Original Article

Prevalence of postpartum depression symptoms and their association with violence: a cross-sectional study, Cariacica, Espírito Santo, Brazil, 2017*

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Abstract

Objective: To assess the prevalence of postpartum depression symptoms among puerperal women and their association with violence. **Methods:** This was a cross-sectional study with puerperal women cared for at a public maternity hospital in Cariacica, ES, Brazil, in 2017. A questionnaire prepared by the authors and validated instruments were used. Pearson's chi-square test was performed in the analysis and association was expressed in prevalence ratios (PR) and 95% confidence intervals (95%CI). **Results:** Postpartum depression symptom prevalence was 36.7% (95%CI 31.6;42.0). Total family income was inversely associated with this prevalence ($p<0.05$). Mothers who were single (PR=1.75 – 95%CI 1.17;2.64), wished to abort (PR=1.96 – 95%CI 1.50;2.56), drank alcohol during pregnancy (PR=1.37 – 95%CI 1.00;1.86), experienced intimate partner violence in their lifetime (PR=1.94 – 95%CI 1.38;2.73), and during pregnancy (PR=1.41 – 95%CI 1.07;1.85), had higher prevalence of depression symptoms. **Conclusion:** Postpartum depression symptoms are associated with marital status, wanting to abort, alcohol consumption during pregnancy and intimate partner violence.

Keywords: Depression, Postpartum; Women's Health; Postpartum Period; Violence Against Women; Intimate Partner Violence.

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Introduction

The postpartum period is considered to be a time when there is risk of development of depression symptoms and postpartum depression does indeed occur worldwide,[1] being a frequent mental health condition in puerperal women. According to the World Health Organization, postpartum depression affects 10% to 15% of women in developed countries and 19% in developing countries, constituting a major public health problem, due to the high prevalence and social costs.[2]

> *Problems related to depression negatively affect the health of both the mother and the baby. Experiencing violence is a phenomenon that can occur in all stages of women's lives, including during pregnancy and the postpartum period, so that it is a serious public health issue which increases the risk of postpartum depression.*

In Brazil, in 2012, a nationwide study on postpartum depression, conducted with 23,894 women, found 26% prevalence.[2] However, it is worth noting that postpartum depression prevalence rates oscillate according to studies conducted in different Brazilian regions: for example, data from the city of Recife, PE, in 2008, found 7% prevalence, while in the city of Vitória, ES, in 2006, prevalence was 39%.[3,4]

Problems related to depression negatively affect the health of both the mother and the baby.[5] Puerperal women with postpartum depression have significantly higher levels of anxiety, stress and fatigue, impaired self-esteem, quality of life and social relationships.[6] Women with severe postpartum depression report higher prevalence of suicidal ideation, that is, they think about, idealize, plan and wish to take their own lives.[5] It has also been found to cause harm to mother-baby bonding, maternal performance, and breastfeeding practice.[6]

Individual, socioeconomic and behavioral characteristics of women, such as being young, multiparous, having a history of previous depression and/or a family history of depression have been associated with higher prevalence of postpartum depression symptoms.[7] Furthermore, being in the lower income group, using alcoholic beverage, having an unplanned pregnancy, a negative childbirth experience and a history of intimate partner violence are factors associated with higher occurrence of postpartum depression.[2,8]

Experiencing violence is a phenomenon that can occur in all stages of women's lives, including during pregnancy and the postpartum period, so that it is a serious public health issue.[9] A cohort study, also conducted in Recife, found 113% greater likelihood of postpartum depression in women who had suffered psychological violence during pregnancy, and 183% greater likelihood of postpartum depression in women who had suffered psychological and physical or sexual violence during pregnancy.[10] When considering the various effects of violence, especially postpartum depression, the health sector must be committed to being a welcoming space when cases of violence are identified. Strategies that help to break the cycle of violence must be adopted in the approach and care provided by health services to women who are victims of violence.[11]

In view of the above, it is essential to produce new studies that seek to identify association of the violence with postpartum depression, and reinforce this evidence considering the complexity of these two health problems.

The objective of this study was to analyze the prevalence of postpartum depression symptoms among puerperal women and their association with violence.

Methods

This is a cross-sectional study conducted at the Cariacica Municipal Maternity Hospital, state of Espírito Santo, Brazil, from August to October 2017.

