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# Mental Health of Postpartum Women During the COVID-19 Pandemic: An Integrative Review\*

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**Theme:** Promotion and prevention.

**Contribution to the subject:** The research demonstrates the mental health of postpartum women during the COVID-19 pandemic, supporting professional practices through scientific evidence and encouraging research on the topic.

## Abstract

**Objective:** To identify and analyze the scientific evidence on the mental health of postpartum women during the COVID-19 pandemic. **Method:** This integrative review was carried out using the VHL, CINAHL, PubCovid, Scopus, and Web of Science databases, whose research question was “What is the scientific evidence on the mental health of postpartum women during the SARS-CoV-2 pandemic?” **Results:** Ten articles in English were included, identifying a higher frequency of cross-sectional research ( $n = 4$ ), publications in November 2020 ( $n = 3$ ), conducted in Italy ( $n = 3$ ), with level VI evidence ( $n = 6$ ). The study found that postpartum women feel depressed, lonely, and afraid; attention is drawn to the worsening risk of postpartum depression with significant prevalence values. It points out factors that negatively influence the mental health of this population in the current pandemic and discloses care measures. **Conclusions:** In addition to previous characteristics, socioeconomic conditions (e.g., living in highly infected areas, unemployment) and elements inherent to this pandemic (e.g., distance and fear of contagion) negatively influence the mental health of postpartum women. Means of dealing with the conditions imposed by the COVID-19 pandemic are available, such as relaxation techniques, physical exercise, and professional support. The relevance and need for research on this theme, mostly nationally, are highlighted.

### Keywords (Source: DeCS)

COVID-19; mental health; pandemics; postpartum period; SARS-CoV-2; betacoronavirus.

## 4 Salud mental de puérperas durante la pandemia de la covid-19: revisión integradora\*

\* La Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes) financió el presente artículo por medio de la convocatoria de Acción de Emergencia Covid-19 de la Universidade Federal do Paraná, Brasil, que hace parte del Programa Estratégico de Emergencia de Prevención y Combate a Brotes, Endemias, Epidemias y Pandemias. El texto se deriva de la primera etapa de desarrollo de la tesis de doctorado titulada "Experiencias de puérperas durante la pandemia de covid-19", que forma parte del proyecto "Modelos, redes, protocolos y procesos para el cuidado a la mujer en proceso de parto y nacimiento", presentado al programa de posgrado de la Universidade Federal do Paraná, Brasil.

### Resumen

**Objetivo:** identificar y analizar las evidencias científicas sobre la salud mental de puérperas durante la pandemia de la covid-19.

**Método:** revisión integradora en las bases de datos BVS, CINAHL, PubCovid, Scopus y Web of Science, en la que se consideró la pregunta de investigación "¿Cuáles son las evidencias científicas sobre la salud mental de las puérperas en la pandemia del SARS-CoV-2?"

**Resultados:** se incluyeron diez artículos, en inglés, y se identificó más frecuencia en investigaciones trasversales ( $n = 4$ ), publicaciones en noviembre de 2020 ( $n = 3$ ), realizadas en Italia ( $n = 3$ ), con nivel VI de evidencia ( $n = 6$ ). Se demostró que las puérperas se sienten deprimidas, solitarias y con miedo, lo cual agrava el riesgo de depresión posparto con valores importantes de prevalencia. Se señalan factores que influyen de forma negativa en la salud mental de esta población y se evidencian acciones de cuidado. **Conclusiones:** además de las características anteriores, algunas condiciones socio-económicas (como vivir en áreas de más infección, desempleo) y elementos inherentes a esta pandemia (como distanciamiento y miedo de contagiarse) influyen de forma negativa en la salud mental de puérperas. Hay formas de manejar las condiciones impuestas por la pandemia de covid-19, como técnicas de relajación, práctica de ejercicio físico y soporte profesional. Se destacan la importancia y la necesidad de investigaciones nacionales, principalmente, e internacionales en esta temática.

#### Palabras clave (Fuente: DeCS)

COVID-19; salud mental; pandemias; periodo posparto; SARS-CoV-2; betacoronavirus.

# Saúde mental de puérperas durante a pandemia covid-19: revisão integrativa\*

\* Este artigo foi financiado pelo Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) por meio do edital de ação emergencial COVID-19 da Universidade Federal do Paraná que é integrante do Programa Estratégico Emergencial de Prevenção e Combate a Surtos, Endemias, Epidemias e Pandemias. O artigo é oriundo da primeira etapa de desenvolvimento da tese de doutorado intitulada “Experiência da mulher no puerpério durante pandemia”, que faz parte do projeto “Modelos, Redes, Protocolos e Processos para o cuidado à mulher no processo de parto e nascimento”. Este artigo é derivado da Tese de Doutorado intitulada “Experiências de puérperas durante a pandemia de COVID-19”, apresentada ao Programa de Pós-Graduação da Universidade Federal do Paraná (UFPR).

## Resumo

**Objetivo:** identificar e analisar as evidências científicas sobre a saúde mental de puérperas durante a pandemia da covid-19. **Método:** revisão integrativa nas bases de dados BVS, CINAHL, PubCovind, Scopus e Web of Science, na qual se considerou a pergunta de pesquisa “Quais as evidências científicas sobre a saúde mental das puérperas na pandemia do Sars-CoV-2?” **Resultados:** foram incluídos 10 artigos, em língua inglesa, e foi identificada maior frequência em pesquisas transversais ( $n = 4$ ), publicações em novembro de 2020 ( $n = 3$ ), realizadas na Itália ( $n = 3$ ), com nível VI de evidência ( $n = 6$ ). Demonstrou-se que as puérperas se sentem deprimidas, solitárias e com medo; atentam para a piora no risco de depressão pós-parto com valores importantes de prevalência. Apontam fatores que influenciam negativamente a saúde mental dessa população na atual pandemia e revelam ações de cuidado. **Conclusões:** além de características pregressas, há condições socioeconômicas — como residir em áreas de maior contaminação, desemprego — e elementos inerentes a essa pandemia — como distanciamento e medo da contaminação — que influenciam negativamente a saúde mental de puérperas. Há meios de lidar com as condições impostas pela pandemia da covid-19, como técnicas de relaxamento, prática de exercício físico e apoio profissional. Salientam-se a importância e a necessidade de pesquisas nacionais, principalmente, e internacionais nessa temática.

