

Opinion Article

Good Practices in Perinatal Mental Health during the COVID-19 Pandemic: A Report from Task-Force RISEUP-PPD COVID-19

Emma Motrico^a, Vera Mateus^b, Rena Bina^c, Ethel Felice^d, Alessandra Bramante^e, Goce Kalcev^f, Mauro Mauri^g, Sara Martins^h, and Ana Mesquita^h

^aUniversidad Loyola Andalucía, Sevilla, Spain; ^bMackenzie Presbyterian University, Brazil; ^cBar Ilan University, Israel; ^dUniversity of Malta, Msida, Malta; ^ePolicentro Donna Ambulatory, Milano, Italy; ^fUniversity of Cagliari, Italy; ^gUniversity of Pisa, Italy; ^hUniversidade do Minho, Braga, Portugal

Due to the changes that occur to the immunity and physiological state of women during pregnancy, they are at increased risk of suffering issues with both their physical and mental health (Liu et al., 2020). It is estimated that 1 in 5 women develop a mental health problem in the perinatal period (Hahn-Holbrook et al., 2018; World Health Organization, 2015), with depression and anxiety among the most prevalent conditions (Shorey et al., 2018). Importantly, these conditions have long lasting adverse effects on women and their babies, and place a heavy burden on families and society as a whole (Bauer et al., 2014; Gavin et al., 2005). Conditions such as extreme stress, conflict situations, emergencies, and natural disasters can increase the risk of developing specific mental illnesses (World Health Organization, 2016).

The Coronavirus disease 2019 (COVID-19), declared a global pandemic on March 11 by the World Health Organization, is currently cited as a significant cause of stress and anxiety for pregnant and postpartum women (PPW) around the world (Chen et al., 2020), taking into account that these women constitute one of the most vulnerable populations in the world. Although formal evidence about the perinatal aspects of COVID-19 remains scarce, recent clinical data suggest that the impact on physical health is not as negative as previously thought (Mullins et al., 2020). Pregnant women and newborns are not at increased risk of getting infected or having worse symptoms or consequences than the general population (Chen et al., 2020).

However, the extraordinary circumstances of the COVID-19 outbreak and the imposed social confinement measures are particularly challenging for PPW and may impact their psychological well-being. In addition to the expected concerns about their own health, risk of infection and transmission of the virus to the baby, sudden changes in perinatal healthcare (e.g., modifications of scheduled appointments, restrictions on the partner's presence during childbirth and postnatal visitation) would likely contribute to increased psychological distress.

Taking into account the aforementioned reasons, the Riseup-PPD project "Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder" (Cost Action 18138), founded by the Horizon 2020 Framework Programme of the European Union, decided to create the "Perinatal Mental Health and COVID-19 epidemic" task force to promote best practices in maternal mental health that may mitigate the impact of COVID-19 management on women's mental health. Within this framework, we provide a brief review on a) impacts of the pandemic and confinement during COVID-19 lockdown on PPW and b) characteristics of the women who are most vulnerable to the psychological impact of COVID-19. Based on this review, we recommend good psychological practices and points to consider in conducting research that could be implemented to mitigate the negative consequences of such a pandemic.

How Does the COVID-19 Pandemic Affect Perinatal Mental Health?

Being pregnant and having a baby are often positive events that are characterized by feelings of joy, delight, and fulfilment. However, during their transition to parenthood, some PPW may also experience a range of negative emotions (Topalidou et al., 2020). Additionally, exposure to stressful situations, such as emergencies, infectious diseases, and natural disasters, may lead to a heightened risk of mental health problems in the perinatal period (Thapa et al., 2020).

Clearly, the rapid spread of the COVID-19 virus in the absence of targeted therapies or a vaccine is placing unprecedented stress on PPW. One of the central emotional responses during a pandemic is "fear". The "threat" of being infected or consequences to foetal development and the "lack of information" or misinformation contribute to additional stress that would negatively affect the mother's mental health.

Evidence from past infectious outbreaks (e.g., SARS, MERS) suggests that some common psychological reactions that might manifest during the current health crisis, including confusion, depression,

Para citar este artículo: Motrico, E., Mateus, V., Bina, R., Felice, E., Bramante, A., Kalcev, G., Mauri, M., Martins, S., & Mesquita, A. (2020). Good practices in perinatal mental health during the COVID-19 pandemic: A report from task-force RISEUP-PPD COVID-19. *Clínica y Salud*, 31(3), 155-160. <https://doi.org/10.5093/clysa2020a26>

Funding: This paper is part of the COST Action Riseup-PPD CA 18138 and was supported by COST under COST Action Riseup-PPD CA18138.
Correspondence: emotrico@uloyola.es (E. Motrico)

anxiety, post-traumatic stress symptoms, and sleep problems, which are likely to persist in the subsequent months (Rogers et al., 2020). Limited research on the psychological impact of COVID-19 in PPW has been published so far, but the findings consistently indicate negative effects on perinatal mental health. For example, in a survey of Chinese residents early during the COVID-19 outbreak, 17% of respondents reported moderate to severe depression levels, whereas 29% reported experiencing moderate to severe anxiety symptoms (Wang et al., 2020). This study also found that females presented significantly higher prevalence of psychological distress than male respondents.