The municipality of Cariacica is located in the metropolitan region of Vitória, capital of the state of Espírito Santo, has a population of 348,738 inhabitants and a municipal human development index of 0.718.[12]

The maternity hospital where the study was developed is the only public maternity hospital in Cariacica. It is a reference center for care for low-risk pregnant women. It has 45 beds in obstetric wards and four pre-delivery beds. As part of the Brazilian National Health System, the hospital offers outpatient services,

care for obstetric urgencies and emergencies, and hospitalization.

At least 24 hours after childbirth, regardless of the delivery method, postpartum women who had had an intimate partner during pregnancy, and whose fetus was born alive and weighed more than 500 grams, were included in the study. An 'intimate partner' was defined as any ex-partner, current partner, or boyfriend(s), regardless of formal union, with whom the participants had sexual intercourse. Puerperal women who, at the time of the interview, presented hearing or language difficulties or cognitive deficits that prevented an appropriate understanding of the study were excluded.

The Edinburgh Postnatal Depression Scale (EPDS) was used for screening and measuring postpartum depression symptoms, which were the outcome of this study. The scale was used as the dependent variable and was analyzed in a dichotomous manner (yes; no).

The independent variables used in the study were:

a) Age (in years: 14-19; 20-29; 30-44);
b) Race/skin color (White; Black; brown; other);
c) Religion (yes; no);
d) Schooling (up to complete elementary education; up to complete high school education; up to complete higher education);
e) Marital status (married; single/dating; or common law marriage, i.e. living with a partner but not legally married);
f) Total family income [in minimum wages at 2017 values (BRL 937.00): up to 1; 2-3; 4 or more];
g) Number of prenatal appointments (up to 5; 6 or more);
h) Illness during pregnancy (yes; no);
i) Preference for baby's sex (yes; no);
j) Type of delivery (surgical; vaginal);
k) Number of pregnancies (1; 2-3; 4 or more);
l) History of miscarriage (yes; no);
m) Wanting to abort (yes; no);
n) Use of alcoholic beverage (yes, no);
o) Use of drugs (yes; no);
p) Use of cigarettes (yes; no);
q) Sexual violence before 15 years old (yes; no);
r) Intimate partner violence during lifetime (yes; no);
s) Intimate partner violence during pregnancy (yes; no).

Data collection began in August 2017 and was completed in October of the same year; it took place between 7 a.m. and 12 noon, every day of the week, with hospitalized puerperal women who met the inclusion criteria. A structured, standardized questionnaire was administered by the interviewers individually in a private place, with an average duration of 50 minutes. Initially, socio-demographic, gynecological, and obstetric information was collected, in addition to behavioral information. After collecting these variables, these women were asked whether they had experienced sexual violence before they were 15 years old. The World Health Organization Violence Against Women instrument was also administered at the same time to screen for intimate partner violence suffered by them at some point in their lifetime and during pregnancy. The purpose of this instrument, which has also been validated for use in Brazil, is to identify types of violence against women, based on their answers to 13 questions,[13] whereby 'experience of violence' is taken to have occurred when there is an affirmative answer to any of the questions.

The study outcome, postpartum depressive symptoms was measured using the EPDS. Validated for use in Brazil, this scale enables postpartum depression symptoms to be screened based on ten questions with four answer options and scores varying from 0 to 3, according to the existence or intensity of signs and symptoms: reduced performance, loss of pleasure, sleep disturbance, depressed mood, feelings of guilt, death and suicide ideation.[14] Postpartum mothers whose final score was greater than or equal to 10 were considered to have postpartum depression symptoms.

In order to prevent occurrence of observer bias, the interviewers, all undergraduate students taking health-related courses, participated in a training with the objective of standardizing the interviews and questionnaire administration prior to data collection. A pilot study was then carried out at the same maternity hospital with 50 puerperal women who were not included in the sample of the main study, although their interviewers were evaluated regarding their ability to interview and questionnaire administration. Similarly, in order to ensure quality control, a postgraduate supervisor took part in data collection.

To calculate the study sample size, we adopted 20% as the expected value for the exposed group, and 5% for the unexposed group, a 5% margin of

error, a 95% confidence level and 80% power, with the purpose of analyzing association between postpartum depression symptoms and violence during pregnancy. The estimated sample size was 235 participants, to which 10% was added for eventual losses and 30% to control for confounding factors in the multivariable analysis. Thus, the final estimated sample size was 330 puerperal women.

