

# BMJ Open Changes in perinatal mental healthcare during the COVID-19 pandemic: a protocol for a collaborative research study between the COST actions RISEUP-PPD and DEVOTION

Sandra Nakić Radoš <sup>1</sup>, Emma Motrico <sup>2</sup>, Ana M Mesquita,<sup>3</sup> Ana Ganho-Avila,<sup>4</sup> Eleni Voursoua <sup>5</sup>, Joan Lalor<sup>6</sup>

**To cite:** Radoš SN, Motrico E, Mesquita AM, *et al.* Changes in perinatal mental healthcare during the COVID-19 pandemic: a protocol for a collaborative research study between the COST actions RISEUP-PPD and DEVOTION. *BMJ Open* 2022;**12**:e052411. doi:10.1136/bmjopen-2021-052411

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-052411>).

Received 15 April 2021

Accepted 21 December 2021



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

## Correspondence to

Dr Emma Motrico;  
[emotrico@uloyola.es](mailto:emotrico@uloyola.es)

## ABSTRACT

**Introduction** Significant changes in routine maternity care have been introduced globally in response to the COVID-19 pandemic to reduce infection risk, but also due to lack of medical facilities, staff shortages and the unpredictable nature of the disease. However, it is yet to be established if specialised perinatal mental health (PMH) services have been similarly affected. As a Task Force in PMH and COVID-19 pandemic within Riseup-PPD COST Action, this study aims to identify changes in PMH practices, policies and protocols during the COVID-19 pandemic in Europe.

**Methods and analysis** An online survey of experts in the PMH who are members of the COST Action 'Riseup-PPD' and the COST Action "DEVOTION" across 36 European countries will be conducted. A questionnaire on changes in PMH care practices during the COVID-19 Pandemic will be administered. It consists of open-ended questions, checklists and ratings on a 7-point scale addressing seven domains of interest in terms of PMH: (1) policies, guidelines and protocols; (2) PMH care practices at a national level; (3) evidence of best practice; (4) barriers to usual care; (5) resources invested; (6) benefits of investment in the policies and (7) short-term and long-term expectations of the policies. Data will be collected using Qualtrics. Descriptive statistics will be reported and differences between countries will be examined using the  $\chi^2$  statistic or Student's t-test.

**Ethics and dissemination** Ethical approval was obtained from The Ethics Committee for Research in Life and Health Sciences of the University of Minho (Portugal) to undertake an anonymous online survey. The findings will be disseminated to professional audience through peer-review publication and presentations and shared widely with stakeholders, policy-makers and service user groups. A position paper will be developed to influence policy-making at a European level to alleviate the adversities caused by COVID-19.

**Trial registration number** NCT04779775.

## INTRODUCTION

COVID-19 is an infectious disease caused by SARS-CoV-2 that has triggered a worldwide

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The study will identify changes in perinatal mental health care practices, policies and protocols during the COVID-19 pandemic in Europe.
- ⇒ Existing practices implemented to minimise the negative impact of COVID-19 on PMH across the various stages of the COVID-19 pandemic will be synthesised.
- ⇒ Key experts in perinatal mental health across 35 European countries will be represented.
- ⇒ The selection of key experts will be restricted to European countries only.
- ⇒ Only members of the two COST Action programmes will be invited as experts.

pandemic since the breakout from Wuhan, China in December 2019.<sup>1</sup> It has infected more than 71.5 million people, causing 1.6 million of deaths up to mid of December 2020.<sup>2</sup>