Therefore, the COVID-19 pandemic represents a particularly challenging circumstance for PPW with potential adverse outcomes on maternal mental health. In this regard, a study conducted in China found a significant increase in the prevalence of depression and anxiety symptoms among pregnant women after the official announcement of the COVID-19 outbreak by the Chinese government (Wu et al., 2020a). In a Canadian study, pregnant participants also reported clinically relevant levels of psychological distress, such as depression (37%), general anxiety (57%), and pregnancy-specific anxiety (68%) symptoms, that were substantially higher than the findings from previous community pregnancy cohorts presenting similar demographic characteristics (Lebel et al., 2020). Another study of Turkish pregnant women showed elevated scores in depression and anxiety screening instruments, with 35% of participants presenting symptoms of depression at a clinical level (Durankuş & Aksu, 2020). Finally, in an Italian survey, the psychological impact of the COVID-19 outbreak was also classified as severe by 53% of the pregnant participants, and two-thirds of the respondents were experiencing higher than normal anxiety levels (Saccone et al., 2020).

How Does Confinement during the COVID-19 Lockdown Affect Perinatal Mental Health?

Confinement during the COVID-19 lockdown, which includes restrictions on social contact, leisure and work activities, is crucial for controlling the spread of the virus; however, these measures lead to reduced physical interactions and limited access to social support, increasing the sense of isolation and loneliness (Tull et al., 2020), which may place these women at risk for mental health problems. In fact, meta-analysis evidence makes it clear that the “objective and subjective social isolation” influences physical and mental health similar to that of well-known biomedical risk factors (e.g., tobacco consumption, lack of physical activity) (Holt-Lunstad et al., 2015). The social distancing that is universally recommended by governments around the world may be especially problematic during perinatal period because “social support” has a well-recognized role in buffering the negative effects of stress (Reid & Taylor, 2015).

In the case of PPW, these preventive measures result in additional “disruption” of the expected “routine of prenatal and postnatal care” for the mother and the baby, such as cancelled appointments, restrictions on the presence of a support person, reports of poorer quality of the prenatal care received, changes in birth plans (e.g., type of delivery, location), or reduced access to healthcare services (Lebel et al., 2020).

Additionally, “losing access to mental health support”, along with the loss of positive activities, may increase vulnerability to mental health problems during COVID-19 lockdown. Confinement may be responsible for the worsening of pre-existing mental disorders in PPW due to the reduced access to regular outpatient visits and because of high susceptibility to stress compared with those of the general population (Yao et al., 2020).

The restriction of living in close quarters with children and partners can also “increase conflict” and interfere with adapting to life with a new infant (Lebel et al., 2020). A relevant risk during a pandemic and its socially disruptive response is the potential “increase in intimate partner violence” (van Gelder et al., 2020).

Additionally, the COVID-19 lockdown has economic consequences. The inability to work has immediate economic repercussions, with several families experiencing “unemployment and reduced income” during this period. Although the literature is not consistent in this regard, a meta-analysis showed that reduced income had a small correlation with perinatal depressive symptoms (Lancaster et al., 2010), and we can speculate about the indirect impact of these changes on mental health. In fact, the unpredictable situation of being unemployed or with a reduced household income can be considered a very stressful event that can lead to psychological distress (Sareen et al., 2011).

A recent review showed that people who had been quarantined during previous infectious outbreaks reported worse psychological health as a result of the quarantine experience, including depression and anxiety symptoms, irritability, acute stress, fear, confusion, and sleep problems (Brooks et al., 2020). Similarly, a study carried out in north-eastern Italy found higher levels of depressive symptomatology in the immediate postpartum period among women who gave birth during an active period of COVID-19 quarantine than in women whose delivery occurred in the same period one year earlier (Zanardo et al., 2020).

Therefore, this issue constitutes another critical gap to be addressed, specifically on how preventive measures involving confinement and social distancing may affect PPW and their newborns in terms of their mental well-being and their access to the adequate prenatal and postnatal care they need and deserve.

Which PPW Are more Vulnerable to Psychological Problems during the COVID-19 Pandemic?

In fact, not all women are equally affected by mental health problems during the perinatal period. Several factors appear to account for these differences, and when present, they emerge as risk factors for psychological problems. This is particularly relevant considering the present pandemic, in order to identify an at-risk population and design effective and tailored intervention programmes.

Some authors note stressful life events, a lack of social support, previous history of mental disorders, early life adversity and domestic violence as the main predictors of psychological problems in pregnancy (Class et al., 2011; Lancaster et al., 2010). Pregnancy often reactivates conflicts experienced in childhood and adulthood, making these women more vulnerable as they feel less prepared for the changes related to pregnancy and motherhood (Mathibe-Neke et al., 2014).

There is compelling evidence demonstrating that high anxiety and depression during pregnancy is one of the strongest risk factors for postpartum depression (Verreault et al., 2014). Therefore, the highly stressful experience of the current COVID-19 pandemic may increase the risk of developing a mental health problem postpartum.

