COVID Related Psychological Well-being among Pregnant Mother: A Systematic Review of Recent Evidence

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Abstract

Pregnancy and the postpartum period are known to have increased vulnerability to psychological disorders. This article aimed to reveal the psychological impacts of pregnancy in the current COVID-19 pandemic. PubMed, EMBASE, PsycINFO, and CINAHL databases were searched to include studies between 1 January 2000 and 31 December 2021. Two reviewers screened all studies and narrative data synthesis was conducted. This review analysed four studies, which involved a total of 1,742 pregnant mothers with diverse locations globally. Reports suggest that COVID-19 impacted differently on pregnant mothers, which in turn leads to distinctive psychological outcomes such as depression, anxiety, and thoughts of self-harm. Data for all studies were collected from early 2020; such preliminary results highlight the need for further research into the impacts of such maternal psychological consequences on childcare in the context of COVID-19. Furthermore, efforts are continually needed to reduce barriers to mental health services, including addressing the stigma of depression or anxiety among pregnant mothers. Filling such knowledge and research gap will foster the development of guidelines and interventions to better support pregnant mothers who experience the difficulties of the COVID-19 pandemic.

Keywords: COVID • Stress • Anxiety • Depression • Postpartum • Pregnant

Introduction

Background

The novel coronavirus rapidly spread in different countries across the globe that has reached the status of a pandemic [1]. Such an ongoing pandemic significantly impacts health and wellbeing globally [1]. Patients with chronic diseases such as cerebrovascular, liver, and renal disease, or cancer had a greater probability of mortality [2]. Additionally, physical distancing, social isolation, prolonged lockdowns, and lack of social human interaction aggravated several psychological health conditions such as depression and anxiety which are the most critical public health concerns at the current date [3]. This pandemic situation may have been challenging for maternal psychological health. The extensive physiological changes such as unprecedented hormonal fluctuations increase the vulnerability of pregnant women to psychological disorders. Although recent evidence suggests that the overall morbidity and mortality risk of COVID-19 to pregnant women is low, however, pregnant mothers with COVID-19 might experience a higher risk of premature birth and caesarean delivery with severe psychological consequences [4,5].

As the pandemic is still unfortunately under progression, there are limited data regarding the psychological characteristics of diverse patients including pregnant mother. Pregnancy-related COVID-19 cases with psychological concerns such as anxiety and depression have been reported all over the world [6]. However, as the data is evolving, there are still various factors that require further robust research. This paper presents a review of available literature to understand the dynamics of psychological impacts in pregnancy at different population-level alongside factors associated with mental health conditions in those studies in the context of COVID-19.

Methods

A systematic search of the literature was performed using PubMed, EMBASE, PsycINFO, and CINAHL with several combinations of the following and related search words: pregnant, postpartum depression, postpartum psychosis, puerperal psychosis, COVID, COVID 19, pandemic, and SARS CoV-2. We identified relevant studies published between 1 January 2020 and 31 December 2021. For this current review, we have held the search date for studies published since January 2020 because it was initially reported to the World Health Organization (WHO) on December 31, 2019, and on January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency [7].

Studies were included if they were in English, published in peer-reviewed journals, and sample populations were women (either antenatal or postnatal period of pregnancy status). The reference lists of all relevant articles were also screened to ensure all eligible studies were included.

The search identified 23 studies; duplicates or unrelated articles were excluded at the title and abstract screening phase. We screened the full text of 11 studies and a total of 4 studies were eligible for inclusion in this review. Two reviewers independently assessed the included studies; the lead author performed the data extraction and reviewed the data extraction table for accuracy. A descriptive synthesis was performed from the individual studies to support the narrative.

Results and Discussion

After full text review, 4 studies were included in the analysis (Table 1). All the studies used cross-sectional designs that were conducted in the United States, China, and Italy. A total of 1,742 participants were included in all 4 studies. The mean age of the study participants was 31.5 years. Only one study did not report conflict of interest. Two studies declared the funding source.

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Table 1. Overview of the included studies in the systematic review.

Author, Year and Country	Sample (N)	Age, Range, Mean ± SD	Current Pregnancy Status	COVID-19 Related Outcome	Psychological Outcome
Ran, A et al. [8] (2021) China	209	20-44; 30.39 ±4.66	Postpartum Status	• Total 48.8% (102 of 209) knew a lot about COVID-19 and 52.2% (109 of 209) concerned about get infected with COVID. • EPDS scores and Knowledge (p= 0.108); concerned (p= 0.255) about COVID-19 among postpartum women were not significant.	• Total 56.9% (119 of 209) incidence of postpartum depressive symptoms. • Perceived stress were the influencing factors of postpartum depression (adjusted R^2=0.432, F=23.611, p < .001).
Liu J, et al. [9] (2021) United States	715	18-40; NR	Antenatal period (628, 87.8%); Unknown pregnancy status (87, 12.2%)	• COVID -19 worry score was associated with higher odds of depression (aOR:1.2, 95% CI:1.2-1.3), thoughts of self-harm (aOR: 1.2, 95% CI:1.1-1.2), and anxiety (aOR: 1.2, 95% CI:1.2-1.3)	• The prevalence of adverse mental health outcomes was 36.4% (260 of 715) for probable depression and 21.9% (157 of 715) for anxiety. • More than two out of five (43.3%) women were identified as having probable depression or anxiety or both during pregnancy.
Molgora S, et al. [10] (2020) Italy	575	NR 32.9 ± 4.3	Expectant Mothers (388, 67.4%) Postpartum Status (187, 32.6%)	• 15.2% stated that their doctor visit appointments were cancelled or rescheduled due to COVID emergency. • 8.7% mentioned epidural analgesia could not use due to the lack of medical staff caused by the coronavirus outbreak. • 7.5% of the women were told their partners could not be present during childbirth and 47.0% were unsure about their partners' presence at delivery due to the restrictive measures adopted to contain the COVID-19 spread. • 13.9% of women believed their partners would not be allowed to visit them during hospitalization. • Due to COVID restriction policy, clinically significant state anxiety was experienced by both pregnant (p=0.012) and post-partum (p=0.035) women whose partners had not been present during delivery. • Postpartum women whose partners had not been present during delivery due to COVID restriction, also developed trait anxiety (p=0.009) as well as postpartum post-traumatic stress disorder (p=0.032).	• 64.0% (249) of expectant mothers and 57.7% (98) of postpartum women scored significant range for state anxiety, • 44.0% (171) of expectant mothers and 46.2% (86) of postpartum women scored significant range for trait anxiety. • 34.2% (133) of expectant women and 26.3% (49) of postpartum women had clinically significant levels of depression (measured by EPDS scale). • Although no differences between expectant mothers and postpartum women were found for anxiety and depressive symptoms. • PTSD scores was above the cut-off value in 16.7% of cases.
Spinola O, et al. [11] (2020) Italy	243	21–47 34.01 ± 4.27	Postpartum status	• 62.6% of the sample was afraid of being infected by COVID. • Infected by COVID had a statistically significant (p=0.001) effect on the total score of the EPDS; but fear of being infected by COVID was not statistically significant on the postpartum depressive symptomatology as measured through the EPDS.	• More than 44% of the sample has a score above the cut-off (>12) for postpartum depression symptomatology and 51.90% of the sample had a score above the cut-off for significant stress perceived (>27)