### Palavras-chave (Fonte: DeCS)

Covid-19; saúde mental; pandemias; período pós-parto; Sars-CoV-2; betacoronavírus.

## Introduction

The respiratory disease caused by the novel coronavirus has been named “CoronaVirus Disease 2019” (COVID-19), causing concern mostly among risk groups, including pregnant and postpartum women until day 14. In Brazil, the lethality rate stemming from the severe acute respiratory syndrome (SARS-CoV-2), caused by COVID-19, has led to 544 deaths in 2020, with a mean weekly rate of 12.1. By May 2021, a total of 911 deaths had been reported, with a mean weekly rate of 47.9, indicating an alarming increase (1,2).

In the Americas, a total of 1,271 deaths among pregnant women who tested positive for SARS-CoV-2 had been reported between January 2020 and May 2021, with records in Mexico (334), Peru (114), the United States of America (99), Colombia (69), and Argentina (56). Although lower than those reported in Brazil, these numbers corroborate the impact of the virus in the pregnancy-postpartum cycle (3).

In addition to the concern over the outcome of the disease in the maternal body, other factors include the family members' health (4,5), the baby's health, changes in maternal and child health services, the presence or absence of a companion during delivery and postpartum, and the scarcity of reliable information (4). Postpartum women are at exceptionally high risk for mental health disorders during the pandemic (6); therefore, these maternal concerns may contribute to increased psychological distress (4,7-9), with evidence that women in the perinatal period face symptoms of stress, anxiety (60 %), and depression (12 %) (10), along with signs of likely increased depression (11), anxiety (1,12,13), and anhedonia (12), motivated by the perceived risk of COVID-19 (12).

Social distancing due to COVID-19 implies decreased intimate contact, generates uncertainty and anxiety regarding the pandemic context (14), and the perception that perinatal women are at greater risk due to COVID-19 compared to non-pregnant women (15) increases their fear regarding childbirth (14,15). A possibility exists for increased depression and anxiety symptoms during the perinatal period during pandemic lockdown (16), which may have short- and long-term consequences, highlighting the caution required for the mental health of this population (7).

Furthermore, the current pandemic increases the likelihood of postpartum depression (PPD). According to a study, there was an incidence of 56.9 % of depression symptoms in Chinese women where age, abortion history, and perceived stress were influential factors, and the demands related to parenting guidance (78 %), protection of the mother-child dyad (60.3 %), and feeding (45 %) were listed as care needs. In addition, this study found an increased need for psychological assistance for postpartum women who were depressed compared to those who were not depressed (12).

Against this backdrop, this study is substantiated by the urgent need to synthesize the theoretical and reflective framework on the mental

health of postpartum women, understand the scope of this issue, and, thus, contribute to quality care in line with demand-oriented strategies.

Postpartum is considered a period of unique and specific characteristics, both biologically, emotionally, and socially (17); it starts after childbirth and includes the restoration of the female organism, and, consequently, it has an imprecise time limit. The “unexpected conclusion” was selected for this review (18).

Considering the above, this article aims to identify and analyze the scientific evidence on the mental health of postpartum women during the COVID-19 pandemic.

## Materials and methods

This integrative review, a method that widely synthesizes the results of national and international research, provides relevant, timely evidence that contributes to clinical practice, the production of critical knowledge, and future studies (19,20) by pointing out research gaps (20), meeting the need for knowledge created by the pandemic.

We followed six steps (19,21). The first, “Selection of the Guiding Question,” was structured with the PICO strategy, where P stands for population (postpartum women), I for interest (mental health), and Co for context (COVID-19 pandemic). It led to the question “What is the scientific evidence on the mental health of postpartum women during the SARS-CoV-2 pandemic?”

The databases and search strategies were listed in the second step, “Sampling.” An author performed the digital search on November 24th, 2020, through the Portal de Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes), Brazil, which provided access to the databases Biblioteca Virtual en Salud (BVS), Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Scopus. On the same date, the search in the PubCovid directory was performed. A digital search was conducted on January 20th, 2021, in the Web of Science (WoS) database.

The Health Sciences Descriptors (DeCS) used in Portuguese were “período pós-parto,” “saúde mental”; alternative terms were used for the “covid-19” descriptor, considering the nomenclature changes since the emergence of COVID-19 cases in December 2019. In Spanish, the descriptors used were “período posparto,” “salud mental,” and “COVID-19.” In English, the Medical Subject Headings (MeSH Terms) used were “postpartum period,” “mental health,” “COVID-19,” and “SARS-CoV-2.”

According to each database’s suitability, the search strategies combined DeCS and MeSH, using the Boolean operators AND and OR, as presented in Table 1. The BVS offers a specific strategy for the theme, and it was used for the search; the PubCovid database stores



publications from PubMed and Embase in folders organized by sub-topics; in this case, the “gynecology, obstetrics, reproduction, and pregnancy” folder was intersected with the “mental health” folder.