According to studies on natural and man-made disasters, experiencing a disaster first-hand appears to have direct negative consequences on the psychological level of pregnant women (Badakhsh et al., 2010). A study developed during the current COVID-19 pandemic reported that primiparous mothers aged less than 35 years, with pre-pregnancy underweight, employed full-time with a middle income, who had a per capita living area of ≥ 20 m², and with decreased physical activity were those at increased risk of depression (Wu et al., 2020b). Because of this, mothers who are infected or have high exposure to COVID-19 could be the most vulnerable to psychological problems.

What Are the Good Psychological Practices in Perinatal Mental Health during the COVID-19 Pandemic?

Several key features of psychological care may alleviate the negative impact of COVID-19 in PPW and promote resilience during and after such a stressful period (see Table 1).

Table 1. Good Psychological Practices in Perinatal Mental Health during the COVID-19 Pandemic

1.	Provide accurate and understandable information about the COVID-19 pandemic.
2.	Highlight the expected psychological reaction (fear and emotional distress) to the COVID-19 pandemic.
3.	Assess whether the woman has adequate social support and encourage regular contact with close relatives and friends (via telephone, social media or video calls).
4.	Involve partners or significant others to support women in the perinatal period.
5.	Facilitate sources of self-help and, when necessary, self-referral to local psychological assistance.
6.	Promote positive coping strategies (such as daily routine, self-care, mindfulness, antenatal or postnatal groups) and how these strategies can be adapted using technology (for example, online groups or apps for mindfulness).
7.	Include screening (e.g., EPDS, PHQ-9, GAD-7) of psychological problems and intimate partner violence as a part of routine antenatal and postnatal care.
8.	Offer high quality e-mental health resources and telepsychotherapy for treating psychological problems in the perinatal period.
9.	Promote prolonged skin-to-skin contact with the baby and early and exclusive breastfeeding, whenever/where possible.

It is important to ensure that PPW have access to “accurate and understandable information” from reliable sources about the COVID-19 disease, preventive measures, and any new procedures applied to antenatal and postnatal care. Inadequate and insufficient information might have exacerbated people’s fears and emotional reactions in past infectious outbreaks (Brooks et al., 2020; Inter-Agency Standing Committee, 2020). Clear and effective health communication may help to reduce psychological distress, while maximizing adherence to the recommended safety measures and promoting engagement in more adaptive behaviours (Finset et al., 2020; Perrin et al., 2009). For example, knowing more about the potential effects of the infection on PPW and newborns may help to reduce the psychological distress associated with concerns about physical health, the risk of transmission of the virus to the baby, and the safety of breastfeeding practices.

It is recommended to provide clear “information on the expected psychological reactions (fear and emotional distress)” to the COVID-19 pandemic (Orrù et al., 2020). Professional communication with PPW should be supportive and empathic, including listening to them carefully, showing understanding of their feelings, and asking about their immediate needs and concerns and how to address them. Most of the symptoms of distress these women may be experiencing are common psychological reactions under the current outbreak and consequential disruptions in plans and expectations regarding the transition to motherhood (Inter-Agency Standing Committee, 2020; World Health Organization, 2016). It is essential to monitor any emotional alterations, especially in infected PPW, and those who may have increased vulnerability to psychological problems, in order to prevent the development of intense and long-lasting forms of distress.

Assessing whether an individual has adequate “social support” and encouraging regular contact with close relatives and friends, via telephone, social media or video calls, helps them to better cope with subjective isolation, and may still constitute an important resource for their needs of emotional and social support during the perinatal period (Inter-Agency Standing Committee, 2020; World Health Organization, 2016). The “partner or close family members” are an important part of this process and should be involved in promoting psychological well-being throughout this very demanding period. Despite the unique circumstances that, for medical reasons, may require temporary separation of the mother from their newborn, physical and affective interactions between the parents and the infant should be allowed from birth, as much as possible (World Health Organization, 2015).

Another action that may be taken to attenuate the emotional distress experienced is to facilitate “sources of self-help” and, when necessary, self-referral to local psychological assistance (Orrù et al., 2020). Alternative online channels of communication were created to make psychological support available to those in need and disseminate informative self-help materials to provide tools to manage the emotional challenges emerging due to the COVID-19

pandemic (Orrù et al., 2020). PPW should also be encouraged to identify and employ “positive coping strategies” (e.g., engage in pleasant activities such as reading, cooking, self-care, mindfulness) and avoid negative strategies or behaviours to manage their emotions and reduce stress. This way, they may regain the sense of control lost during the current outbreak and engage more actively in problem-solving (World Health Organization, 2016). It is also important to maintain, as much as possible, an active daily routine and healthy sleep and eating habits.

PPW should continue to be “screened for perinatal mental morbidity” (for example, by using validated self-report questionnaires, such as the Edinburgh Postnatal Depression Scale [EPDS], Patient Health Questionnaire [PHQ-9] or the 7-item Generalized Anxiety Disorder scale [GAD-7]), and have access to specialized mental health services in case they need any advice or support. Due to the increased risk of intimate partner violence (domestic violence) in PPW during the pandemic (Usher et al., 2020; van Gelder et al., 2020), “screening for intimate partner violence” as a part of routine antenatal and postnatal care is also recommended.

