

SOCIAL SUPPORT AND STRESSFUL LIFE EVENTS: RISK FACTORS FOR
ANTENATAL DEPRESSION IN NULLIPAROUS AND MULTIPAROUS WOMEN

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Abstract

Nulliparous (pregnant women who are giving birth for the first time) and multiparous (women who have multiple children) may have different concerns, which may be associated with risk of antenatal depression. This study aims to examine the role of social support and stressful life events as risk factors for antenatal depression in nulliparous and multiparous women. The sample included 1,524 pregnant women recruited from an obstetrics setting at the end of the first trimester of pregnancy from two Spanish tertiary-care public hospitals. The sample completed the Patient Health Questionnaire (PHQ-9), and the “social support” and “stressful life events” subscales of the Postpartum Depression Predictor Inventory-Revised (PDPI-R). Nulliparous women reported a lower prevalence of depressive symptoms (15.6%) compared to multiparous mothers (20.1%). In both groups, marriage/partner problems (NP: $\beta = 0.178$, $p < 0.01$ vs MP: $\beta = 0.164$, $p < 0.01$) and a perceived lack of instrumental support from friends (NP: $\beta = -0.154$, $p < 0.01$ vs MP: $\beta = -0.154$, $p < 0.01$) were significant risk factors for antenatal depression. However, nulliparous women have more risk factors such as unemployment ($\beta = 0.096$, $p < 0.05$), job change ($\beta = 0.127$, $p < 0.01$), financial problems ($\beta = 0.145$, $p < 0.01$) and lack of instrumental support from partner ($\beta = -0.187$, $p < 0.01$). For multiparous women, moving ($\beta = 0.080$, $p < 0.05$) and lack of instrumental support from family ($\beta = -0.151$, $p < 0.01$) were risk factors. These results suggest the critical need for screening and designing preventive interventions adapted and taking into consideration parity to provide more effective health care during pregnancy.

Keywords: Antenatal depression, Risk factors, Multiparous, Nulliparous.

Introduction

Pregnancy is associated with substantial psychological and physical changes. Pregnant women may have unrealistic expectations regarding their ability to be good mothers, which may lead to feelings of guilt or excessive worries as well as depression (Rodriguez et al., 2023; Kiepura & Kmita, 2020). Many of these changes lead some women to experience depressive symptoms. Antenatal depression has been recognized as one of the strongest predictors of postnatal depression (Biaggi et al., 2016). Therefore, early screening of antenatal depression and prevention interventions are critical tools to detect and develop psychological interventions for pregnant women.

Research has found that nulliparous (pregnant women who are giving birth for the first time) and multiparous (women who have multiple children) have different concerns and needs (Bassi et al., 2017; Merklinger-Gruchala & Kapiszewska, 2019; Nichols et al., 2007). Compared to multiparous women, nulliparous women report being more concerned about the new maternal role, the potential changes to their bodies, the birth and delivery process, developing self-efficacy in baby care, and the early weeks of motherhood (Massarotti et al., 2019). In addition, nulliparous women undergoing fertility treatment report concerns about its effects on their bodies (Massarotti et al., 2019). Nulliparous women also report having concerns about alcohol consumption (Haas et al., 2020) or smoking (Hauge et al., 2013). In contrast, multiparous women report more worries regarding their role of becoming a mother again, including how the new baby will affect their lives, sibling rivalry, time management, and fears of receiving insufficient social support post delivery (Wang et al., 2022).

A systematic review found mixed evidence that parity increases the risk of antenatal depression (Biaggi et al., 2016). There was evidence in this systematic review arguing that: (a) nulliparous women are more likely to be more at risk for antenatal depression compared to multiparous women, (b) multiparous women were more at risk of antenatal depression than nulliparous women, and (c) no significant associations (Biaggi et al., 2016). Therefore, additional research is warranted in examining the relationship between parity and antenatal depression, and associated risk factors.