Initial cases of COVID-19 during pregnancy detected in China suggested that pregnant women are at no higher risk for infection than the general population.<sup>3</sup> However, more recent studies paint a different picture. Pregnant women, due to their altered immune system are at higher risk for COVID-19.<sup>4</sup> The WHO have highlighted that older age, being overweight and being diagnosed with comorbid medical conditions are risk factors for severe COVID-19 in pregnant women.<sup>5</sup> Although with a very low prevalence (3.2%), vertical transmission of COVID-19 from mother to the fetus is possible, as reported in a recent systematic review including 936 neonates.<sup>6</sup> However, although there are increased risks of complications in pregnancy associated with COVID-19 such as miscarriage (2%), intrauterine growth restriction (10%) and preterm birth (39%), the

pathophysiological mechanisms involved are yet to be understood. Data from a cohort study of 384816 adults from England found that maternal smoking during pregnancy was positively associated with COVID-19 infection, while on the other hand, breast feeding had a significant relationship with lower risk of COVID-19 infection rates in adults.<sup>7</sup> Oxytocin has been shown to have anti-inflammatory function in COVID-19.<sup>8 9</sup> These findings highlight the need to better the inequalities and differences associated with varying rates of infection, and on the other hand, that practices regarding support a mother's exposure to oxytocin such as breastfeeding and skin to skin contact should be supported.

As a response to the pandemic, routine care was altered in an effort to reduce the transmission of the virus to women, their babies and staff. For example, one of the changes implemented in some countries was that partners were no longer permitted access to outpatient antenatal visits and routine ultrasound screening, while restrictions were also implemented in their visitation right to accompany their partner during labour or support their partner and baby in the early days after delivery.<sup>10 11</sup> Across Europe, antenatal classes have ceased or have been transferred to an online format, antenatal regular check-ups are somewhat reduced or offered via telephone, the presence of the supporting person during childbirth is often not allowed in a maternity ward, visits of the father and other family members to the hospital after delivery are reduced or restricted, newborns of infected mothers are sometimes separated, home visits of a midwife after birth and breastfeeding support are also reduced.<sup>12 13</sup> Although official and national guidelines for perinatal health in general or infected mothers/newborns may be available,<sup>5 14 15</sup> practices have been changing constantly, some of which may not be evidence based (eg, separation of women from their babies, preventing skin-to-skin contact and breast feeding) or are in contradiction with the recommendations for respectful maternity care (eg, exclusion of birth companions).<sup>16–18</sup> Along with these changes, there are general restrictions, such as distancing from others, restricted socialising and restricted movement, which may be necessary but can impose substantial psychological distress.<sup>19–21</sup>

Perinatal mental health (PMH) is defined as the biopsychosocial well-being during the pregnancy, childbirth and post partum. PMH problems can occur anytime during pregnancy or within the first postpartum year, with depression and anxiety as the most common.<sup>22</sup> A global pandemic, natural disasters and man-made tragedies can all have an adverse effect on mental health in the general population.<sup>23 24</sup> After the public announcement of COVID-19 in China, pregnant women reported significantly higher rates of depressive symptoms, as well as thoughts of self-harm, than before the public declaration.<sup>25</sup> One in three pregnant women reported self-isolating due to fear of COVID-19 infection.<sup>26</sup> The high impact of COVID-19 on maternal mental health during pregnancy and postpartum has been evident in different

countries worldwide.<sup>20 27</sup> A recent systematic review of 81 mental health studies of pregnant and postpartum women found elevated levels of common mental health symptoms, such as depression, anxiety and trauma-related symptoms, among pregnant or postpartum women during the COVID-19 pandemic compared with before the onset of the pandemic.<sup>28</sup> Similar findings were reported in another review of 17 studies assessing the impact of the pandemic only in pregnancy.<sup>29</sup>

Even though the adverse impact of the pandemic on PMH is increasingly recognised, good practices in PMH during the COVID-19 pandemic are yet to be explored. Furthermore, if they are to be sustained, we also need to understand how they are incorporated into national policies, guidelines, protocols and official documents across European countries during the COVID-19 pandemic. This has important clinical implications and can be used to inform policy-makers at both the national and the European level—with the ultimate goal of providing support for women in the peripartum period and promote an optimal experience for mothers and their families during childbirth and postpartum in particularly challenging situations like a global pandemic.