Data analysis was performed using the Stata 16.0 statistical package. The results of the descriptive analysis were shown in absolute and relative frequencies and 95% confidence intervals (95%CI). Pearson's chi-square test or Fisher's exact test was performed for the bivariate analysis. The Wald test using a 5% significance level was applied in order to obtain association between postpartum depression symptoms and the exposure variables. The crude and adjusted prevalence ratios (PR) and their 95%CI were calculated according to a Poisson regression model with robust variance. The adjusted analysis was based on Heise's ecological model, which help in understanding the multifaceted nature of violence;[15] in this sense, the study categorized the variables into the following levels (Box 1):

Level 1 – Sociodemographic characteristics
Level 2 – Obstetric and gynecological characteristics
Level 3 – Behavioral characteristics
Level 4 – Experience of sexual violence
Level 5 – Lifetime history of intimate partner violence
Level 6 – History of intimate partner violence during pregnancy

Variables which had a significance level <0.20 in the bivariate analysis were included in each of these levels. Variables which had a p-value <0.05 were associated.

The study project was approved by the Federal University of Espírito Santo Cassiano Antônio MoraesUniversity Hospital Research Ethics Committee: Opinion No. 2.149.430, issued on June 30th 2017; Certificate of Submission for Ethical Appraisal No. 69026517.2.0000.5071. Puerperal women who consented to answering the questions signed an informed consent form before being interviewed. After the end of the interview, the participants were given an information leaflet with the addresses of services to assist women in situations of violence in the municipality.

Results

All 330 women invited to take part in the study were interviewed. There were no losses or refusals. None of the interviewed women needed to be excluded. We therefore analyzed information on 330 women who used the Cariacica public maternity hospital.

Of the total of participants, 121 had postpartum depression symptom, obtaining a prevalence of 36.7% (95%CI 31.6;42.0). The majority of the puerperal women were between 20 and 29 years old (52.4%), self-reported being of brown skin color (57.0%), practiced a religion (72.1%), had been educated up to the complete elementary education level (59.7%) lived in common law marriage with their partner (52.1%); for 46.4% of them, total family income was between 2 and 3 minimum wages (Table 1).

The majority of the participants had attended six or more prenatal appointments (60.0%), had no illness during pregnancy (77.6%), had no preference for their baby's sex (51,8%) and the most frequent type of delivery was vaginal (64.2%); 44.5% had had two or three pregnancies, 78.5% stated having no history of miscarriage and 16.1% wanted to abort. During pregnancy 10.3% consumed alcoholic beverage, 9.7% smoked cigarettes and 3.3% used drugs (Table 1).

Greater prevalence of postpartum depression symptoms was found among puerperal women who were 14-19 years old (48.8%; p=0.014), who had studied as far as complete elementary education level (44.2%; p=0.003), were single (50.8%; p=0.009), with total family income up to 1 minimum wage (45.9%; p=0.004), had attended up to 5 prenatal appointments (47.7%; p=0.001), reported illness during pregnancy (47.3%; p=0.031), had a preference for their baby's sex (42.8%; p=0.027) and did not want to abort (69.8%; p<0.001). The highest postpartum depression symptom prevalence rates were found among women who used alcohol (61.8%; p=0.001) and cigarettes (59.4%; p=0.005) during pregnancy (Table 1).

It can be seen that 8.5% of the women interviewed reported having suffered sexual violence before they were 15 years old, 45.4% reported a history of partner violence at some point in their lifetime and approximately 12.0% were victims of intimate partner violence during pregnancy. The study identified higher prevalence of postpartum depression symptoms among participants who reported having experienced some situation of violence (p<0.05) (Table 1).

