>Overweight</td>
<td>36 (26.67%)</td>
<td>11.72 (10.38)</td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td>47 (34.81%)</td>
<td>15.08 (11.86)</td>
<td></td>
</tr>
<tr>
<td><strong>Classification according to current BMI</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>13 (9.63%)</td>
<td>8.15 (7.59)</td>
<td>p=0.06</td>
</tr>
<tr>
<td>Normal range</td>
<td>35 (25.93%)</td>
<td>16.08 (11.40)</td>
<td>H: 7.38</td>
</tr>
<tr>
<td>Overweight</td>
<td>36 (26.67%)</td>
<td>11.11 (11.41)</td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td>51 (37.78%)</td>
<td>13.23 (10.57)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>N: 127. <sup>b</sup>N: 137. <sup>c</sup>N: 135.

Source: The authors.
Figure 1 - Mean BDI scores and standard deviation according to the educational level categories of the high-risk pregnant woman.

**Legend:** Mean BDI scores and standard deviation for each educational level category. N: 127. **p<0.01; *p<0.05.**

Box diagram legend: the solid line inside the box indicates the median, the box represents the interquartile range (lower = 25th percentile, upper = 75th percentile), the lines extend up until the highest value within 1.5x of the interquartile range, the ‘x’ marks represent mean.

Source: The authors.

4 DISCUSSION

The prevalence of depressive symptoms and potential associations were evaluated in high-risk pregnant women. Perinatal depression was positively correlated to body image dissatisfaction and negatively correlated to intuitive eating. Pregnant women with more depressive symptoms presented more emotional eating behavior and less congruence in body-food choice. The risk of depression is lower in women with a high level of education.

Perinatal depression was often underdiagnosed in Brazil, especially in women with less social privileges (FAISAL-CURY; RODRIGUES; MATIJASEVICH, 2021). Before the SARS-CoV-2 pandemic in Brazil, the prevalence of antenatal depression using BDI was between 18.32 and 23.88% (CASTRO E COUTO et al., 2016). Our results presented depressive symptoms in 33.09% of the sample. The atypical period experienced during the pandemic affected pregnant women’s mental health, so prevalence of depressive symptomatology was higher than the pre-pandemic in different countries (FARRELL et al., 2020; LEBEL et al., 2020). Besides that, people with pre-existing health conditions, such as diabetes, obesity, or cardiovascular risk, had
increased chances for depressive and anxiety symptoms and fear of coronavirus disease 2019 (COVID-19) (BUNEVICIENE et al., 2022). Furthermore, the data was collected during the lockdown period in the city when socializing was discouraged. Pregnancy is a time when social bonds are especially positive for women's mental health. Support networks in the community tend to reduce anxiety and risk of depression as the perinatal period changes, regardless of women's marital status (CLEMENTS et al., 2016).

High-risk pregnant women with more depressive symptoms ate less intuitively, making more choices based on emotional reasons and with less attention to body-food congruence. To our knowledge, this present study is the first to assess the relationship between these variables in high-risk pregnant women. Choosing food for long-term goals as health was determined by mood influences. When there was a positive mood, the food chosen could be done thinking about results in the long-term and health, on the other hand, the depressive mood decreased the temporal perception, aiming for immediate results, such as mood management (WANSINK et al., 2014). Emotional eating happens in response to negative emotions or stress, being used as an effective coping strategy to deal with negative affects (SPENCE; COURBASSON, 2012), and decreases self-control of food intake (VAN STRIEN, 2018). During COVID-19 outbreak, higher stress and depressive symptoms were associated with higher risk of binge eating (RAMALHO et al., 2022; SIMONE et al., 2021). The use of "comfort foods", which is the opposite of dietary restriction, was increased during the pandemic to relieve stress, and was mediated by emotional distress (SALAZAR-FERNÁNDEZ et al., 2021; SHEN et al., 2020). Besides that, eating with less attention to body-food congruence was related to a less healthy and higher calorie food intake (PLANTE et al., 2019), with an excess of sugar- and fat-rich food items (CAMILLERI et al., 2017). These results could be a concern considering the sample was majority sedentary and had food limitations due to their high-risk medical condition.