**Table 1.** Databases and search strategies used. Curitiba, Paraná, Brazil, 2021

Database	Strategy used
BVS	(“Período Pós-Parto” OR “Postpartum Period” OR “Periodo Posparto” OR “Puerpério” OR “Period, Postpartum” OR “Postpartum” OR “Postpartum Women” OR “Puerperium” OR “Women, Postpartum” OR “Periodo Postparto” OR “Periodo de Posparto” OR “Periodo de Postparto” OR “Puérpera” OR “Puérperas” OR “Puerperal”) AND (“Saúde Mental” OR “Mental Health” OR “Salud Mental” OR “Área de Saúde Mental” OR “Higiene Mental” OR “Mental Hygiene”) AND (((“2019-2020” OR 2019 OR da:202*) (“New Coronavirus” OR “Novel Coronavirus” OR “Nuevo Coronavirus” OR “Novo Coronavirus” OR “Coronavirus disease” OR “Enfermedad por Coronavirus” OR “severe acute respiratory syndrome coronavirus 2”)) OR ((2019-ncov) OR (ncov 2019) OR 2019ncov OR covid19 OR (covid-19) OR covid2019 OR (covid-2019) OR (covid 2019)) OR ((srag-cov-2 OR sars-cov-2 OR sars2 OR (sars 2) OR (sars cov 2) OR cov19 OR cov2019 OR coronavirus* OR “Severe Acute Respiratory Infections” OR “Severe Acute Respiratory Infection” OR “Coronavirus 2” OR “acute respiratory disease” OR mh:betacoronavirus OR mh:“Coronavirus infections” OR mh:“sars virus”) AND (tw:2019 OR da:202*) AND NOT da:201*) OR (wuhan market virus) OR (virus mercado wuhan) OR “Wuhan Coronavirus” OR “Coronavirus de Wuhan”) AND NOT ti:dromedar*))
CINAHL	(“Período Pós-Parto” OR “Postpartum Period” OR “Periodo Posparto” OR “Puerpério” OR “Period, Postpartum” OR “Postpartum” OR “Postpartum Women” OR “Puerperium” OR “Women, Postpartum” OR “Periodo Postparto” OR “Periodo de Posparto” OR “Periodo de Postparto” OR “Puérpera” OR “Puérperas” OR “Puerperal”) AND (“Saúde Mental” OR “Mental Health” OR “Salud Mental” OR “Área de Saúde Mental” OR “Higiene Mental” OR “Mental Hygiene”) AND (“Wuhan coronavirus” OR “COVID19*” OR “COVID-19*” OR “COVID-2019*” OR “coronavirus disease 2019” OR “SARS-CoV-2” OR “2019-nCoV” OR “2019 novel coronavirus” OR “severe acute respiratory syndrome coronavirus 2” OR “2019 novel coronavirus infection” OR “coronavirus disease 2019” OR “coronavirus disease-19” OR “SARS-CoV-2019” OR “SARS-CoV-19”).
Scopus	(“Período Pós-Parto” OR “Postpartum Period” OR “Periodo Posparto” OR “Puerpério” OR “Period, Postpartum” OR “Postpartum” OR “Postpartum Women” OR “Puerperium” OR “Women, Postpartum” OR “Periodo Postparto” OR “Periodo de Posparto” OR “Periodo de Postparto” OR “Puérpera” OR “Puérperas” OR “Puerperal”) AND (“Saúde Mental” OR “Mental Health” OR “Salud Mental” OR “Área de Saúde Mental” OR “Higiene Mental” OR “Mental Hygiene”) AND (“Wuhan coronavirus” OR “COVID19*” OR “COVID-19*” OR “COVID-2019*” OR “coronavirus disease 2019” OR “SARS-CoV-2” OR “2019-nCoV” OR “2019 novel coronavirus” OR “severe acute respiratory syndrome coronavirus 2” OR “2019 novel coronavirus infection” OR “coronavirus disease 2019” OR “coronavirus disease-19” OR “SARS-CoV-2019” OR “SARS-CoV-19”)
WoS	(“Período Pós-Parto” OR “Postpartum Period” OR “Periodo Posparto” OR “Puerpério” OR “Period, Postpartum” OR “Postpartum” OR “Postpartum Women” OR “Puerperium” OR “Women, Postpartum” OR “Periodo Postparto” OR “Periodo de Posparto” OR “Periodo de Postparto” OR “Puérpera” OR “Puérperas” OR “Puerperal”) AND (“Saúde Mental” OR “Mental Health” OR “Salud Mental” OR “Área de Saúde Mental” OR “Higiene Mental” OR “Mental Hygiene”) AND (“Wuhan coronavirus” OR “COVID19*” OR “COVID-19*” OR “COVID-2019*” OR “coronavirus disease 2019” OR “SARS-CoV-2” OR “2019-nCoV” OR “2019 novel coronavirus” OR “severe acute respiratory syndrome coronavirus 2” OR “2019 novel coronavirus infection” OR “coronavirus disease 2019” OR “coronavirus disease-19” OR “SARS-CoV-2019” OR “SARS-CoV-19”)

Database	Strategy used
PubCovid	((("COVID-19"[All Fields] OR "COVID-2019"[All Fields] OR "severe acute respiratory syndrome coronavirus 2"[Supplementary Concept] OR "severe acute respiratory syndrome coronavirus 2"[All Fields] OR "2019-nCoV"[All Fields] OR "SARS-CoV-2"[All Fields] OR "2019nCoV"[All Fields] OR (("Wuhan"[All Fields] AND ("coronavirus"[MeSH Terms] OR "coronavirus"[All Fields])) AND (2019/12[PDAT] OR 2020[PDAT]))) OR ("coronavirus"[MeSH Terms] OR "coronavirus"[All Fields]) OR ("severe acute respiratory syndrome coronavirus 2"[Supplementary Concept] OR "severe acute respiratory syndrome coronavirus 2"[All Fields] OR "sars cov 2"[All Fields])).

Source: Own elaboration based on the research data.

The inclusion criteria set were publications between 2019 and 2020 (from the beginning of the COVID-19 pandemic to the date of article collection) available in full-text in Portuguese, English, and Spanish that addressed the mental health of postpartum women solely during the COVID-19 pandemic. The exclusion criteria were reflection papers, editorials, letters to the editor, experience reports, case reports, formative second opinion, videos, commentaries, research record protocols, and brief communication of results.

For the "Primary Research Characterization," which is the third step, duplicate publications were excluded using EndNoteWeb software, a free reference manager, and a practical, reliable, and transparent resource for the integrative review (20). In the sequence, titles and abstracts were read with a complete reading of the article when clarification was needed, tabulating information in an adapted instrument.