Box 1 – Hierarchical analysis model adjusted for factors associated with postpartum depression symptoms, Cariacica, Espírito Santo, Brazil, 2017

Level 1	**Sociodemographic characteristics**	Age
		Religion
		Schooling
		Marital status
		Total family income
Level 2	**Obstetric and gynecological characteristics**	Number of prenatal appointments
		Illness during pregnancy
		Preference for baby's sex
		Wanting to abort
Level 3	**Behavioral characteristics**	Use of alcoholic beverage
		Use of drugs
		Use of cigarettes
Level 4	**Experience of sexual violence**	Sexual violence before 15 years old
Level 5	**Lifetime history of intimate partner violence**	Intimate partner violence during lifetime
Level 6	**History of intimate partner violence during pregnancy**	Intimate partner violence during pregnancy

Single women and women who were only dating had more postpartum depression symptoms (PR=1.75 – 95%CI 1.17;2.64), compared to married women. Total family income in the rage of 2 to 3 minimum wages (PR=0.70 – 95%CI 0.52;0.93) and 4 minimum wages or more (PR=0.45 – 95%CI 0.21;0.96) proved to be protective factors: women belonging to higher income groups had lower prevalence of the outcome studied here. Higher prevalence of postpartum depression symptoms was found among participants who had wanted to abort (PR=1.96 – 95%CI 1.50;2.56) and who had used alcoholic beverage during pregnancy (PR=1.37 – 95%CI 1.00;1.86) (Table 2).

Intimate partner violence at some point during lifetime (PR=1.94 – 95%CI 1.38;2.73) and specifically, intimate partner violence during pregnancy (PR=1.41 – 95%CI 1.07;1.85), were events associated with higher postpartum depression symptom prevalence rates (Table 2).

Discussion

About one third of the study participants had postpartum depression symptoms. They were more frequent among those who reported being single, who had wanted to have an abortion, who consumed alcohol during pregnancy, and who had a history of intimate partner violence.

This study was based on a convenience sample of women receiving care at a public maternity hospital in Cariacica, ES, and is not representative of the population of postpartum women in general. Another limitation of the study lies in the measurement of sexual violence that only occurred before 15 years of age. In addition to possible memory bias, this cut-off point in their sexual history did not enable sexual violence at other times in the lives of these women to be measured. In turn, the choice of data collection based on the EPDS in the immediate postpartum period, when puerperal women can be emotionally and physically vulnerable, may have interfered both in the measurement of depression symptoms and also in the definition of the time at which they emerged, during pregnancy or close to delivery. However, it should be noted that in research of this type, it is common to administer the EPDS in the immediate postpartum period.[8]

A systematic review conducted in 2018 with meta-analysis of 52 articles from different continents that used validated instruments to screen for postpartum depression symptoms found a 26% prevalence in the Middle East, 8% in Europe, 19% in South America, and 16% in North America.[16]

Table 1 – Distribution of the main characteristics of puerperal women (n=330) at a municipal maternity hospital and postpartum depression symptoms, Cariacica, state of Espírito Santo, Brazil, 2017

Variables	n (%)	Prevalence % (95%CI)[a]	p-value
Age (years)			0.014[b]
14-19	82 (24.9)	48.8 (38.1;59.6)	
20-29	173 (52.4)	35.3 (28.5;42.7)	
30-44	75 (22.7)	26.7 (17.8;37.9)	
Race/skin color			0.556[b]
White	40 (12.1)	37.5 (23.8;53.5)	
Black	82 (24.8)	41.5 (31.2;52.5)	
Brown	188 (57.0)	35.6 (29.1;42.8)	
Other	20 (6.1)	25.0 (10.5;48.6)	
Religion			0.064[b]
No	92 (27.9)	44.6 (34.7;54.9)	
Yes	238 (72.1)	33.6 (27.9;39.9)	
Schooling			0.003[b]
Up to complete elementary education	197 (59.7)	44.2 (37.3;51.2)	
Up to complete high school education	125 (37.9)	25.6 (18.7;34.0)	
Up to complete higher education	8 (2.4)	25.0 (5.6;65.0)	
Marital status			0.009[b]
Married	93 (28.2)	26.9 (18.8;36.9)	
Common law marriage	172 (52.1)	36.6 (29.7;44.1)	
Single/dating	65 (19.7)	50.8 (38.7;62.8)	
Total family income (minimum wages)			0.004[b]
Up to 1	146 (44.2)	45.9 (37.9;54.1)	
2-3	153 (46.4)	31.4 (24.5;39.2)	
4 or more	31 (9.4)	19.3 (8.8;37.3)	
Number of prenatal appointments			0.001[b]
Up to 5	132 (40.0)	47.7 (39.3;56.3)	
6 or more	198 (60.0)	29.3 (23.3;36.0)	
Illness during pregnancy			0.031[b]
No	256 (77.6)	33.6 (28.0;39.6)	
Yes	74 (22.4)	47.3 (36.1;58.7)	
Preference for baby's sex			0.027[b]
No	171 (51.8)	30.9 (24.5;38.4)	
Yes	159 (48.2)	42.8 (35.2;50.6)	
Type of delivery			0.949[b]
Surgical	118 (35.8)	36.4 (28.2;45.5)	
Vaginal	212 (64.2)	36.8 (30.5;43.5)	