Aor: Adjusted Odds Ratio; CI: Confidence Interval; EPDS: Edinburgh Postnatal Depression Scale; SD: Standard Deviation; NR: Not Reported; PPSD: Postpartum Post-traumatic Stress Disorder.

Specifically, Ran A, et al. [8] studied the risk factors of postpartum depression and health care needs among Chinese postpartum women during the COVID-19 pandemic (data collected May to July 2020). The incidence of postpartum depressive symptoms was 56.9% (119 of 209) and the perceived stress was the influencing factors of postpartum depression (adjusted R^2=0.432, F=23.611, p <.001). Fewer than half of the women knew a lot about the knowledge of COVID-19 (48.8%). There was 52.2% (109 of 209) of the women expressed concern about COVID-19 infection, and 69.4% (145 of 209) of the women asked for help voluntarily when they were in panic or anxiety during the pandemic. There was no statistically significant difference in Edinburgh Postpartum Depression Scale (EPDS) scores among postpartum women of different levels of knowledge about COVID-19 (p=0.108).and the behaviour of asking for help in times of panic or anxiety (p=0.278). Pearson correlation analysis found that postpartum depression score was positively correlated with perceived stress level (p <.001). The higher the perceived stress, the higher the level of postpartum depression (t=11.348, p <.001) during the COVID-19 pandemic.

The largest study population of 715 United States pregnant women was evaluated by Liu J et al. [9] to measure associations between COVID-19–related experiences and psychological outcomes (i.e., depressive symptoms, thoughts of self-harm, and anxiety). The data was collected in May 2020. Strict social distancing was positively associated with depression. Approximately 36% and 22% of women suffered from probable depression and anxiety respectively during pregnancy. Remarkably, one in five pregnant women reported thoughts of harming themselves. Women with probable depression were more likely to report thoughts of self-harm than women who were not depressed (53% *vs.* 1.3%). Additionally, losing a family member because of COVID-19 was positively associated with thoughts of self-harm and working from home were inversely associated with thoughts of self-harm.

Similarly, Molgora S, et al. [10] Investigated Italian women's psychological well-being during pregnancy and in the first months after childbirth (data collected March to May 2020). Both the expectant mother and postpartum women were scored significant range for state (triggered as a response to

a stressful situation) and trait (triggered because of a person's predisposition to react anxiously to a situation) anxiety. Moreover 34.2% (133) of expectant mother and 26.3% (49) of postpartum women had clinically significant levels of depression. The medical appointment and check-up, epidural analgesia, partners' presence at delivery, and hospitalization were mentioned due to COVID restriction policy (Table1).

Finally, Spinola O, et al. [11] explored the impact of COVID-19 on postpartum depressive symptoms in Italian mothers with children below 1 year of age (data collected May to June 2020). More than 44% (106 of 243) and 51.90% (126 of 243) of the sample has a score above the cut-off for postpartum depression symptomatology (10.86 $\pm$ 6.37) and perceived stress (26.65 $\pm$ 5.80) respectively. Approximately 3.7% (9 of 243) of the women were infected by COVID-19 which had a significant effect on the total score of the EPDS (p=0.001). However, approximately 62.6% (152 of 243) of the sample was afraid of being infected which was not statistically significant.

Conclusion

We identified four studies that reported data on the various psychological wellbeing status of pregnant mother at different population level in regard to COVID-19. A potential limitation of this review was that it included only small number of studies. Additionally, for the purposes of the narrative synthesis of the results, all the definitions were grouped under a single broad definition for psychological outcome. Hence, pregnant women were vulnerable to several psychological disorders due to COVID -19 related physical, social, and emotional changes. Although the findings were at very diverse context, however, psychological outcomes were evident at different levels among the pregnant mothers which recommend developing intervention program to monitor maternal health worldwide. Yet, more comprehensive data collection is needed to understand the consequences of these psychological impacts in longstanding among this population and to implement and improve effective intervention strategies.

Funding Disclosure

None.

Author's Contributions

SR: Literature search, screening, SA: conceptualization, screening, manuscript writing, supervision.

Conflicts of Interest

None.

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