With this task in mind, a special task force within the COST Action CA18138 Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder (Riseup-PPD) was formed, in collaboration with the COST Action PMH and Birth-Related Trauma: Maximising best practice and optimal outcomes-DEVOTION. The Task force is titled 'PMH and COVID-19 pandemic' and was established with the aim to investigate the best practices, policies and guidelines to help alleviate the negative consequences of COVID-19 on women's mental health.<sup>30</sup>

A recent review pointed out emerging issues in the prevention, diagnosis and treatment of peripartum depression,<sup>31</sup> which are highlighted even more with the ongoing pandemic. The Task Force has already addressed the deleterious impact of COVID-19 on PMH, the risk factors for mental health vulnerability during the current pandemic and highlighted good psychological practices in PMH during the COVID-19 pandemic.<sup>32</sup> The latter refers to providing adequate information about the COVID-19 pandemic and the impact on the psychological reaction of emotional distress, screening for psychological problems, facilitating social support and offering e-resources for psychological support, promotion of positive coping strategies, prolonged skin-to-skin contact and exclusive breast feeding. The Task Force pointed out that research on good practices in PMH in the time of COVID-19 pandemic should: (1) capture the wide range of psychological distress presentations, focusing on depression and anxiety; (2) look into complex roles of physical distancing and social isolation due to epidemiological measures; (3) take into account the barriers in seeking help augmented by the pandemic that may be overcome by new e-health services; (4) investigate changes in perinatal healthcare practices and factors

that may alleviate them; and finally, (5) boost the efforts for further development and validation of specific PMH assessment tools.<sup>32</sup>

The main aim of this study is to identify changes implemented in PMH care due to the COVID-19 pandemic in seven domains of interest: (1) policies, guidelines, protocols and documents; (2) PMH care practices at a national level; (3) evidence of best practice; (4) barriers to usual care; (5) resources invested; (6) benefits of investment in the policies and (7) short-term and long-term expectations of the policies.

## METHODS AND ANALYSIS

### Study design

A cross-sectional survey will be conducted.

### Participants

The participants will be experts in PMH who are members of the COST Action Riseup-PPD and the COST Action DEVOTION. The COST members are researchers in applied sciences and clinicians (ie, clinical psychologists, clinical social workers, general practitioners, midwives, nurses, obstetrician/gynaecologists, paediatricians, psychiatrists, psychotherapists), as well as researchers from other backgrounds (eg, neuroscience, biology, epigenetics, biomedical engineer, mathematics, statistics, architecture, social sciences) and key stakeholders (eg, health economists, politicians, decision-makers, representatives from peer-support groups and service users). The main aim of the Riseup-PPD is to gather a multidisciplinary network of researchers to collect and promote evidence-based knowledge on prevention, assessment, and treatment of peripartum depression. DEVOTION is a pan-European multidisciplinary network of birth trauma researchers working towards an ideal universal standard of care to prevent and minimise birth trauma and optimise birth experiences.

Taken together, both COST Actions include representatives from 35 European COST countries (Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and UK), one cooperating member (Israel) and four international partner countries (Australia, Brazil, Canada and the USA).

For the current study, only members of the 35 European countries will be eligible to participate. Three members per country will be invited to participate in the survey. In COST countries where there is high representation of members (eg, Portugal), the members with the highest number of years of expertise in the field of PMH will be contacted.

## Instruments

### Demographic and expertise background questionnaire

The demographic and expertise background questionnaire will comprise questions on the area of specialisation (ie, clinical psychologists, clinical social workers, general practitioners, midwives, nurses, obstetrician/gynaecologists, paediatricians, psychiatrists, psychotherapists) academic degree, institutional affiliation and position, years of experience and years working in perinatal care and/or PMH (each with categories: up to 1 year, 2–5 years, 5–10 years, more than 10 years), current employer (check all that apply: public, private, birth centre, hospital, home birth, primary care service, academic/research, counselling office, non-governmental organisation, other), number of patients/clients per year per institution and personally, gender, age and country.