a) 95%CI: 95% confidence interval; b) Pearson's chi-square test; c) Fisher's exact test.

To be continue

Continuation

Table 1 – Distribution of the main characteristics of puerperal women (n=330) at a municipal maternity hospital and postpartum depression symptoms, Cariacica, state of Espírito Santo, Brazil, 2017

Variables	n (%)	Prevalence % (95%CI)[a]	p-value
Number of pregnancies			0.584[b]
1	126 (38.2)	34.1 (26.3;42.9)	
2-3	147 (44.5)	36.7 (29.3;44.9)	
4 or more	57 (17.3)	42.1 (29.2;55.3)	
History of miscarriage			0.270[b]
No	259 (78.5)	35.14 (29.5;41.2)	
Yes	71 (21.5)	42.2 (31.2;54.1)	
Wanting to abort			<0.001[b]
No	277 (83.9)	30.3 (25.2;36.0)	
Yes	53 (16.1)	69.8 (56.1;80.7)	
Use of alcoholic beverage			0.001[b]
No	296 (89.7)	33.8 (28.6;39.4)	
Yes	34 (10.3)	61.8 (44.4;76.6)	
Use of drugs			0.059[b]
No	319 (96.7)	35.3 (30.6;41.2)	
Yes	11 (3.3)	63.6 (32.4;86.4)	
Use of cigarettes			0.005[b]
No	298 (90.3)	34.2 (29.0;39.8)	
Yes	32 (9.7)	59.4 (41.6;75.0)	
Sexual violence before 15 years old			0.019[c]
No	302 (91.5)	34.8 (29.6;40.3)	
Yes	28 (8.5)	57.1 (38.3;74.1)	
Intimate partner violence during lifetime			<0.001[b]
No	180 (54.6)	22.2 (16.7;28.9)	
Yes	150 (45.4)	54.0 (45.9;61.9)	
Intimate partner violence during pregnancy			<0.001[b]
No	291 (88.2)	32.0 (26.8;37.6)	
Yes	39 (11.8)	71.8 (55.6;83.8)	

a) 95%CI: 95% confidence interval; b) Pearson's chi-square test; c) Fisher's exact test.

In the present study, there was a high prevalence of puerperal women with these symptoms. This can be identified when comparing the prevalence rate we found with that of a cross-sectional survey conducted in 2000 in Pelotas, RS, Brazil, with 410 participants, among whom 19% (95%CI 15.7;23.3%) prevalence of depression symptoms in the immediate postnatal period was found.[17] A study conducted in 2013 in the municipality of Rio Grande, RS, with 2,687 puerperal women up to 48 hours postpartum found 14% (95%CI 12.9;15.6%) prevalence.[7] A study conducted in Salvador, BA, in 2017 with 151 women in the delayed postpartum revealed 19% prevalence.[18] A study with 23,894 puerperal women from all over Brazil found 26% prevalence of maternal depression symptoms between 6 and 18 months after childbirth.[2] A similar funding to ours in Cariacica was found in Vitória, ES, where 39% of women had postpartum depression symptoms.[19] The

Table 2 – Crude and adjusted prevalence ratios of postpartum depression symptoms according to characteristics of puerperal women (n=330) at a municipal maternity hospital and 95% confidence interval, Cariacica, state of Espírito Santo, Brazil, 2017