Meanwhile, the included and excluded publications were selected using the inclusion and exclusion criteria. Pre-print publications were considered, which had already been published at the end of the review. Two authors reviewed this process; when necessary, the third and fourth authors analyzed the articles.

In the fourth step, "Finding Analysis," the included articles were read and reread thoroughly and critically, generating the content presented in the next section. In the second-to-last step, "Result Interpretation from Convergent Themes Emerging from the Review," the final product was discussed with the literature, describing achievements and implications. The sixth step, "Review Presentation," describes the steps for the review and the main findings of article analysis.

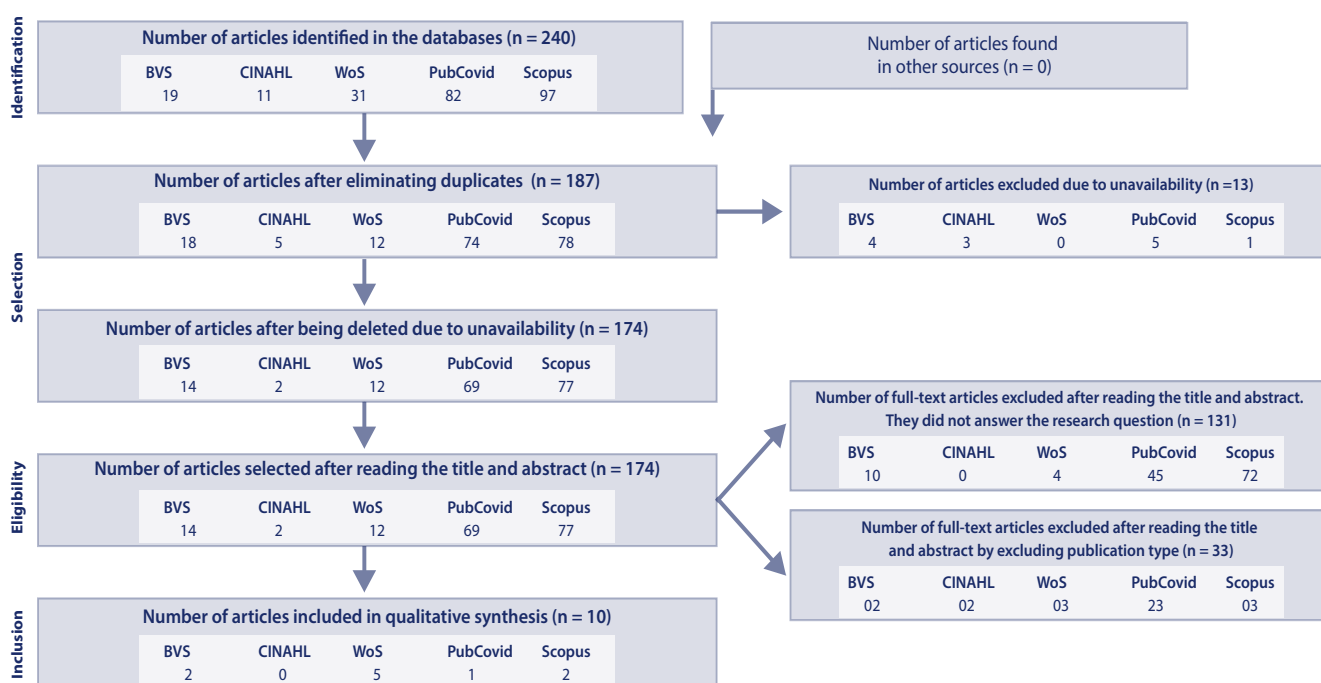
Since this literature review does not involve human beings, it was not submitted to the research ethics committee.

## Results

The search in the databases totaled 240 publications. Upon checking for duplicates, the authors and reference manager excluded 53 publications, and 13 others were unavailable on the Capes database. Therefore, 174 publications were reviewed, excluding 164

and including ten as the corpus for the qualitative synthesis (Figure 1) using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (22).

**Figure 1.** Flowchart of the publications' search and selection. Curitiba, Paraná, Brazil, 2021



Source: Own elaboration based on survey data and PRISMA adaptation (22).

The results in Table 2 present studies conducted in the United Kingdom, the United States, China, Iran, Serbia, Turkey, Israel ( $n = 1$  each), and Italy ( $n = 3$ ). The publishing journals were mostly correlated to mental health or women's health. All those included were published in 2020 during May ( $n = 2$ ), September ( $n = 2$ ), October ( $n = 1$ ), November ( $n = 3$ ), and December ( $n = 2$ ). The study types consisted of qualitative descriptive ( $n = 1$ ), review ( $n = 1$ ), cohort ( $n = 2$ ), case-control ( $n = 1$ ), quantitative descriptive ( $n = 1$ ), and cross-sectional descriptive studies ( $n = 4$ ). Overall, we noted that these studies aim to understand mood symptomatology, especially depressive symptoms in postpartum women during the COVID-19 pandemic.

Data collection was performed digitally ( $n = 5$ ), on-site ( $n = 3$ ), and bibliographically ( $n = 2$ ). In addition to other instruments associated with data collection, the Edinburgh Postnatal Depression Scale (EPDS) was used ( $n = 8$ ).

The evidence level was identified according to the articles' methodological characteristics and followed Melnyk and Fineout-Overholt's proposal (23):

- Level I: Systematic reviews or meta-analyses of randomized controlled studies or evidence-based practice guidelines based on randomized studies or meta-analyses

- Level II: Well-designed randomized clinical trials
- Level III: Well-delimited controlled trials without randomization
- Level IV: Well-designed case-control and cohort studies
- Level V: Systematic reviews of descriptive and qualitative studies
- Level VI: Descriptive or qualitative studies
- Level VII: Authority opinions or expert committee reports

Level I evidence considers that the recommendations contained in these publications are highly applicable in professional practice when compared to level VI. In this review, the levels identified were IV ( $n = 3$ ), V ( $n = 1$ ), and VI ( $n = 6$ ).

