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Giving birth during the COVID-19 pandemic: The impact on birth satisfaction and postpartum depression

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Abstract

Objective: To understand how giving birth during the coronavirus disease 2019 (COVID-19) pandemic affected women based on birth parameters (gestational age, type of birth and body weight at birth), satisfaction with childbirth, and development of postpartum depression.

Methods: This is a cross-sectional study of 162 Spanish women. They were divided into two groups: those who gave birth before the pandemic (n = 82; from September 1, 2019 to March 1, 2020) and during the pandemic (n = 75; from April 1, 2020 to July 1, 2020). They were assessed using psychological instruments for postpartum childbirth satisfaction and postpartum depression.

Results: It was found that women who gave birth during the pandemic suffered higher levels of stress during childbirth (U = 2652.50; P = 0.040) and gave a worse rating of the quality of care received (U = 2703.50; P = 0.041). In addition, the percentage of postpartum depression was much higher in women who gave birth during the pandemic (χ^2 = 4.31; P = 0.038).

Conclusion: Giving birth during the COVID-19 pandemic could have an impact on greater dissatisfaction with childbirth, as well as increasing the risk of postpartum depression.

KEYWORDS
birth satisfaction, childbirth, depression, pandemic, postpartum, stress

1 | INTRODUCTION

In March 2020, WHO declared a global pandemic due to a new incipient disease believed to have originated in Wuhan, China.[1] It has led to the death of over one million people worldwide, increasing contagion and mortality. Society has been forced to radically change its daily habits, to practice extreme hygiene, as well as social distancing, while freedom of movement has also been affected.[2]

In Spain, by December 2020, the coronavirus disease 2019 (COVID-19) pandemic had reached more than 1.5 million cases and 48 000 deaths. Following the State of Alert declaration in Spain, intensive care units, as well as hospital beds, have faced very high demand, hospitals have become saturated, and field hospitals have had to be set up. Childbirth assistance has added to the great demands put on Spanish health care.

Pregnant women are considered an at-risk group. They are more susceptible to the pandemic's psychological consequences, because

comorbidity with mental disorders such as anxiety or depression[3] increases during pregnancy. In addition, during pregnancy, women are more vulnerable to infections because of the natural suppression of the immune system.[4] This fact, together with the lack of knowledge about the virus's possible vertical transmission to the fetus, can cause higher levels of anxiety, depression, and stress,[5] which can affect the pregnancy, childbirth, and postpartum stages. Consequences include a greater risk of developing postpartum depression, pre-eclampsia, and hypertension; increased risk of miscarriage or premature birth; and increased likelihood of instrumental delivery.[6,7]

Childbirth can be thought of as a multidimensional and complex experience associated with the quality of the received health care. Psychological and emotional responses should receive dedicated attention.[8] Women's self-perceptions of how they cope have a great impact on their lives and interpersonal relationships, such as with their partner and newborn.[9]

The negative consequences of childbirth dissatisfaction include: the risk of postpartum depression, post-traumatic stress, fear of future deliveries, bonding difficulties, miscarriage, poor adaptation to their maternal role, negative feelings towards the newborn, feelings of failure, and difficulties in starting to breastfeed.[10,11] Given the conditions currently imposed by the pandemic, such as hospitals becoming saturated, satisfaction with childbirth could be different and the risk of postpartum depression may have increased. However, as a result of the recent emergence of the pandemic, no studies have been conducted on these processes. The present study's objective was therefore to verify how women were affected by giving birth during the COVID-19 pandemic based on birth parameters (gestational age, type of birth and body weight at birth), satisfaction with childbirth, and the development of postpartum depression. These variables were compared with those of women who delivered before the pandemic.

2 | MATERIALS AND METHODS

2.1 | Procedure

First, women who gave birth before the pandemic were recruited when attending a prenatal routine visitation with their midwives. At that time, those who wanted to take part in the study read and signed the written informed consent. After giving birth, and at most, during the first month postpartum, women were contacted to complete a series of sociodemographic and obstetric questions and two questionnaires (Spanish Birth Satisfaction Scale Revised [S-BSS-R] and Edinburgh Postnatal Depression Scale [EPDS]). The participants who gave birth before the pandemic (from September 1, 2019 to March 1, 2020) were part of a research project called GESTASTRESS.

Following the emergence of the pandemic and the declaration of the State of Alert by the Spanish Government, the study was adapted to new online procedures. In this way, the questionnaire described in the previous section was added and presented in the Google Forms tool, which was distributed via social networks. Women who wanted to participate just had to give their consent and complete the assessment. Those who had given birth from April 1, 2020 to July 1, 2020 constituted the group of women who gave birth during the pandemic.