Variables	Crude PR[a]	95%CI[b]	p-value[c]	Adjusted PR[a]	95%CI[b]	p-value[c]
Level 1 – Sociodemographic characteristics						
Age (years)			0.013			0.329
14-19	1.00			1.00		
20-29	0.72	(0.54;0.98)		0.86	(0.62;1.18)	
30-44	0.55	(0.35;0.85)		0.70	(0.43;1.13)	
Religion			0.057			0.547
No	1.00			1.00		
Yes	0.75	(0.56;1.00)		0.92	(0.69;1.22)	
Schooling			0.005			
Up to complete elementary education	1.00			1.00		0.119
Up to complete high school education	0.58	(0.41;0.81)		0.69	(0.48;0.99)	
Up to complete higher education	0.57	(0.17;1.90)		1.03	(0.28;3.86)	
Marital status			0.008			0.012
Married	1.00			1.00		
Common law marriage	1.36	(0.92;2.01)		1.24	(0.84;1.83)	
Single/dating	1.88	(1.25;2.85)		1.75	(1.17;2.64)	
Total family income (minimum wages)			0.006			0.012
Up to 1	1.00			1.00		
2-3	0.68	(0.51;0.97)		0.70	(0.52;0.93)	
4 or more	0.42	(0.20;0.88)		0.45	(0.21;0.96)	
Level 2 – Obstetric and gynecological characteristics						
Number of prenatal appointments			0.001			0.051
Up to 5	1.00			1.00		
6 or more	0.61	(0.46;0.81)		0.75	(0.57;1.00)	
Illness during pregnancy			0.024			0.219
No	1.00			1.00		
Yes	1.40	(1.05;1.89)		1.19	(0.90;1.58)	
Preference for baby's sex			0.028			0.083
No	1.00			1.00		
Yes	1.38	(1.03;1.84)		1.28	(0.97;1.68)	
Wanting to abort			<0.001			<0.001
No	1.00			1.00		
Yes	2.30	(1.79;2.96)		1.96	(1.50;2.56)	
Level 3 – Behavioral characteristics						
Use of alcoholic beverage			<0.001			0.047
No	1.00			1.00		
Yes	1.83	(1.34;2.49)		1.37	(1.00;1.86)	

a) PR: prevalence ratio; b) 95%CI: 95% confidence interval; c) Wald test.

To be continue

Continuation

Table 2 – Crude and adjusted prevalence ratios of postpartum depression symptoms according to characteristics of puerperal women (n=330) at a municipal maternity hospital and 95% confidence interval, Cariacica, state of Espírito Santo, Brazil, 2017

Variables	Crude PR[a]	95%CI[b]	p-value[c]	Adjusted PR[a]	95%CI[b]	p-value[c]
Use of drugs			0.016			0.758
No	1.00			1.00		
Yes	1.78	(1.11;2.85)		1.10	(0.61;1.98)	
Use of cigarettes			0.001			0.312
No	1.00			1.00		
Yes	1.73	(1.25;2.40)		1.18	(0.85;1.63)	
Level 4 – Experience of sexual violence						
Sexual violence before 15 years old			0.006			0.125
No	1.00			1.00		
Yes	1.64	(1.15;2.35)		1.37	(0.92;2.03)	
Level 5 – Lifetime history of intimate partner violence						
Intimate partner violence during lifetime			<0.001			<0.001
No	1.00			1.00		
Yes	2.43	(1.78;3.32)		1.94	(1.38;2.73)	
Level 6 – History of intimate partner violence during pregnancy						
Intimate partner violence during pregnancy			<0.001			0.016
No	1.00			1.00		
Yes	2.25	(1.73;2.91)		1.41	(1.07;1.85)	

a) PR: prevalence ratio; b) 95%CI: 95% confidence interval; c) Wald test.

high prevalence of postpartum depression symptoms found in our study stands out when compared to a study conducted in the city of Recife, with 1,045 puerperal women, which identified 25% (95%CI 23.2;28.6%) prevalence of these symptoms.[10]

The high prevalence of depression symptoms in the postpartum period, evidenced here, points to how necessary and important systematized evaluation of mental health in pregnant and/or puerperal women is, taking into consideration the possibility of postpartum depression existing and compromising the conjugal and family relationship, as well as compromising progress with building of the bond between mother and child and, consequently, the child's cognitive, psychosocial and motor development.[20,21]