Based on the articles read, two main contents emerged: “the effects of the COVID-19 pandemic on the mental health of postpartum women” and “care measures for the mental health of postpartum women during the COVID-19 pandemic”. Regarding “the effects of the COVID-19 pandemic on the mental health of postpartum women”, despite the particularities of each study, this pandemic caused postpartum women to feel depressed, lonely, in an irritable mood, and worried (24), with depression and post-traumatic stress symptoms (25). Concerning the prevalence of PPD, 12.4 % presented with possible PPD (26), 14.7 % with risk for PPD (27), 30 % with a prevalence of PPD (28), 44.40 % with a prevalence of depressive symptoms, 51.90 % with perceived stress (29), and 14.8 % were at risk for nonpsychotic mood and anxiety disorders (30).

Comparing the postpartum period before and during this pandemic, postpartum women in the latter group were at 30 % higher risk for PPD (27), with higher scores also for anhedonia and anxiety (31). In the study that compared non-postpartum women to postpartum women in the pandemic, the latter presented with increased anxiety, negative feelings, and disability (30).

In this pandemic context, economic issues such as lower family income, inability to buy food (29), unemployment (29,30), financial support from family members (29) and sociodemographic issues such as being an immigrant (28), living in an area with higher infection rates (29), being over 35 years old and single (30) were pointed out as factors related to the deterioration of the mental health of postpartum women. Furthermore, low social support was associated with higher EPDS values (28,30). Other factors such as the pain experienced at delivery (25), previous abortion history (29), and previous emotional issues (29,30) posed a risk for PPD. Another study demonstrated that postpartum women were at lower risk of high EPDS scores during the pandemic (32) and that these women estimated no need for professional psychological support (30).

Themes related to worrying about exposure (31), getting COVID-19 and having a sustained fever (28), contact with people infected with COVID-19, and fear of the baby contracting the infection (29) were

associated with worsening mental health. Regarding preventive measures, separation from mother and baby postpartum (33), quarantine (30,31), isolation (30), hospital isolation (31), staying in an isolated room, and not receiving visits (27) were flagged as contributors to worsening depression symptoms. From another perspective, one article pointed out that women with a higher socioeconomic status showed no changes in mood following childbirth with social containment measures and decreased depression symptomatology (26).

In “care measures for the mental health of postpartum women during the COVID-19 pandemic”, caring for oneself and contact with support groups (24), quietude in hospitalization, having received support from professionals (25), and avoiding sharing eating utensils (28) were protective measures for their mental health. Going out for physical activity and relaxation techniques were means of coping with the imposed lockdown (24).

Discussion

Considering the global challenge of producing information on SARS-CoV-2 for public health, care, and research (33), it is noted that the articles included started being published in May 2020, peaking at the end of the second half (September, October, November, and December). The most significant number of publications in November indicates a possible gradation in the development of research and knowledge during the first year of the pandemic. Italy ranks as the country with the highest number of publications, possibly due to being the first epicenter of the pandemic in Europe, with numerous positive cases and deaths from COVID-19, lockdown, and quarantine on a large scale (31).

Regarding the type of research, cross-sectional studies and those that used the EPDS for data collection stand out. This instrument inquires upon postpartum depression symptomatology and, given its sensitivity in the research, supports clinical practice in the health field (34, 35).

**Table 2.** Articles included for review according to first author, country of research, journal, month and publication database, title, objective, method, results, and evidence level. Curitiba, Paraná, Brazil, 2021

First author	Country/ Journal/ Publication month/ Database	Title	Objective	Method	Results	Evidence level
Dib S (24)	United Kingdom <i>International Journal of Gynecology &amp; Obstetrics</i> September 2020 BVS	“Maternal mental health and coping during the COVID-19 lockdown in the UK: Data from the COVID-19 New Mum Study”	To evaluate how the mothers were feeling and dealing with the lockdown and potential ways to assist them	Descriptive analysis; online survey; participation of 1,329 women with infants under 12 months of age	More than half (71 %) of these mothers reported feeling depressed, lonely, irritable, and worried since the start of the lockdown but able to cope with the situation. Health care and contact with support groups were predictors of improved mental health while going out to work, lower family income, and the impact of the lockdown on their ability to buy food were predictors of worsening mental health.  Getting out for physical activity and relaxation techniques such as meditation and yoga were potential ways of coping with the lockdown.	VI