2.2 | Participants

A total of 162 women participated in the study, with an average age of 34.21 years (standard deviation [SD] 4.63). The inclusion criteria were to be of legal age (over 18 years old), to have given birth at some point before or after the State of Alert was declared in Spain (March 14, 2020), and to be able to read and write in Spanish. In addition, women who gave birth during the pandemic needed to have an internet connection to complete the study. The exclusion criteria were suffering from a physical or mental illness, informed by participants as having been diagnosed in the last year.

2.3 | Ethics

All participants gave their informed consent before being included in the study, either by written informed consent or online informed consent. Their participation was voluntary, and the study was conducted in accordance with the Helsinki Declaration (World Medical Association, 2013) and the European Union Good Clinical Practice Directive (Directive 2005/28/EC). The protocol was approved by the Ethics Committee for Human Research of the University of Granada (reference code 1580/CEIH/2020 and reference number 881).

2.4 | Instruments

First, sociodemographic variables were collected from the participants, as well as variables related to childbirth and the newborn.

In addition, a psychological evaluation was conducted using two evaluation instruments.

The S-BSS-R[12] consisted of 10 items with 5 Likert-type response options (from 0 = strongly disagree to 4 = strongly agree). Three subscales measured overall satisfaction with childbirth: stress during childbirth (four items), personal attributes (two items), and quality of care (four items). For the purpose of the study, three subscales were used as well as overall satisfaction. Higher scores on the S-BSS-R total scale, personal attributes, and quality of care indicated comparatively greater birth satisfaction, whereas higher scores in stress experienced during childbirth indicated less birth satisfaction. The Spanish version of this instrument presented adequate internal reliability (α = 0.77).[12]

The EPDS[13] consists of 10 Likert items with 4 response options and is used to assess the risk of postpartum depression. A cut-off

point of 10 indicates the presence of postpartum depression. For the Spanish version, its reliability, in terms of internal consistency, is acceptable (α = 0.79).[13]

2.5 | Data analysis

A descriptive (mean and SD) analysis of the main continuous sociodemographic and obstetric variables of the sample was performed. For all other categorical variables a frequency analysis was performed.

In order to check whether there were significant differences between the women who gave birth before the pandemic and those who gave birth during the pandemic, a Student's t test analysis of means difference was performed, in which the dependent variables were the mothers' length of pregnancy at the time of delivery and the weight of the neonate at birth, and the independent variable was the moment of delivery (before or during the pandemic). In addition, a frequency comparison was carried out using the χ^2 statistic for the type of delivery (vaginal or instrumentaled) based on the moment of delivery. The data met the assumptions of normality and uniformity of variances (tests of Kolmogorov-Smirnov and Shapiro-Wilk of normality with a P value greater than 0.05; and Levene test to evaluate the homogeneity of variances with a P value greater than 0.05).

Subsequently, to detect differences in childbirth satisfaction, a comparison of means was conducted using non-parametric Mann-Whitney U test. The dependent variables were the subscales of the S-BSS-R (as well as the stress, personal attributes, and quality of care subscales), and the independent variable was the time of delivery (before or during the pandemic).

Finally, to examine whether cases of postpartum depression increased during the pandemic, a cut-off point of 10, indicating the presence of postpartum depression, was established in the EPDS score. This cut-off point was set following the recommendations of other authors for European samples.[14–16] Participants were divided into two groups according to the presence or absence of postpartum depression. A χ^2 frequency analysis was performed to check whether there were differences in the percentage of women affected by postpartum depression according to the time of delivery (before or during the pandemic).

The analyses were conducted using the SPSS package version 25.0 for Windows (IBM, Armonk, NY, USA).

3 | RESULTS

3.1 | Sample description

A total of 162 postpartum women met the inclusion criteria and were divided according to the time when they gave birth, with a total of 82 women giving birth before the pandemic (mean ± SD, 34.57 ± 4.81 years of age) and 75 women who gave birth during the pandemic (33.84 ± 4.45 years of age).

All other sociodemographic, obstetric, and birth-related variables can be found in Table 1.

3.2 | Variables in relation to childbirth before and during the pandemic

First, the Student's t test means analysis revealed differences in pregnancy duration at birth (t = 2.66; P = 0.018), the women in the group having delivered during the pandemic presenting a shorter duration.