During the COVID-19 pandemic, prenatal and psychological services have been rapidly changing from face-to-face to online (Aziz et al., 2020; Zhou et al., 2020). For example, two hospitals and an affiliated clinic in New York City offered telehealth prenatal appointments during the COVID-19 outbreak. The telehealth prenatal care was specially tailored for high-risk pregnancies (e.g., hypertensive disorders, gestational diabetes, foetal conditions or mental illness). Regarding mental health support, they proposed a prior in-person session before starting the telehealth to ensure clinician-patient alliance. If there were specific concerns about domestic violence or any abusive relationship in the home environment, these issues would be discussed in this initial session as well (Aziz et al., 2020). Additionally, access to psychosocial support groups should be provided, even as an online service. Three maternity units of AHP Sorbonne University in Paris implemented an intervention programme aimed to reduce postpartum women’s psychological vulnerability, in which psychological support was provided through telephone interviews at days 10–12 postpartum with a follow-up 6–8 weeks later (Viaux et al., 2020). Health professionals would also benefit from up-to-date and evidence-based recommendations to provide “high-quality e-mental health and telepsychotherapy” (Van Daele et al., 2020) and training courses that may guide them to provide adequate support for the specific emotional and psychological needs PPW may have as a demand of the current health crisis (Orrù et al., 2020).

Additionally, “special attention” should be devoted to those PPW with “pre-existing mental health problems” and ensure that mental health professionals work in close collaboration with families and partners to raise awareness of the importance of early detection of psychological problems and seeking support. Hermann et al. (2020) recommended that PPW with histories of mood or anxiety disorders use preventive psychotherapies via online platforms and encouraged professional societies to develop online psychoeducational materials.

In this case, minimizing the stigma associated with mental disorders is also needed (Yao et al., 2020).

Based on currently available data, prolonged “skin-to-skin contact” and early and exclusive “breastfeeding” remain the best strategies for reducing the risks of morbidity and mortality for both the mother with COVID-19 and her baby (Thi Tran et al., 2020). Previous studies have shown that both are protective factors for postpartum depression (Dennis & McQueen, 2009; Groer & Davis, 2006; Kendall-Tackett et al., 2011). Thus, it is also recommended, whenever possible.

The inevitable consequences on the family and financial concerns may act as stressors in the post-lockdown period, possibly contributing to the deterioration of psychological well-being in PPW (Brooks et al., 2020). Therefore, in a longer-term context, mental health difficulties should be closely monitored, and any case of significant psychological distress should be referred to specialized treatment. Simultaneously, effective interventions should be designed to foster positive structures and social resources aimed to promote sustained mental health and resilience during stressful events.

Points to Consider in Conducting Research on Good Practices in Perinatal Mental Health during the COVID-19 Pandemic

The impact of the COVID-19 pandemic on maternal mental health requires further investigation to inform best practices in perinatal mental health care. Hence, considering the evidence presented in the sections above, the following research issues in perinatal mental health (PMH) constitute important topics to be examined.

Assessing the broad definition of psychological distress. Research on perinatal mental health should address the full realm of psychological distress, with a focus on depression and anxiety, which are the most prevalent psychological disorders in the perinatal period (Kendig et al., 2017).

Effects of physical distancing and social isolation. As mentioned above to cope with the COVID-19 pandemic, governments have instructed physical distancing and home isolation. These measures may elevate feelings of loneliness and social isolation, which are associated with negative mental health outcomes (Stephenson, 2020) and may be associated with negative social relationships at home (Usher et al., 2020). On the other hand, as many partners are staying at home, a woman's perceived practical and emotional support may increase (Dennis & Ross, 2006; Pilkington et al. 2016). These complex relationships should, therefore, be assessed through research to better inform best practices in perinatal mental health.

Barriers to seeking help. Seeking mental health treatment in the perinatal period is important to reduce distress, yet many women do not seek help (Bina, 2020). The COVID-19 pandemic may have increased barriers to seeking help due to home isolation (Holmes et al., 2020), or lower screening rates due to minimization of contacts with and shortage of healthcare providers (Rocca-Ihenacho & Alonso, 2020; Thapa et al., 2020). Nonetheless, these restrictions may bring around new opportunities in the form of digital mental health screening and treatment (Zhou et al., 2020). Therefore, the use and effectiveness of digital mental health treatment should be assessed and compared to that of traditional mental health treatment. Additionally, new pathways of seeking treatment should be investigated in light of the mentioned changes.

Changes in perinatal healthcare practices. These changes, which include, for instance, hospital restrictions on partner and relative visits during and after delivery or moving to remote consultations with healthcare providers (Thapa et al., 2020), may elevate levels of distress for women (Holmes et al., 2020). Factors that could reduce these negative consequences should be investigated. Furthermore, addressing women's mental health states in healthcare facilities,

such as hospitals or OB/GYN clinics, is crucial for prolonged positive mental health (Zhou et al., 2020), and their effects on perinatal women's mental health should be assessed.