First author	Country/ Journal/ Publication month/ Database	Title	Objective	Method	Results	Evidence level
Ostacoli L (25)	Italy <i>BMC Pregnancy and Childbirth</i> November 2020 BVS	"Psychosocial factors associated with postpartum psychological distress during the COVID-19 pandemic: A cross-sectional study"	To investigate the prevalence of depressive and post-traumatic stress symptoms in women who gave birth during the COVID-19 pandemic and their associations with quarantine measures, obstetric factors, and relational attachment style	Cross-sectional; online survey; administration of EPDS, IES-R (Impact of Event Scale-Revised), and RQ (Relationship Questionnaire); participation of 163 postpartum women	A total of 44.2 % experienced depression symptoms, and 42.9 % experienced post-traumatic stress symptoms following childbirth. The relational attachment was avoidant-disdainful and avoidant with fear, related to the risk of depression and post-traumatic stress symptoms, respectively. The pain felt at delivery represented a risk factor for depression; the quietness at hospitalization due to the absence of visitors and the support from healthcare professionals represented a protective factor.	VI
Silverman ME (26)	The United States <i>Scientific Reports</i> December 2020 WoS	"Postpartum mood among universally screened high and low socioeconomic status patients during COVID-19 social restrictions in New York City."	To determine any changes in postpartum mood symptomatology among patients who gave birth before and during the COVID-19 pandemic To explore whether any differences in reported postpartum mood symptomatology existed between those living at high and low socioeconomic levels during these same periods	Cohort; EPDS data collection in the medical record; participation of 516 women in the postpartum period	A total of 12.4 % of the women scored above nine, suggesting depression. A statistically significant change in mood symptomatology was observed between the socioeconomic groups during the COVID-19 restrictions: women with lower socioeconomic status showed a decrease in depressive symptomatology.	IV
Oskovi-Kaplan ZA (27)	Turkey <i>Psychiatric Quarterly</i> September 2020 Scopus	"The effect of COVID-19 pandemic and social restrictions on depression rates and maternal attachment in immediate postpartum women: A preliminary study"	To evaluate the rates of postpartum depression and maternal-infant attachment status among women in the immediate postpartum period whose last trimester overlapped with the lockdowns and who gave birth in a tertiary care center that had stringent hospital restrictions due to also providing care to COVID-19 patients in Turkey's capital	Quantitative descriptive study; administration of EPDS and MAI (Maternal Attachment Inventory); participation of 223 women in the immediate postpartum period (48 hours)	The mean EPDS score was 7 (7), and 33 (14.7 %) women were identified as at risk for PPD. The mean score on the MAI was 100 (26); the MAI scores of women with depression were significantly lower than those of women without depression, 73 (39) vs. 101 (18), respectively [ $p < 0.001$ ]. It is suggested that the risk of PPD during the pandemic increased compared to pre-pandemic levels. The fact that postpartum women stay in isolated rooms and are not allowed to have any visitors may have influenced their higher EPDS scores.	VI
Liang P (28)	China <i>BMC Psychiatry</i> November 2020 WoS	"Prevalence and factors associated with postpartum depression during the COVID-19 pandemic among women in Guangzhou, China: A cross-sectional study"	To investigate the prevalence of PPD and explore the PPD-related factors among women in Guangzhou, China, during the COVID-19 pandemic	Cross-sectional study; online survey; administration of the EPDS and structured questionnaire; participation of 845 women in the postpartum period between 6 and 12 weeks	The PPD prevalence was 30 % in women within 6-12 weeks postpartum. The factors significantly related to the highest PPD scores were being an immigrant, having a sustained fever, insufficient social support, concerns regarding COVID-19 infection, preventive measures such as avoiding sharing eating utensils, and the lowest PPD scores.	VI
Spinola O (29)	Italy <i>Frontiers in Psychiatry</i> November 2020 WoS	"Effects of COVID-19 epidemic lockdown on postpartum depressive symptoms in a sample of Italian mothers"	To explore the impact of COVID-19 on PPD symptoms in mothers with children under one year of age	Cross-sectional study; online survey; administration of the EPDS, the SPSS (Scale of Perceived Social Support), and the MSSS (Maternity Social Support Scale); participation of 243 women with children aged up to one year	In 44.40 %, a prevalence of PPD symptoms occurred; in 51.90 %, a substantial perception of stress was noted; 87.20 % indicated deficient maternal support; 61 % indicated that COVID-19 affected breastfeeding. Time off work and receiving financial assistance from family members were significantly associated with depression symptoms. Having been in contact with people infected with COVID-19 and fear of the baby being infected with the disease were significantly related to increased EPDS scores; women who reported no fear that their close ones were infected with the disease had higher EPDS scores. Prior abortion history and emotional issues significantly affected higher EPDS scores. Women quarantined in northern Italy had higher depression and perceived stress scores than those in central and southern Italy.	VI



First author	Country/ Publication month/ Database	Title	Objective	Method	Results	Evidence level
Stonajov J (30)	Serbia <i>International Journal of Psychiatry in Medicine</i> December 2020 WoS	"The risk for nonpsychotic postpartum mood and anxiety disorders during the COVID-19 pandemic"	To recognize the risk factors for nonpsychotic postpartum mood and anxiety disorders (NPMADs) in women during the pandemic and police lockdown in a state of emergency in Serbia	Cross-sectional study; online survey; EPDS administration; participation of 108 postpartum women with children aged under 12 months.	14.8 % of postpartum women were at risk for nonpsychotic postpartum mood and anxiety disorders, while 85.2 % were not at risk.  Women over 35 years old, single, unemployed or who became unemployed due to the pandemic, or were dissatisfied with family income scored higher on the EPDS.  Quarantine, social isolation, lack of social support, and emotional issues were significantly associated with the risk of NPMADs.  When comparing non-postpartum and postpartum women, postpartum women were more anxious, experienced helplessness and negative feelings, and were more worried for no real reason while in social isolation. Postpartum women estimated no need for psychological support from a professional.	VI
Zanardo V (31)	Italy <i>International Journal of Gynecology &amp; Obstetrics</i> May 2020 PubCovid	"Psychological impact of COVID 19 quarantine measures in northeastern Italy on mothers in the immediate postpartum period"	To explore whether quarantine measures and hospital containment policies among women giving birth in a COVID-19 "hotspot" area in northeastern Italy increased psycho-emotional distress in the immediate postpartum period	Retrospective case-control study; administration of the EPDS in the immediate postpartum period; participation of 91 women from the study group and 101 women from the control group	The study group consisting of postpartum women during the COVID-19 pandemic (n = 91) had significantly higher EPDS values compared to the pre-pandemic control group (n = 101) (8.5 ± 4.6 vs. 6.34 ± 4.1; P < 0.001).  A total of 30 % of the study group presented with an increased risk of PPD (EPDS > 12)  Anhedonia, anxiety, and depression scored higher in the postpartum women study group during the COVID-19 pandemic compared to the control group, with a significant difference for anhedonia.  The quarantine and hospital containment measures strongly impacted postpartum women and, added to the fear of exposure to COVID-19, may worsen depressive symptoms.	IV
Pariente G (32)	Israel <i>Archives of Women's Mental Health</i> October 2020 Scopus	"Risk for probable postpartum depression among women during the COVID-19 pandemic"	To evaluate the risk of postpartum depression among women who gave birth during the COVID-19 pandemic compared to the risk among women who gave birth before the COVID-19 pandemic	Cohort study on-site; EPDS administration in the immediate postpartum period; participation of 223 women.	Women who gave birth during the COVID-19 pandemic were at a lower risk of scoring high (> 10) or very high (≥ 13) on the EPDS compared to women who gave birth before the COVID-19 pandemic (16.7 % vs. 31.3 %, p = 0.002 and 6.8 % vs. 15.2 %, p = 0.014, for EPDS ≥ 10 and EPDS ≥ 13, respectively).  Maternal age, ethnicity, marital status, and adverse pregnancy outcomes were independently associated with a lower risk of depression (adjusted OR 0.4, CI = 95 % 0.23-0.70, p = 0.001 and adjusted OR 0.3, CI = 95 % 0.15-0.74, p = 0.007 for EPDS scores > 10 and > 13, respectively).	IV
Sighaldeh SS (33)	Iran <i>Journal of Maternal-Fetal &amp; Neonatal Medicine</i> May 2020 WoS	"Care of newborns born to mothers with COVID-19 infection; a review of existing evidence"	To discuss how to care for a newborn of a mother suspected or infected with COVID-19 from the existing evidence	Systematic review study; articles and guidelines related to COVID-19 in reproductive health, maternal, and newborn health	It was found that maternal concern exists regarding fetal radiation exposure by computerized tomography. Vertical transmission of COVID-19 is inconclusive. Early delivery of women with COVID-19 is recommended when the mother is experiencing severe symptoms; however, testing positive for COVID-19 is not the sole indicator for early delivery.  Late cord clamping is not indicative of an increased possibility of virus transmission, and its maintenance is recommended; early clamping is suggested if the mother presents with infection symptoms.  Divergence exists regarding skin-to-skin contact, and a shared decision with the parents is essential.  COVID-19 can have an insidious onset and be nonspecific in infants.  The screening for COVID-19 in newborns delivered by mothers with the disease involves collecting nasopharyngeal, oropharyngeal, and rectal swabs within 24 hours of birth and 24 hours after the first collection, CT scanning, and epidemiologic history.  Separation of the dyad if the mother tests positive for COVID-19 and no direct breastfeeding may occur due to the risk of disease transmission following delivery; isolation of the baby, and care with the milking of breast milk may occur.  Separation of the mother-infant dyad and not breastfeeding may damage the mother-infant bond and increase maternal stress in the postpartum period.	V*