In addition, differences were found for the type of delivery (normal or instrumental): 52.9% (n = 46) of the women who delivered before the pandemic required an instrumental childbirth (χ^2 = 8.12; P = 0.004).

No differences were found in relation to the neonate's weight at birth. These data are collected in Table 2.

3.3 | Women's childbirth satisfaction before and during the pandemic

A Mann-Whitney analysis was performed. Statistically significant differences were found for the subscales of stress (U = 2652.50; P = 0.040) and quality of care (U = 2703.50; P = 0.041), women having given birth during the pandemic presenting worse perceptions of the medical care received, as well as greater childbirth stress.

These data, together with the means of each group in each subscale, are shown in Table 3.

3.4 | Postpartum depression in women who give birth before and during the pandemic

The frequency analysis showed that there were statistically significant differences in the percentage of women who developed postpartum depression after giving birth during the pandemic (χ^2 = 4.31; P = 0.03). In particular, within the group of women who gave birth before the pandemic, 77.6% (n = 63) did not develop postpartum depression (compared with 22.4% (n = 19); the group of women who delivered during the pandemic presented a higher incidence of postpartum depression, 37.3% (n = 28) having developed this disorder. This represents an increase of almost 15% (Figure 1).

4 | DISCUSSION

The objective of the present study was to verify the impact on women of giving birth during the COVID-19 pandemic regarding aspects of childbirth (pregnancy duration, instrumental delivery, or weight of the neonate at birth) and delivery experience compared with women who gave birth before the pandemic. In addition, given

TABLE 1 Description and comparison of the two groups in sociodemographic variables and obstetric history, in women who gave birth before and during the pandemic[a]

	Before pandemic (n = 82)	During pandemic (n = 75)	t/χ^2	P value
Sociodemographic variables				
Age, years	34.57 ± 4.81	33.84 ± 4.45	0.97	0.335
Marital status				
Married/cohabiting	77 (100)	71 (94.7)		0.069
Single/widow	–	4 (5.3)		
Level of education				
Primary school	2 (2.6)	1 (1.3)	0.449	0.799
Secondary school	16 (20.8)	14 (18.7)		
University	59 (76.6)	60 (80)		
Obstetric information				
Nulliparous				
Yes	50 (57.5)	47 (62.7)	4.53	0.501
No	37 (42.5)	28 (37.3)		
Previous children				
0	50 (57.5)	47 (62.7)	0.473	0.789
1	34 (39.1)	26 (34.7)		
≥2	3 (3.4)	2 (2.7)		
Sex of neonate				
Male	40 (53.3)	36 (48)	0.427	0.514
Female	35 (46.7)	39 (52)		

Note: In some variables there are missing values, so N may not correspond to the corresponding one for each group.

[a]Values are given as mean ±SD or as number percentage.

TABLE 2 Differences in variables related to childbirth according to the time of delivery[a]

	Before pandemic (n = 82)	During pandemic (n = 75)	t/χ^2	P value[b]
Gestational age, week	39.71 ± 1.18	39.10 ± 1.67	2.66	0.018
Type of delivery				
Vaginal	41 (47.1)	52 (69.3)	8.123	0.004
Instrumental	46 (52.9)	23 (30.7)		
Birth weight, g	3283.18 ± 438.94	3253.45 ± 426.28	0.419	0.676

[a]Values are given as mean ± SD or as number percentage.

[b]Significance at $P < 0.01$.

that childbirth satisfaction and postpartum depression are closely related, we also sought to understand whether there was a higher risk of postpartum depression in women who gave birth during the pandemic.

With respect to aspects of childbirth, it was found that women who gave birth during the pandemic had an earlier delivery compared with women who gave birth before the pandemic. Moreover, mothers who gave birth before the pandemic presented a higher rate of instrumental delivery. Both findings are highly significant for maternal and fetal health, as it has been shown that the week of birth, the type of delivery, and the birth weight are optimal health indicators.[17] This finding does not seem to be compatible with conclusions of previous studies, which found that greater

stress in the moments before delivery could increase the likelihood of needing an instrumental delivery.[7] A possible explanation may be the hospitals' staff shortages and the need, therefore, to go without instrumental deliveries and promote vaginal delivery. However, these findings are surprising and should be studied in more depth.