The overall purpose of the present study was to examine the role of social support and stressful life events as risk factors for antenatal depression comparing two groups of pregnant women: nulliparous and multiparous. The first goal was to evaluate whether there were differences by parity on sociodemographic characteristics, healthy habits, and assisted

reproduction (among women who received this treatment). The second goal was to estimate the rates of depressive symptoms (prevalence) in nulliparous and multiparous women. The third goal was to evaluate risk factors associated with antenatal depression in each group, in particular, we were interested in analyzing the role of social support and stressful life events (e.g., financial problems) as these two risk factors have been found to be associated with antenatal depression and by parity. Finally, the fourth goal was to use regression analysis to estimate the extent to which social support and stressful life events can predict the development of antenatal depression for nulliparous and multiparous women.

Materials and methods

Design

We used a cross-sectional study to examine the prevalence and risk factors for antenatal depression in nulliparous and multiparous pregnant women.

Study population

The sample included 1,524 women recruited in Spain (719 nulliparous, 792 multiparous, 13 with missing data) in the obstetrics setting at two Spanish public hospitals: San Carlos Clinic Hospital (HCSC) and Central University Hospital of Asturias (HUCA). The study was approved by the ethics committees at both hospitals. The study was voluntary and, the informed consent was obtained from all participants included in this study.

Data collection and variable specification

All participants received antenatal care in the obstetrics setting. Pregnant women were recruited by nurses who screened participants for eligibility at the end of the first trimester of pregnancy during the ultrasound appointment. Eligibility criteria included: (a) pregnant, (b) receiving medical services at each hospital, (c) sufficient understanding of Spanish (reading and writing) to provide consent and complete surveys. No exclusion criteria were included in the study.

Measures

A sociodemographic questionnaire was included to measure basic sociodemographic factors (mother's age, country of birth [non-immigrant - immigrant], employment,

educational level, marital status), unhealthy habits (tobacco, alcohol) and assisted reproduction (for those who received this treatment).

The Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001) measures the severity of depressive symptoms and was used to evaluate antenatal depression. The nine items are based on the criteria in the DSM-5 (*Diagnostic and Statistical Manual of Mental Disorders, 2013*). Responses are rated on a 4-point Likert-type scale, ranging from 0 to 3, with higher scores indicating higher levels of depressive symptoms. There are four categories of depression, based on severity: <10 (not depressed), 10 to 14 (moderate cases), 15 to 19 (moderately severe), and >20 (severe cases). To estimate the prevalence of depression in both samples (nulliparous and multiparous), a cut-off score of 10 was used (Kroenke et al., 2001). The internal reliability was good ($\alpha = 0.82$). The PHQ-9 has been validated with pregnant Spanish women (Marcos-Nájera et al., 2018).

The Postpartum Depression Predictors Inventory-Revised (PDPI-R) (Beck, 2002) was used to examine risk factors for antenatal depression. In this study, the social support subscale was used to evaluate social support. This subscale included 6 items and asked participants to endorse (yes/no) whether they received emotional and instrumental support from partner, family, and friends. The stressful life events subscale included 7 items and asked participants whether they've experienced stressors (yes/no) such as financial problems, marital problems, death in the family, unemployment, serious family illness, moving, and job change. The PDPI-R has been validated with pregnant Spanish women (Rodríguez-Muñoz et al., 2017).

Statistical analyses

Two groups were considered in the analyses: nulliparous women (NP) and multiparous (MP) women. Antenatal depression (dependent variable) was measured with PHQ-9. We evaluated the frequencies in each group and differences between the two groups. Chi-square tests and *t*-tests were used for statistical comparisons of the two groups. Next, linear regressions were used to estimate the predictors. The confidence level was set at 95% and the levels of significance at 1% and 5% ($p < 0.01$ and $p < 0.05$). We conducted two regression analyses. The first regression was related to stressful life events, and the second one was related to the lack of emotional or instrumental support from the partner, family, and friends. All analyses were performed using the SPSS® statistical package, version 24.