\*Referred to by the authors of the article as a systematic review.

Source: Own elaboration based on the research results.

The data collection strategy used the most was the virtual collection, possibly influenced by this pandemic's implications on field research, highlighting ventures conducted remotely that innovated research in this context (36,37). In this sense, it is vital to conduct research continuously, not limiting it to emergency contexts (38), as while periods of crisis reveal challenges for research, the mission of reducing uncertainty and assisting public health remains (39).

Relative to the evidence level, Level VI contained the most significant number of studies, which indicates the development of research on this theme with other methodological designs. However, given the conditions imposed by the pandemic, it is necessary to develop alternative means of research other than face-to-face. The need for timely access to information has made it essential for the methodological research design to factor in the impositions resulting from the pandemic. Identifying the level of evidence in a review enables critical observation of the information for use in clinical practice (23). Despite the lack of symmetry in the publication of studies with well-defined methodological designs and a high level of scientific evidence that enables and subsidizes such evidence in professional nursing practice, the best evidence available is used instead of the best possible evidence. Among the publications in Brazil, systematic reviews without or with meta-analysis, protocol reviews, the synthesis of evidence studies, and the integrative review are the most adopted methodologies (40).

## **The effects of the COVID-19 pandemic on the mental health of postpartum women**

Epidemic events produce adverse psychological effects, such as fear of getting sick, dying, loneliness, stress, depression, sadness, irritation, and feeling of loss (41,42), leading to emotional suffering and affecting the health and well-being of individuals. It is possible to ponder the effects of the current pandemic on mental health considering the population's psychological response to previous epidemics (42,43), which can be exteriorized in emotional responses, unhealthy behaviors, and disregard towards public health guidelines (42).

The articles pointed out that depression symptoms in postpartum women may worsen in the current setting. Maternal depression is considered one of the most common mental disorders during pregnancy or postpartum (44) and affects 13 % to 19 % of pregnant women (45). In Brazil, a prevalence of 26.3 % (44) countrywide and 14 % (46) of PPD has been reported in the South of the country. Significantly greater severity of PPD symptoms is reported at the onset than before the pandemic, associating this event with increased mental health issues in the postpartum period (47). Sentiment analysis showed increased negativity (48) and a marked increase in the prevalence of self-reported significant depressive symptoms in the postpartum period compared with before the pandemic (16).



Factors that pose a risk for PPD exist. Prenatal anxiety, postpartum blues, family income, women's occupation, and pregnancy complications are mentioned as significantly relevant. High levels of stress, low social support, current or previous history of abuse, history of prenatal depression, and marital dissatisfaction issues stand out as the most common, and history of prenatal depression and current abuse as the strongest (45).

In Brazil, risk factors significant for PPD were a brown-looking skin color, low economic status, alcohol consumption, history of mental disorder, unplanned pregnancy, being multiparous, improper care during birth or for the baby born (44). In the South of the country, personal or family history of depression, sadness experienced in the third gestational trimester, being multiparous and younger were associated with a higher risk for the disease (46).

In the current pandemic, some risk factors may be increased, such as depression symptoms during pregnancy, a previous diagnosis of anxiety, perception of low social support during pregnancy, traumatic events before or during pregnancy, and harsh circumstances during pregnancy or postpartum, such as the death of a loved one, unemployment, and a high-stress load. There is a possibility of worsening symptoms due to common mental disorders (besides depression and anxiety) during pregnancy, perception of low support from the partner, marital dissatisfaction, and low socioeconomic level, added to the economic changes resulting from the pandemic (49).