Assessment of the impact of COVID-19 in the perinatal period.

As far as we know, only one questionnaire, the Coronavirus Perinatal Experiences Impact Survey (COPE-IS), has been developed to assess the experiences of PPW in the time of the COVID-19 (Thomason et al., 2020). At present, COPE-IS, originally written in English, has been translated to other languages (for example, German, Portuguese, and Spanish). Psychometric properties for the measure have yet to be established, and scoring procedures have yet to be determined. Researchers should culturally adapt the questionnaire to other countries and develop a study of psychometric properties to improve the reliability of their results (AERA, APA, & NCMC, 2014; Mokkink et al., 2010).

Although it has spread around the planet, the COVID-19 pandemic had significant different consequences in different countries, indicating a need for comparable international studies that could provide evidence-based practices and inform current and future actions worldwide. Finally, complementary to that, all research recommendations should also address differences in perinatal experiences between women from different minority and disadvantaged populations, as there are various disparities which require culturally adaptive interventions (Priebe et al., 2012). For instance, these include populations who do not have smartphones or computers and therefore require non-digital based communication (Galea et al., 2020).

Conclusion

At this time, only a few studies have been published on the impact of the COVID-19 pandemic on perinatal mental health. The scarce evidence indicates negative effects on PPW mental health. Thus, we need to further strengthen research to provide an evidence-based foundation for preventing and treating the psychological consequences of COVID-19 in women during the perinatal period. It is essential to support a woman's transition to motherhood in a positive and healthy way, enabling access to adequate perinatal mental health services. Perinatal mental health professionals are more necessary than ever. Indeed, a recent review synthesised the main challenges and questions to be approached in the field of perinatal depression and the main lines of action that should be taken within the Riseup-PPD cost action (Fonseca et al., 2020). These gaps become more evident in the presence of a social and health crisis that poses tremendous psychological demands in women already experiencing a very vulnerable and critical period, as is the case of pregnancy and postpartum. Innovative research in this field is very important to find ways to alleviate and properly manage the effects of pandemic and further risk to women's mental health, not only in response to the current infectious outbreak but also applicable to any future emergency crisis. Meanwhile, in the absence of such formal evidence, adverse effects on mental health due to the pandemic period should be recognized as a vital public health concern, along with proper care and support to prevent any negative impact.

Acknowledgements

Goce Kalcev (MD) was participating in the writing of this paper, in the framework of the International Ph.D. in Innovation Sciences and Technologies at the University of Cagliari, Italy.

Conflict of Interest

The authors of this article declare no conflict of interest.