### Questionnaire on changes in PMH care practices during the COVID-19 pandemic

A questionnaire for the consultation of experts was developed by the research group of the Task Force 'PMH and COVID-19 pandemic' for the purpose of this study, based on the previous questionnaire for experts on mental health used in Europe.<sup>33</sup> The questionnaire includes 30 questions with specific references to the change of policies, protocols and practices regarding PMH during COVID-19 pandemic. It consists of 16 yes/no questions, 18 open-ended questions, 4 checklist questions and 2 items with response ratings on a 7-point scale (1=not adequate to 7=excellent).

The topic areas covered seven domains of interest in terms of PMH: (1) policies, guidelines and protocols (exemplary item: Since the COVID-19 outbreak, have the main policies, guidelines or protocols regarding PMH changed in your country? with yes/no answer format); (2) PMH care practices at a national level (exemplary item: Please describe changes to mental healthcare practices since the COVID-19 outbreak in your country.); (3) evidence of best practice (exemplary item: In your view, what are the best practices that have been implemented for treating PMH during COVID-19 outbreak in your country? Please, describe.); (4) barriers to usual care (exemplary item: Since the COVID-19 outbreak in your country, have there been any barriers to usual care in terms of PMH? with yes/no answer format); (5) resources invested (exemplary item: Have sufficient resources (financial or otherwise) been invested into these specific policies, protocols, and guidelines regarding PMH & COVID-19 in your country? with 7-point scale from 1-strongly disagree to 7-strongly agree); (6) benefits of investment in the policies (exemplary item: What are the expected economic and social benefits of investments in these policies, protocols, and guidelines on PMH & COVID-19? as an open-ended question with four provided categories for answer: economic benefits, social benefits, individual benefit for patients, and individual benefit for healthcare practitioners); and (7) short- and long-term expectations of the policies (exemplary item: What are



the short- and long-term expectations of the policies, protocols, and guidelines you have described, regarding PMH and COVID-19? As an open-ended question with two provided categories for answer: short-term and long-term expectations).

Guidelines are defined as systematically developed recommendations to assist in practitioner and patient decision making about treatments for clinical conditions.<sup>34</sup> Protocols are a comprehensive set of criteria outlining the management steps for a single clinical condition.<sup>35</sup> Documents are defined as official records that provide information or evidence. Finally, Best Practice is defined as a technique or methodology that through experience and research has proven reliably to lead to the desired result.<sup>36</sup>

The survey was written in English and a pilot study with three experts in PMH was conducted. Questions for pilot are presented in online supplemental table A1. Amendments to the questionnaire were made accordingly which included rewording questions to elicit appropriate responses. The questionnaire for key experts can be found in online supplemental file 1.

## Procedure

A link to the online survey hosted in Qualtrics will be sent by email to members from both COST Action RISE-UP-PPD and COST Action Devotion. Experts will be asked to complete the online questionnaire in English. First, they will read an electronic consent form presenting an overview of the study aims, content of the questions asked, potential risks and benefits, and ethical aspects of the study (ie, voluntary participation, confidentiality and secure storage of the data, and absence of any type of compensation). At the bottom of the form, they will be asked to confirm eligibility criteria (members of either COST Actions) and to provide their consent to participate in the study. Participants who do not meet the predefined inclusion criteria will be directed to a message thanking them for their interest and informing them of the required eligibility criteria for participation in the study. The questionnaires are estimated to take approximately 15–20 min to complete.

## Data analysis

Survey data will be manually checked for accuracy and consistency before analysis. All analyses will be conducted using records without missing values. Descriptive data analyses were performed to report frequencies and percentages for categorical data and means and SD for continuous variables. Two authors will code all answers to the open-ended questions independently. Inter-rater reliability will be calculated by Cohen's kappa coefficient and all discrepancies will be discussed until consensus is reached. If needed, a third author will be consulted to resolve any disagreements between the raters.

Differences between countries will be examined using the  $\chi^2$  statistic or Student's t-test. Size effects will be presented following the interpretation proposed by

Cramer's V and Cohen's d for the effect size as follows: 0–0.19, negligible; 0.20–0.49, small; 0.50–0.79, medium; 0.80 and over, high (Cohen, 1988). All p values will be two sided and considered significant below 0.05. SPSS V.26.0 statistical software will be used for these analyses.