Results

The sociodemographic characteristics results are shown in Table 1. Both groups reported similar levels of education. Compared to nulliparous women, there was a higher proportion of immigrant mothers in the multiparous (MP = 32.41% vs. NP = 19.92%). Multiparous women were more likely than nulliparous women to be unemployed (MP = 29.1% vs. NP = 21.26%)

Table 1

The rates of antenatal depressive symptoms are shown in Table 2. Compared to the multiparous group, the nulliparous group reported a lower prevalence of antenatal depression (MP = 20.1% vs. NP = 15.6%, $\chi^2 = 25.967$, $p < 0.01$), and had less severe cases (minimal or no depressive symptoms: MP = 79.9% vs. NP = 84.4%). However, there was a higher percentage of women in the nulliparous group who received assisted reproduction compared to the multiparous group (NP=15.2% vs MP=7.6%, $\chi^2 = 17.844$, $p < 0.001$).

Social support

The frequencies of social support endorsed are shown in Table 2. Compared to multiparous women, nulliparous women were more likely to report receiving adequate social support from partner (MP = 82.1% vs. NP = 88.0%), family (MP = 80.4% vs. NP = 87.8%), or friends (MP = 68.4% vs. NP = 76.2%).

Table2

The results of the regression analyses are detailed in Table 3. Among nulliparous women, two predictors explained 10.4% of the variance: lack of instrumental support from partner ($\beta = 0.187$, $p < 0.01$) and lack of instrumental support from friends ($\beta = 0.154$, $p < 0.01$). Among multiparous women, three predictors explained 9.2% of the variance: lack of emotional support from partner ($\beta = 0.119$, $p < 0.05$), and lack of instrumental support from family ($\beta = 0.151$, $p < 0.01$) and friends ($\beta = 0.154$, $p < 0.01$).

In stressful life events, among the nulliparous women, four predictors explained 10.2% of the variance: financial problems ($\beta = .127$, $p < .01$), marital problems ($\beta = .178$, $p < .01$), unemployment ($\beta = .096$, $p < .05$), and job change ($\beta = .178$, $p < .01$). And among multiparous women, two predictors explained 15.9% of the variance: marital problems ($\beta = .164$, $p < .01$) and moving ($\beta = .080$, $p < .05$).

Table 3

Discussion

Antenatal depression is a major challenge for some women and may vary by parity. The purpose of this study was to examine the role of social support and stressful life events as risk factors for antenatal depression in nulliparous and multiparous women, with four related goals. First, the study examined whether nulliparous and multiparous groups differed on sociodemographic characteristics. Results indicate that both groups had similar levels of education but there was a higher proportion of immigrant mothers in the multiparous group and a higher percentage of nulliparous women who had assisted reproductive technology. Second, this study examined the prevalence of antenatal depression in both groups. Results indicate that the nulliparous group reported a lower prevalence and had less severe cases of depressive symptoms compared to the multiparous group. The third goal evaluated the role of social support and stressful life events as risk factors for antenatal depression. Results show that nulliparous women reported receiving more social support from partners, family, or friends compared to multiparous women. Related to stressful life events among the nulliparous women, financial problems, marital problems, unemployment and job change. And among multiparous women marital problem and moving ($\beta = .080, p < .05$).

Finally, the fourth goal was to examine whether social support and stressful life events are associated with the development of antenatal depression for nulliparous and multiparous women. Among nulliparous women, results indicate that perceived lack of instrumental support from a partner and friends are related to depressive symptoms during pregnancy. Among multiparous women, perceived lack of emotional support from a partner and lack of instrumental support from family and friends were associated with antenatal depressive symptoms. In addition, most participants had a partner, which was more frequent among multiparous than nulliparous women. Our findings are consistent with some studies suggesting that a formal, stable and satisfactory relationship with a partner encourages women to decide having more children (Merklinger-Gruchala & Kapiszewska, 2019; *VIII Informe*, n.d.). However, other studies found that multiparous mothers are more likely to be more dissatisfied with the level of their partner's involvement in this childbirth compared to the previous childbirth experience (Merklinger-Gruchala & Kapiszewska, 2019). Lastly, multiparous women have less social support than their nulliparous counterparts (Hung, 2007).

Based on the literature, multiparous women are more likely than primiparous women to experience a lack of support from a stable partnership or the lack of a good relationship, and are more likely to be dissatisfied with their partner's involvement (Merklinger-Gruchala and Kapiszewska, 2019). In contrast, primiparous mothers need more knowledge-based support due to their lack of experience and self-confidence about their new role (Khandan et al., 2018).