References

- American Educational Research Association, American Psychological Association, National Council on Measurement in Education, Joint Committee on Standards for Educational and Psychological Testing (U.S.) (AERA, APA, & NCMC, 2014). *Standards for educational and psychological testing*. AERA.
- Aziz, A., Zork, N., Aubey, J. J., Baptiste, C. D., D'Alton, M. E., Emeruwa, U. N., Friedman, A. M. (2020). Telehealth for High-Risk Pregnancies in the Setting of the COVID-19 Pandemic. *American Journal of Perinatology*, 37(08), 800–808. <https://doi.org/10.1055/s-0040-1712121>
- Badakhsh, R., Harville, E., & Banerjee, B. (2010). The childbearing experience during a natural disaster. *JOGNN - Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 39(4), 489–497. <https://doi.org/10.1111/j.1552-6909.2010.01160.x>
- Bauer, A., Parsonage, M., Knapp, M., Lemmi, V., & Adelaja, B. (2014). The costs of perinatal mental health problems. *LSE & Centre for Mental Health*, 1–44.
- Bina, R. (2020, February 1). Predictors of postpartum depression service use: A theory-informed, integrative systematic review. *Women and Birth*, 33(1), e24–e32. <https://doi.org/10.1016/j.wombi.2019.01.006>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020, March 14). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Class, Q. A., Lichtenstein, P., Långström, N., & D'Onofrio, B. M. (2011). Timing of prenatal maternal exposure to several life events and adverse pregnancy outcomes: A population study of 2.6 million pregnancies. *Psychosomatic Medicine*, 73(3), 234–241. <https://doi.org/10.1097/PSY.0b013e31820a62ce>
- Chen, H., Guo, J., Wang, C., Luo, F., Yu, X., Zhang, W., Li, J., Zhao, D., Xu, D., Gong, Q., Liao, J., Yang, H., Hou, W., & Zhang, Y. (2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *The Lancet*, 395(10226), 809–815. [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3)
- Dennis, C. L., & McQueen, K. (2009). The relationship between infant-feeding outcomes and postpartum depression: A qualitative systematic review. *Pediatrics*, 123(4), e736–e751. <https://doi.org/10.1542/peds.2008-1629>
- Dennis, C. L., & Ross, L. (2006). Women's perceptions of partner support and conflict in the development of postpartum depressive symptoms. *Journal of Advanced Nursing*, 56(6), 588–599. <https://doi.org/10.1111/j.1365-2648.2006.04059.x>
- Durankuş, F., & Aksu, E. (2020). Effects of the COVID-19 pandemic on anxiety and depressive symptoms in pregnant women: A preliminary study. *The Journal of Maternal-Fetal & Neonatal Medicine*. Published online. <https://doi.org/10.1080/14767058.2020.1763946>
- Finset, A., Bosworth, H., Butow, P., Gulbrandsen, P., Hulsman, R. L., Pieterse, A. H., Street, R., Tschoetschel, R., & van Weert, J. (2020, May 1). Effective health communication – a key factor in fighting the COVID-19 pandemic. *Patient Education and Counseling*, 103(5), 873–876. <https://doi.org/10.1016/j.pec.2020.03.027>
- Fonseca, A., Ganho-Ávila, A., Lambregtse-van den Berg, M., Lupattelli, A., Rodríguez-Muñoz, M. de la F., Ferreira, P., Radoš, S. N., & Bina, R. (2020). Emerging issues and questions on peripartum depression prevention, diagnosis and treatment: A consensus report from the cost action riseup-PPD. *Journal of Affective Disorders*, 274, 167–173. <https://doi.org/10.1016/j.jad.2020.05.112>
- Fuchs, K. M., Goffman, D., Gyamfi-Bannerman, C., Haythe, J. H., LaSala, A. P., Madden, N., Miller, E. C., Miller, R. S., Monk, C., Moroz, L., Ona, S., Ring, L. E., Sheen, J. J., ... Friedman, A. M. (2020). Telehealth for high-risk pregnancies in the setting of the COVID-19 pandemic. *American Journal of Perinatology*, 37(08), 800–808. <https://doi.org/10.1055/s-0040-1712121>
- Galea, S., Merchant, R. M., & Lurie, N. (2020, June 1). The mental health consequences of COVID-19 and physical distancing: The need for prevention and early intervention. *JAMA Internal Medicine*, 180(6), 817–818. <https://doi.org/10.1001/jamainternmed.2020.1562>
- Gavin, N. L., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal Depression. *Obstetrics & Gynecology*, 106(5, Part 1), 1071–1083. <https://doi.org/10.1097/O1.AOG.0000183597.31630.db>
- Groer, M. W., & Davis, M. W. (2006). Cytokines, infections, stress, and dysphoric moods in breastfeeders and formula feeders. *JOGNN - Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 35(5), 599–607. <https://doi.org/10.1111/j.1552-6909.2006.00083.x>
- Hahn-Holbrook, J., Cornwell-Hinrichs, T., & Anaya, I. (2018). Economic and health predictors of national postpartum depression prevalence: A systematic review, meta-analysis, and meta-regression of 291 studies from 56 countries. *Frontiers in Psychiatry*, 8(February). <https://doi.org/10.3389/fpsy.2017.00248>
- Hermann, A., Fitelson, E. M., & Bergink, V. (2020). Meeting maternal mental health needs during the COVID-19 pandemic. *JAMA Psychiatry*. Published online J. <https://doi.org/10.1001/jamapsychiatry.2020.1947>
- Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *The Lancet. Psychiatry*, 7(6), 547–560. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science*, 10(2), 227–237. <https://doi.org/10.1177/1745691614568352>