Second, it was found that women who had given birth during the pandemic perceived a higher level of stress and a poorer quality of care. These findings can be explained by the historical situation in which we are living. On the one hand, stress plays an essential role before and during childbirth, because, as mentioned above, it can be related to a greater number of instrumental deliveries, as well as a greater probability of suffering from pathologies

TABLE 3 Mean differences in birth satisfaction among women who gave birth before and during the pandemic[a]

S-BSS-R	Before pandemic (n = 82)	During pandemic (n = 75)	U	P value[b]
Stress during childbirth	8.49 ± 4.21	9.80 ± 3.82	2652.50	0.040
Personal attributes	4.78 ± 2.34	4.69 ± 2.35	3188.00	0.801
Quality of care	13.78 ± 2.08	12.68 ± 3.23	5553.50	0.041
Birth total satisfaction	27.06 ± 7.14	27.17 ± 8.07	−0.97	0.923

Abbreviation: S-BSS-R, Spanish Birth Satisfaction Scale Revised.

[a]Values are given as mean ± SD.

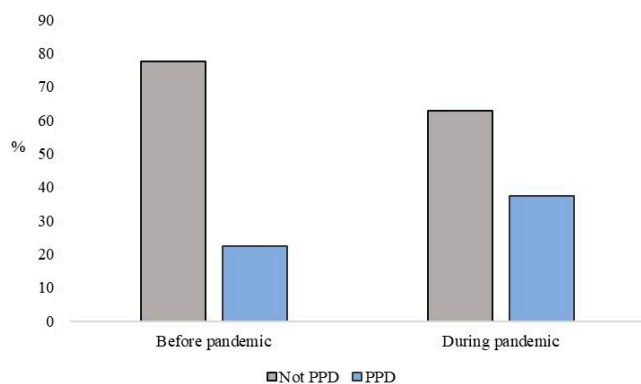[b]Significance at $P \leq 0.05$.

FIGURE 1 Percentage of women with and without postpartum depression after giving birth before and during the pandemic. Abbreviation: PPD, postpartum depression

such as postpartum depression.[7,14] Second, regarding the quality of care, attention should be paid to the fact that in Spain, as well as in other parts of the world, the health system has collapsed, coupled with shortages of health professionals, a lack of individual protective equipment, and a lack of available hospital beds.[18] In this unprecedented health crisis, the International Confederation of Midwives appealed to all world leaders to improve the quality of care and health assistance during childbirth during the pandemic.[19] It is important to note that despite the situation worldwide, the experience of women with worse perceptions of childbirth care can have negative consequences, such as a greater probability of cesarean sections, or a higher risk of bleeding, leading in turn to a greater fear of future deliveries.[7,20]

Third, women who gave birth during the pandemic were found to have a higher incidence of postpartum depression. Postpartum depression affects around 15% of women worldwide.[21] The incidence, however, may have increased as a result of the experience of confinement. In our specific case, these data are concerning as almost 40% of women who gave birth during the pandemic developed postpartum depression. In the light of these results, urgent action should be taken. Indeed, it has been widely demonstrated that postpartum depression can have a serious impact on maternal health[22] that could even lead to suicide. Furthermore, despite the fact that no comparative studies have hitherto been performed between women before and during the pandemic, some researchers have reported an increase in depressive symptoms in the

postpartum period.[23,24] The latter supports the need to study and address this problem.

The present study seems to be the first to analyze satisfaction with childbirth and postpartum depression during the pandemic, comparing women who gave birth before and during the pandemic and it offers unique information about caring for women postpartum. Nevertheless, it presents some limitations, such as generalizability: the results are only attributable to the Spanish population, because the social and health characteristics may be different from those experienced in other countries. However, we do suspect that the results for the Spanish population are likely to apply to many other countries. Besides, it is important to take into account that women who had a cesarean section were included in those having an instrumental delivery; it would be interesting to study the pandemic impact on cesarean sections.

To conclude, we are faced with an unprecedented challenge and it is vital to care for women's physical and psychological health, before and after childbirth, and so reduce the negative consequences that the pandemic is already having. Promoting adequate health care, specialized care, and even including screening tests to rule out the presence of postpartum depression, would be some of the clinical guidelines. This would help with early detection of those women at risk of suffering postpartum depression, and so contribute to preventing the negative consequences.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

AUTHOR CONTRIBUTIONS

CM-N, JAP-G, and BR-G contributed to conceptualization, methodology, data curation, formal analysis, writing of the original draft, and writing, review and editing of the final version of the manuscript. MIP-R was responsible for funding acquisition, conceptualization, methodology, writing, review and editing of the final version of the manuscript, and study supervision. All authors approved the final version of the manuscript.

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