Postpartum depression symptoms were more prevalent in single puerperal women in our study. A prospective study conducted in Brasília in 2011, with 107 puerperal women, found similar results, mainly attributed to the higher frequency of single women persistently demonstrating depression symptoms, before and after childbirth.[22] The study mentioned above conducted in Rio Grande with 2,687 puerperal women participants, found lower likelihood of those who lived with a husband or partner having depression symptoms.[7] Similarly, in 2004, a cross-sectional study conducted with postpartum women users of Primary Health Care services in the city of São Paulo showed the protective effect of the husband's support in the manifestation of postpartum depression symptoms: the greater the partner's support, the lower the prevalence of these symptoms among postpartum women.[23]

Another finding of this study relates to the protective effect of family income. Postpartum women with higher income had 30% (2-3 minimum wages) and 55% (≥ 4 minimum wages) lower prevalence of postpartum depression symptoms. A nationwide study found that Brazilian puerperal women were 1.7 times more likely

to manifest postpartum depression symptoms when belonging to a lower economic class.[2] Economic and financial contexts often cause the expectant mother to be apprehensive: will family income be insufficient, given the expenses resulting from the baby's arrival? This is a potential factor for the development of depression symptoms.[24]

Results of a meta-analysis based on 32 cohort studies linking maternal violence with postpartum depression symptoms for the period 2002-2017, involving 177,531 participants from Asia, America, Oceania, Europe, and Africa, revealed that postpartum women who had been exposed to domestic violence were more likely to have postpartum depression symptoms.[25] In Australia, a cross-sectional survey conducted in 2010 with 2,572 postpartum women found that when they were exposed to partner violence, besides being more likely to have depression symptoms, they were also more likely to have postnatal anxiety.[26]

Another cross-sectional study, this time in the United States, conducted with 398 postpartum women within the context of a maternal-infant support program in the city of New Orleans, between 2010 and 2012, also found postpartum depression symptom prevalence rates some four times higher in victims of at least one episode of emotional violence or physical violence committed by their partner during pregnancy.[8] Those results corroborate the findings of the present study: intimate partner violence, regardless of whether it was at some point during lifetime or during pregnancy, resulted in increased prevalence of depression symptoms.

Victims of violence who are in a situation of social isolation caused by their partner and who do not receive social support, a factor already shown to be protective, may have their depressive symptoms aggravated.[27] In view of this, health professionals need to have the means to identify and monitor violence against women during care, in addition to treating impacts and complications caused by the occurrence of violence, carrying out due management and monitoring of cases and their notification.[28]

To this end, it is necessary to seek an intersectoral articulation capable of promoting identification of women at higher risk of violent situations and thus, offer adequate case management.[29] Psychosocial support and appropriate targeting of situations of violence can be better organized and put into practice with due agility, provided that they are seen as priorities in the application of public, human and financial resources. Consolidation, training, and expansion of an integrated network of specialized workers from the Health, Social Assistance, and Public Security services is fundamental to address and resolve cases of violence.[29] It is important to highlight that case notification is of essential importance, because it contributes towards structuring and enforcing public policies against violence, as well as contributing towards prevention and protection practices.[23]

This study reaffirms the potential of the care provided by a multidisciplinary team for detecting, caring, monitoring, and prognosis of situations that cause harm to women and especially to the mother-baby relationship, such as mental disorders and occurrence of violence. We emphasize the importance of comprehensive prenatal and puerperal care, qualified and sensitive to such situations, which does not focus only on the physical aspect and fetal development, but also places women in a position of protagonist with regard to the care to be provided. Especially in the gestational or puerperal period, postpartum depression and situations of violence, both of which are public health issues, can lead to other health complications for women and their children.

We conclude that postpartum depression symptoms were highly prevalent, which reinforces its importance as a public health problem. Certain characteristics were associated with higher prevalence of postpartum depression symptoms: being single, having wanted to have an abortion, having consumed alcohol during pregnancy, having total family income of up to one minimum wage, and having experienced intimate partner violence at some point during lifetime or during pregnancy.

Author contributions

Leite FMC was responsible for the study concept. Santos DF and Leite FMC were responsible for developing the study, gathering and analyzing data and drafting the article. Silva RP, Tavares FL, Primo CC, Maciel PMA and Souza RS contributed to data analysis and interpretation, and drafting and critically reviewing the manuscript. All the authors have approved the final version and provide assurance of their responsibility for all aspects thereof, including the guarantee of its accuracy and integrity.

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