- Inter-Agency Standing Committee. (2020). *Addressing mental health and psychosocial aspects of Covid-19 outbreak (version 1.5)*. <https://www.who.int/emergencies/diseases/novelcoronavirus-2019>
- Kendall-Tackett, K., Cong, Z., & Hale, T. W. (2011). The effect of feeding method on sleep duration, maternal well-being, and postpartum depression. *Clinical Lactation*, 2(2), 22–26. <https://doi.org/10.1891/215805311807011593>
- Kendig, S., Keats, J. P., Hoffman, M. C., Kay, L. B., Miller, E. S., Moore Simas, T. A., Frieder, A., Hackley, B., Indman, P., Raines, C., Semenuk, K., Wisner, K. L., & Lemieux, L. A. (2017). Consensus bundle on maternal mental health. *Obstetrics & Gynecology*, 129(3), 422–430. <https://doi.org/10.1097/AOG.0000000000001902>
- Lancaster, C. A., Gold, K. J., Flynn, H. A., Yoo, H., Marcus, S. M., & Davis, M. M. (2010, January 1). Risk factors for depressive symptoms during pregnancy: a systematic review. *American Journal of Obstetrics and Gynecology*, 202(1), 5–14. <https://doi.org/10.1016/j.ajog.2009.09.007>
- Lebel, C., MacKinnon, A., Bagshawe, M., Tomfohr-Madsen, L., & Giesbrecht, G. (2020). *Elevated depression and anxiety among pregnant individuals during the COVID-19 pandemic* (PsyArXiv Preprints). <https://doi.org/10.31234/osf.io/gdhkt>
- Liu, H., Wang, L. L., Zhao, S. J., Kwak-Kim, J., Mor, G., & Liao, A. H. (2020, June 1). Why are pregnant women susceptible to COVID-19? An immunological viewpoint. *Journal of Reproductive Immunology*, 139, 103122. <https://doi.org/10.1016/j.jri.2020.103122>
- Mathibe-Neke, J. M., Rothberg, A., & Langley, G. (2014). The perception of midwives regarding psychosocial risk assessment during antenatal care. *Health SA Gesondheid*, 19(1). <https://doi.org/10.4102/hsag.v19i1.742>
- Mokkink, L. B., Terwee, C. B., Patrick, D. L., Alonso, J., Stratford, P. W., Knol, D. L., Bouter, L. M., & De Vet, H. C. W. (2010). The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: An international Delphi study. *Quality of Life Research*, 19(4), 539–549. <https://doi.org/10.1007/s11136-010-9606-8>
- Mullins, E., Evans, D., Viner, R. M., O'Brien, P., & Morris, E. (2020). Coronavirus in pregnancy and delivery: Rapid review. *Ultrasound in Obstetrics & Gynecology*, 55(5), 586–592. <https://doi.org/10.1002/uog.22014>
- Orrù, G., Ciacchini, R., Gemignani, A., & Conversano, C. (2020). Perspective article: Psychological intervention measures during the COVID-19 pandemic. *Clinical Neuropsychiatry*, 76–79.
- Perrin, P. C., McCabe, O. L., Everly, G. S., & Links, J. M. (2009). Preparing for an influenza pandemic: Mental health considerations. *Prehospital and Disaster Medicine*, 24(3), 223–230. <https://doi.org/10.1017/S1049023X00006853>
- Pilkington, P., Milne, L., Cairns, K., & Whelan, T. (2016). Enhancing reciprocal partner support to prevent perinatal depression and anxiety: A Delphi consensus study. *BMC Psychiatry*, 16(1), 23. <https://doi.org/10.1186/s12888-016-0721-0>
- Priebe, S., Matanov, A., Schor, R., Straßmayr, C., Barros, H., Barry, M. M., Díaz-Olalla, J. M., Gabor, E., Greacen, T., Holcnerová, P., Kluge, U., Lorant, V., Moskalewicz, Schene, A. H., Macassa, G., & Gaddini, A. (2012). Good practice in mental health care for socially marginalised groups in Europe: A qualitative study of expert views in 14 countries. *BMC Public Health*, 12(1), 248. <https://doi.org/10.1186/1471-2458-12-248>
- Reid, K. M., & Taylor, M. G. (2015). *Social support, stress, and maternal postpartum depression: A comparison of supportive relationships*. <https://doi.org/10.1016/j.ssrsearch.2015.08.009>
- Rocca-Ihenacho, L., & Alonso, C. (2020). Where do women birth during a pandemic? Changing perspectives on safe motherhood during the COVID-19 pandemic. *Journal of Global Health Science*, 2(1). <https://doi.org/10.35500/jghs.2020.2.e4>
- Rogers, J. P., Chesney, E., Oliver, D., Pollak, T. A., McGuire, P., Fusar-Poli, P., Zandi, M. S., Lewis, G., & David, A. S. (2020). Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: A systematic review and meta-analysis with comparison to the COVID-19 pandemic. *The Lancet Psychiatry*, 7(7), 611–627. [https://doi.org/10.1016/S2215-0366\(20\)30203-0](https://doi.org/10.1016/S2215-0366(20)30203-0)
- Saccone, G., Florio, A., Aiello, F., Venturilla, R., Chiara De Angelis, M., Locci, M., Bifulco, G., Zullo, F., & Di Spiezio Sardo, A. (2020). Psychological impact of coronavirus disease 2019 in pregnant women. *The American Journal of Obstetrics & Gynecology*, 223(2), 293–295. <https://doi.org/10.1016/j.ajog.2020.05.003>
- Sareen, J., Afifi, T. O., McMillan, K. A., & Asmundson, G. J. G. (2011). Relationship between household income and mental disorders: Findings from a population-based longitudinal study. *Archives of General Psychiatry*, 68(4), 419–427. <https://doi.org/10.1001/archgenpsychiatry.2011.15>
- Shorey, S., Chee, C. Y. I., Ng, E. D., Chan, Y. H., Tam, W. W. S., & Chong, Y. S. (2018). Prevalence and incidence of postpartum depression among