Our findings suggested that the prevalence rate of depression among multiparous women is higher than among their nulliparous counterparts. These rates were not consistent with those reported by Bassi (Bassi et al., 2017), who found that nulliparous women had a higher prevalence of antenatal depression compared to multiparous (12.8% vs. 19.5%, respectively) in Italy. Similarly, in a Spanish sample, Martínez-Galiano et al. (2019) evaluated the relationship between parity and depressive symptoms and found that nulliparous women exhibited a greater frequency of postpartum depressive symptoms (22.2%) compared to multiparous women (11.6%). However, this latter study only focused on problems appearing in the postpartum period and did not use a validated measure for depression.

Our finding of a higher prevalence and severity level of antenatal depression in multiparous women sample may be due to the unique characteristics of our sample. There was a large proportion of immigrants, especially among multiparous women, and immigrant status has been found to a significant risk factor of antenatal depression (Marcos-Nájera et al., 2020). Additionally, our findings showed a significant relationship between employment and parity. Specifically, multiparous women were more likely to be unemployed than nulliparous, and that multiparous women were more likely to report stress due to unemployment. Lastly, combining work, family time, and social life is increasingly more complicated for multiparous women with the addition of the new child. Collectively, these findings support a meta-analytic finding that multiparity is a risk factor of perinatal depression (Yang et al., 2022).

Our results suggest that social support functions differently in the prediction of antenatal depression for nulliparous and multiparous parents. Our study shows that new parents (first-time parents) have to cope with their new role. Even though the lack of emotional support from partners was not a predictor of depression, our findings support that nulliparous women exhibited a greater vulnerability in relation to the lack of their partner's instrumental support than to the lack of emotional support. One possible explanation for these

findings can be related to the need to modify daily routines in order to reconcile work and family life (*VIII Informe*, n.d.). Along the same lines, findings show that nulliparous mothers were also vulnerable to the lack of instrumental support coming from friends. This could be associated with the mothers' need for help in some other practical aspects of their lives such as relying on some else's experience or help to adapt to the new role beyond the support that they could receive from their partners.

In the case of multiparous women, pregnancy implies a reconfirmation of their role as mothers. Our findings suggest that multiparous women seek emotional support from their partners (affection, empathy, understanding, and/or recognition) and expect help from their families and friends (instrumental support). These results may be linked to the fact that, among our multiparous participants—with a higher proportion of immigrants and unemployed—more multiparous women may adhere to a traditional gender role compared to the nulliparous women.

Our findings are consistent with research indicating that having a secure instrumental network (family and friends) may be a protective factor for antenatal depression, particularly at the end of pregnancy and especially for multiparous women with other children to care for (Milgrom et al., 2019). Nulliparous women reported that their greatest need was to have a closer relationship with their partners, whereas multiparous mentioned household and childcare as their greatest needs as they placed more importance on instrumental support from their families (Nichols et al., 2007). Some studies have suggested that this type of social support could also contribute to improving their perception of self-efficacy (Leahy-Warren et al., 2012).

One of the strengths of this study was the use of a large sample of pregnant women attending primary care services, which allows our findings to have significant implications for the clinical practice. Specifically, these findings can lead to the development of preventive antenatal interventions that should assess the specific resources and social support network which can differ by parity.

Despite the study's strengths, one limitation was the fact that antenatal depression, social support and stressful live events were only evaluated at one single point throughout the whole study: after the first trimester of pregnancy. This is important to note because the instrument used to measure social support is based on self-report and can be unduly influenced by the person's predominant mood or emotional state at the time of answering the survey. Thus, additional longitudinal follow-ups would be warranted to also assess changes in

social support and stressful life events during and after pregnancy as the child grows older. Likewise, previous psychiatric disease, especially a previous history of depression should have been included as exclusion criterion. The medical literature confirms that a history of previous depression (before pregnancy) is a risk factor for antenatal and postnatal depression. Further research is required including samples with no previous history of depression. The development of antenatal depression is affected by multiple factors that have a different impact by parity. Multiparous women are at higher risk for antenatal depression than nulliparous women. The findings from this study emphasize the need for interventions that may take parity status into account when considering the different risk factors that nulliparous and multiparous women experience in order to improve the lives of mothers and their families.