Intuitive eating was negatively associated with body image dissatisfaction. This relationship has happened especially among women, in which body appreciation was a requirement for intuitive eating (TYLKA; HOMAN, 2015). A longitudinal study with over 11,000 pregnant women showed that the loss of control when eating was more common among pregnant women with a higher body dissatisfaction (MICALI et al., 2018). In our study, the most dissatisfied participants exhibited higher restrictive and emotional eating, supported by literature (SAVARD et al., 2021; SHLOIM et al., 2015). Pregnant women felt concerned about their weight...
and body or being judged about being fat, because being fat meant they were failing over the stereotype of the modern woman and putting their potential as a woman in maternity at risk (NASH, 2012). Restrictive eating was used as an alternative for weight control in pregnancy (DUNCOMBE et al., 2008). However, maintaining effort in controlling eating by focusing on cognitive food restriction had the potential to increase stress levels (ANDERSON et al., 2002). Furthermore, stress increased the perceived pleasure associated with emotional eating episodes (KLATZKIN et al., 2019). An emotion-based eating was related to excessive weight gain during pregnancy (PLANTE et al., 2019; ZHANG et al., 2020), which was a health indicator monitored during high-risk pregnancies. The relationship between these factors may be cyclical, as women who performed dietary restrictions also had elevated perceived body dissatisfaction (PIETROWSKY; STRAUB; HACHL, 2003).

Depressive symptoms were positively associated with body image dissatisfaction, which was corroborated by the literature (DRYER; GRAEFIN VON DER SCHULENBURG; BRUNTON, 2020; MEIRELES et al., 2017). In addition to many women with depression experiencing changes in appetite and weight that may affect their perception of their body, other relationships may exist. Depression can lead to low self-esteem and a negative view of self (KOH et al., 2019) and lack of motivation to care for the body, including necessary attention for pre-existing medical health conditions and promoting sedentary behavior (EGEDE; OSBORN, 2010), which could increase dissatisfaction with appearance. In addition, depression could be associated with a range of other mental health problems, such as anxiety disorder, which could also negatively affect body image perception (KOH et al., 2019).

Our study suggested women with complete higher education had lower risk for depression. People with higher education were more satisfied with different fields of life and experienced higher well-being (NIKOLAEV, 2018). That could be explained because the higher education level could promote more financial autonomy (NIKOLAEV, 2018), that could reduce economic stress and help women to focus more on herself. Besides that, higher educational levels might offer women more understanding about resources that may be available for coping with stress and other emotional difficulties, such as access to support services and stress management techniques (BRIFFAULT et al., 2008). Furthermore, these women could have better communication with medical staff, being able to demonstrate their concerns and needs, leading to more effective and personalized care, bringing more confidence to them (AKTAÇ et al., 2018).
While this investigation is constrained by a potential bias towards the third trimester due to higher health service attendance, the findings underscore the pressing need for comprehensive research across all gestational trimesters. By conducting future studies that encompass the entire spectrum of pregnancy stages, we can obtain a more holistic understanding of the interplay between depressive symptoms, eating behaviors, and body image dissatisfaction in high-risk pregnant women.

This study holds significant implications for understanding and monitoring perinatal depression through behavioral indicators. Conducted during a period of heightened public health awareness, the research engaged in-person with women experiencing high-risk pregnancies. Notably, this investigation exclusively focused on the high-risk gestational population. By unveiling associations between depressive symptoms, eating behaviors, and body image dissatisfaction, the study underscores the pressing need for tailored support systems for these vulnerable individuals. The findings not only advance our comprehension of nuanced relationships within perinatal mental health but also emphasize the role of behavioral parameters in its assessment, offering a pivotal contribution to enhancing the care and well-being of high-risk pregnant women.

The prevalence of depressive symptoms was expressive in high-risk pregnant women, especially among those with lower levels of education. Depressive symptoms were more present in women who were more body dissatisfied and with eating behavior less intuitive, more emotional, and less congruent in food choices for the body. The results underscored the importance of comprehensive support and interventions addressing these factors to enhance the mental well-being of this vulnerable population.
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