- healthy mothers: A systematic review and meta-analysis. *Journal of Psychiatric Research*, 104, 235-248. <https://doi.org/10.1016/j.jpsychores.2018.08.001>
- Stephenson, J. (2020). In time of social distancing, report's call for health care system to address isolation and loneliness among seniors resonates. *JAMA Health Forum*, 1(3), e200342-e200342. <https://doi.org/10.1001/JAMAHEALTHFORUM.2020.0342>
- Thapa, S. B., Mainali, A., Schwank, S. E., & Acharya, G. (2020). Maternal mental health in the time of the COVID-19 pandemic. *Acta Obstetrica et Gynecologica Scandinavica*, 99(7), 817-818. <https://doi.org/10.1111/aogs.13894>
- Thi Tran, H., Thi Kim Nguyen, P., Thi Li, H., Hoang Minh Le, C., Giang, H. T. N., Nguyen Thi Thu, P., & Murray, J. (2020). Appropriate care for neonates born to mothers with COVID-19 disease. *Acta Paediatrica*, 109(9), 1713-1716. <https://doi.org/10.1111/apa.15413>
- Thomason, M. E., Graham, A., & Vantighem, M. R. (2020). *COPE: Coronavirus Perinatal Experiences - Impact Survey (COPE-IS)*. Retrieved from osf.io/uqhc
- Topalidou, A., Thomson, G., & Downe, S. (2020). COVID-19 and maternal mental health: Are we getting the balance right? (April 6, 2020). *MedRxiv*. <https://doi.org/10.1101/2020.03.30.20047969>
- Tull, M. T., Edmonds, K. A., Scamaldo, K. M., Richmond, J. R., Rose, J. P., & Gratz, K. L. (2020). Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. *Psychiatry Research*, 289, 113098. <https://doi.org/10.1016/j.psychres.2020.113098>
- Usher, K., Bhullar, N., Durkin, J., Gyamfi, N., & Jackson, D. (2020). Family violence and COVID-19: Increased vulnerability and reduced options for support. *International Journal of Mental Health Nursing*, 29(4), 549-552. <https://doi.org/10.1111/inm.12735>
- Van Daele, T., Karekla, M., Kassianos, A. P., Compare, A., Haddouk, L., Salgado, J., Ebert, D. D., Trebbi, G., Bernaerts, S., Van Assche, E., & De Witte, N. A. J. (2020). Recommendations for policy and practice of telepsychotherapy and e-mental health in Europe and beyond. *Journal of Psychotherapy Integration*, 30(2), 160-173. <https://doi.org/10.1037/int0000218>
- van Gelder, N., Peterman, A., Potts, A., O'Donnell, M., Thompson, K., Shah, N., & Oertelt-Prigione, S. (2020, April 1). COVID-19: Reducing the risk of infection might increase the risk of intimate partner violence. *EClinicalMedicine*, 21. <https://doi.org/10.1016/j.eclinm.2020.100348>
- Verreault, N., Da Costa, D., Marchand, A., Ireland, K., Dritsa, M., & Khalifé, S. (2014). Rates and risk factors associated with depressive symptoms during pregnancy and with postpartum onset. *Journal of Psychosomatic Obstetrics and Gynecology*, 35(3), 84-91. <https://doi.org/10.3109/0167482X.2014.947953>
- Viaux, S., Maurice, P., Cohen, D., & Jouannic, J. M. (2020, June 1). Giving birth under lockdown during the COVID-19 epidemic. *Journal of Gynecology Obstetrics and Human Reproduction*, 49(6), 101785. <https://doi.org/10.1016/j.jogoh.2020.101785>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, 17(5), 1729. <https://doi.org/10.3390/ijerph17051729>
- World Health Organization. (2015). *Maternal mental health*. WHO.
- World Health Organization. (2016). *Psychosocial support for pregnant women and for families with microcephaly and other neurological complications in the context of Zika virus Interim guidance for health-care providers*. https://apps.who.int/iris/bitstream/handle/10665/204492/WHO_ZIKV_MOC_16.6_eng.pdf?sequence=1, accessed 14 May 2020
- Wu, Y., Zhang, C., Liu, H., Duan, C.-C., Li, C., Fan, J.-X., Li, H., Chen, L., Xu, H., Li, X., Guo, Y., Wang, Y., Li, X., Li, J., Whang, Y., You, Y., Li, H., Yang, S., Tao, X., ... Huang, H. F. (2020a). Perinatal depression of women along with 2019 novel coronavirus breakout in China. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3539359>
- Wu, Y., Zhang, C., Liu, H., Duan, C., Li, C., Fan, J., Li, H., Chen, L., Xu, H., Li, X., Guo, Y., Wang, Y., Li, X., Li, J., Zhang, T., You, Y., Li, H., Yang, S., Tao, X., ... Huang, H. (2020b). Perinatal depressive and anxiety symptoms of pregnant women along with COVID-19 outbreak in China. *American Journal of Obstetrics and Gynecology*, 223(2), 240.e1-240.e9. <https://doi.org/10.1016/j.ajog.2020.05.009>
- Yao, H., Chen, J. H., & Xu, Y. F. (2020, April 1). Patients with mental health disorders in the COVID-19 epidemic. *The Lancet Psychiatry*, 7(4): e21. [https://doi.org/10.1016/S2215-0366\(20\)30090-0](https://doi.org/10.1016/S2215-0366(20)30090-0)
- Zanardo, V., Manghina, V., Giliberti, L., Vettore, M., Severino, L., & Straface, G. (2020). Psychological impact of COVID-19 quarantine measures in northeastern Italy on mothers in the immediate postpartum period. *International Journal of Gynecology & Obstetrics*, 150(2), 184-188. <https://doi.org/10.1002/ijgo.13249>
- Zhou, X., Snoswell, C. L., Harding, L. E., Bambling, M., Edirippulige, S., Bai, X., & Smith, A. C. (2020). The role of telehealth in reducing the mental health burden from COVID-19. *Telemedicine and E-Health*, 26(4), 377-379. <https://doi.org/10.1089/tmj.2020.0068>