Considering the known prevalence of PPD combined with changes in the postpartum period, the influence of the pandemic as a stress source (43,47), and issues such as unemployment and economic adversity, profound interference with perinatal mental health can be indicated (43). Furthermore, the measures globally adopted to decrease the transmission of SARS-CoV-2, such as quarantine, social distancing, and meeting cancellations, cause increased distress and the development of mental disorders (43) since reduced social support, social isolation, distance, and fear of being exposed or infected have consequences for maternal mental health (50).

The concern that a close person is infected increases the fear of loss, and the possible contact with someone who tested positive for SARS-CoV-2 can raise the fear that the baby may be infected (29). These aspects can increase feelings of anxiety and fear in women in labor, further considering the changes in face-to-face care flows (8), whose suspension led women to feel anxious, neglected, sad, and frustrated (15). Reports state that women in the perinatal period during the pandemic experienced high suffering due to the external environment of high risk, the despair by anticipation of mourning, the limitation of family and social support, the change in interpersonal relationships, and the guilt that altered the feeling of happiness for the pregnancy (48).

In this review, anxiety and stress issues were found. A study pointed out that 12 % of participating women presented with high depres-

sion symptomatology, 60 % had moderate or severe anxiety, and 40 % felt lonely, mentioning the uncertainty regarding perinatal care, the risk of exposure of the dyad to infection, conflicting information, and the lack of a support network as key stress points (10).

During the pandemic, fathers are not allowed to visit, and newborns are isolated when tested positive for SARS-CoV-2. This isolation can harm the healthy neurodevelopment of newborns, as the presence of fathers in the postpartum stimulates the affective bond (51,52), in addition to the potential harm to the well-being and mental health of the mother (8). Evidence indicates that the uncertainty or exclusion regarding the presence of a companion and inadequate support in breastfeeding influence negatively the quality of life during the postpartum period (15).

## Care measures for the mental health of postpartum women during the COVID-19 pandemic

Mental health care measures can mitigate the impact on obstetric patients (43,50). Initiatives such as teleconsultation, multidisciplinary psychological and social care support can be used (51,53).

Receiving reliable information helps reduce the implication of fake news (54) and may contribute to the non-occurrence of adverse psychological effects (28,53). In turn, watching negative news can lead to feelings of despair and helplessness (41), and lacking adequate information on the pandemic can influence the increase in fear (29,54), uncertainty (54), anxiety, depression, and other symptoms (29). Therefore, it is understood that access to reliable information is a strategy to cope with the adversities of the pandemic (41). Limiting and monitoring access to news regarding the pandemic may be beneficial (9,42,50,55).

Engaging in moderate-intensity physical exercise (9,10,41,53) for at least 150 minutes a week reduces anxiety and depression compared to women who do not exercise (11). Having family bonds, enjoying moments of reading, watching movies, and listening to music, professional assistance provided through technological resources, implementing policies to assist the vulnerable, providing essential elements for subsistence, hygiene, organization measures, meditation (9), and social support, an essential protective factor (6), are auxiliary in reducing the psychological effects of the pandemic (41). Communication through digital media (9,10,53), self-care activities (9,10), such as adequate sleep, healthy eating, emotional support from the partner staying at home, being outdoors, feelings of gratitude, and establishing routines were pointed out as sources of resilience (10).

Although the postpartum women estimate that they do not require psychological support from a professional (30), the importance of professional monitoring of mental health is emphasized (7) with

guidelines on how to manage and cope with stress through the implementation and continuity of routines and social and mental health assistance (42). To identify higher-risk situations, nurses need to be aware of the relationship between the pandemic and mental health in the pregnancy-postpartum cycle (50).

Even though the COVID-19 pandemic has altered workflow in health care units and caused a high professional workload (51), the population needs to be informed of which remote assistance mechanisms to seek for mental health support since the information from reliable sources decreases fear (54,56).

When it is recorded that postpartum women had a lower risk of scoring high on the EPDS during the pandemic, the influence of support and proximity of relatives is thought to be due to stringent quarantine, a consequence of the lower spread of the virus in the region, the fact that women were not required to leave home, and that they perceived their baby to be healthy (32). Although they have not been highlighted as protective factors, these aspects should be monitored in the mental health care of this population. Other measures that assist with protection in a withdrawal period, such as having clear and compelling government information, having adequate supplies, a set quarantine period, and emphasizing the altruistic choice of quarantine, are on record (57).

In Brazil, psychological prenatal care, initially proposed by Bortolotti in 2007 (58), is a form of intervention intended as psychological care, which can be provided through teleconsultation (1), for pregnant women and their partners. It preventively aims to support them emotionally, informatively, and instructionally (59). Another resource consists of the prenatal and postpartum nursing consultation for the longitudinal follow-up, early identification of mental suffering, and the proposition of preventive, promotion, and treatment measures (60).

## Conclusions

This research has identified that postpartum women feel depressed, worried, anxious, negative, and afraid. It summarizes crucial risk and prevalence information for PPD in the COVID-19 pandemic context. It has enabled the recognition of prior risk factors for postpartum mental illnesses that are not specific to the pandemic context, while factors that are unique and inherent to the pandemic, such as containment measures and risk of contracting the disease, elicit a negative effect on this population. The results also revealed that living in areas where the virus is more widespread, being an immigrant, unemployed, and lacking social support worsen mental health, particularly in vulnerable groups.

Furthermore, mental health care measures for postpartum women were identified, such as support groups, professional support, and relaxation activities that reduce mental distress.

Therefore, the importance and need for professional care for the mental health of postpartum women in all contexts are acknowledged. It becomes especially relevant in the current pandemic context, which has imposed specific conditions that can worsen mental health, considering that mood change symptoms can be harmful to the course of the entire postpartum period. In light of this, the identification of evidence on the mental health of postpartum women during the pandemic and protective measures suggest focusing on professional attention to this subject in future public health events.

The importance of studies, including national research, whose subject matter is the mental health of postpartum women is emphasized, as the postpartum period is a unique event that, although related to pregnancy, is singular in itself.

**Conflicts of interest.** None to declare.

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