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Table 1*Sociodemographic characteristics, unhealthy habits and assisted reproduction*

		Nulliparous	Multiparous	
		(n=719)	(n=792)	
		Mean	Mean	t
Age		31.90	33.95	7.592*
Origin		n (%)	n (%)	χ^2
	Native (Spain)	575 (80.08)	534 (67.59)	39.948**
	Immigrants	143 (19.92)	256 (32.41)	
Employment	Unemployed	152 (21.26)	229 (29.10)	12.161*
	Employed	563 (78.74)	558 (70.90)	
Education Level	Basic - None	118 (16.43)	131 (16.56)	9.846
	Middle -	600 (83.57)	660 (83.44)	
	High			
Marital status	Partnered	607 (84.78)	677 (85.70)	20.473*
	Single	109 (15.22)	113 (14.30)	
Smoke		97 (17.04)	72 (11.65)	7.064**
Alcohol		19 (3.7)	19 (3.3)	1.258
Assisted reproduction		73 (15.2)	37 (7.0)	17.844**

Note: * $p < 0.05$ ** $p < 0.01$

Table 2
Antenatal Depression Symptoms (PHQ-9)

PHQ-9		Nulliparous		Multiparous		
Cronbach's Alpha 0.817		(n=719)		(n=792)		
Severity		N	%	n	%	χ^2
Minimal depressive symptoms	(<10)	591	(84.4)	617	(79.9)	
Moderate depressive symptoms	(10–14)	84	(12.0)	108	(14.0)	
Moderately severe depressive symptoms	(15–19)	19	(2.7)	33	(4.3)	
Severe major depression	(>=20)	6	(0.9)	14	(1.8)	
Prevalence: Depressive symptoms	(>=10)	109	(15.6)	155	(20.1)	25.967**

<i>Social Support and Stressful Life Events</i>						
		Nulliparous		Multiparous		
		(n=719)		(n=792)		
		n (%)		n (%)		χ^2
Social support: Do you believe that you receive adequate support from (...)?						
Partner		633	(88.0)	650	(82.1)	13.100*
Family		631	(87.8)	637	(80.4)	16.097**
Friends		548	(76.2)	540	(68.4)	14.008**
Stressful life events: Are you currently experiencing any stressful events in your life such as:						
		87	(12.1)	163	(20.6)	21.311**
<i>Financial problems?</i>		60	(8.3)	68	(8.6)	0.084
<i>Marital problems?</i>		24	(3.3)	44	(5.6)	4.608*
<i>Death in family?</i>		128	(17.8)	182	(23.0)	7.261*
<i>Unemployment?</i>		84	(11.7)	105	(13.3)	1.120
<i>Serious illness in family?</i>		149	(20.7)	149	(18.8)	0.605
<i>Moving?</i>		60	(8.3)	80	(10.1)	1.656
<i>Job change?</i>						

*p<0.05 ** p<0.01

Table 3*Regression Analysis – Predictors of Antenatal Depression*

	Nulliparous (n=719)	Multiparous (n=792)
<i>Life stress</i>	$R^2=0.102$ $F (7,688)$	$R^2=0.159$ $F (7,723)$
	B	B
Financial problems	0.145**	0.362
Marital problems	0.178**	0.164**
Death in family	0.025	0.019
Unemployment	0.096*	0.025
Serious illness in family	0.050	0.008
Moving	0.044	0.080*
Job change	0.127**	0.035
<i>Lack emotional and instrumental support details</i>	$R^2=0.104$ $F (6,670)$	$R^2=0.092$ $F (6,682)$
	B	B
Emotional partner	-0.002	-0.119*
Emotional family	0.018	-0.039
Emotional friends	-0.039	-0.063
Instrumental partner	-0.187**	0.041
Instrumental family	0.064	-0.151**
Instrumental friends	-0.154**	-0.154**

*p<0.05 ** p<0.01