## Patient and public involvement

No patients or public are involved.

## Ethics and dissemination

Ethical principles by the Declaration of Helsinki will be followed in this study. The ethical approval was obtained from The Ethics Committee for Research in Life and Health Sciences (CEICVS) of the University of Minho, Portugal (No. CEICVS 045/2020). One link in English will be shared to all participants and the University of Minho will set up the questionnaire in the Qualtrics. Data will be collected anonymously, and participants will be informed that IP addresses or any other identifier will not be collected. Before entering the study, each participant will give informed consent (see online supplemental file 1). The confidentiality of all data will be secured according to European legislation detailed at Regulation (EU) 2019/679 of the European Parliament and the Council of 27 April 2016 on the protection of persons concerning the processing of personal data, as well as the transfer of said data.

The findings from this study will be disseminated as papers published in peer-reviewed journals, presented at national and international conferences, and most importantly, its results will be used inform policy-makers and have an impact on the changes in PMH care on a national and European level.

## Author affiliations

<sup>1</sup>Department of Psychology, Catholic University of Croatia, Zagreb, Croatia

<sup>2</sup>Psychology, Universidad Loyola Andaluca, Dos Hermanas, Spain

<sup>3</sup>Universidade do Minho - Campus de Gualtar, Braga, Portugal

<sup>4</sup>Faculty of Psychology and Educational Sciences, Center for Research in Neuropsychology and Cognitive Behavioral Intervention, University of Coimbra, Coimbra, Portugal

<sup>5</sup>Psychology, The American College of Greece, Athens, Greece

<sup>6</sup>Faculty of Health Sciences, School of Nursing and Midwifery, Trinity College Dublin, Dublin, Ireland

**Acknowledgements** This paper is part of the COST Action Riseup-PPD CA18138 and was supported by COST under COST Action Riseup-PPD CA18138. This study was from the EU funded COST action CA18211: DEVOTION: Perinatal Mental health and Birth-Related Trauma: Maximising best practice and optimal outcomes where SNR, JL and AMM are management committee members.

**Contributors** EM, AMM and SNR designed the study idea and made a questionnaire. SNR led the pilot study and drafted the protocol manuscript. EM, AMM, AG-Á, EV and JL revised it. SNR, EM and EV developed the analysis plan for the data. All authors reviewed the manuscript critically and suggested revisions, and gave the final approval before the submission.

**Funding** This publication is based on work from COST Action 18138-Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder (Riseup-PPD) and COST Action 18211-Perinatal Mental Health and Birth-Related Trauma: Maximising best practice and optimal outcomes (DEVOTION), supported by COST (European Cooperation in Science and Technology). <https://www.cost.eu/>.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

## ORCID iDs

Sandra Nakić Radoš <http://orcid.org/0000-0002-8330-8427>

Emma Motrico <http://orcid.org/0000-0002-0720-567X>

Eleni Vousoura <http://orcid.org/0000-0002-3212-8207>

## REFERENCES

- Ciotti M, Ciccozzi M, Terrinoni A, *et al.* The COVID-19 pandemic. *Crit Rev Clin Lab Sci* 2020;57:365–88.
- World Health Organization (WHO). Coronavirus disease (COVID-19) Dashboard, 2020. Available: <https://covid19.who.int/> [Accessed 16 Dec 2020].
- Chen L, Li Q, Zheng D, *et al.* Clinical characteristics of pregnant women with Covid-19 in Wuhan, China. *N Engl J Med* 2020;382:e100.
- Phoswa WN, Khaliq OP. Is pregnancy a risk factor of COVID-19? *Eur J Obstet Gynecol Reprod Biol* 2020;252:605–9 <https://www.doi.org/>
- World Health Organization (WHO). Coronavirus disease (COVID-19): pregnancy and childbirth. Available: <https://www.who.int/> [Accessed 3 Dec 2020].
- Kotlyar AM, Grechukhina O, Chen A, *et al.* Vertical transmission of coronavirus disease 2019: a systematic review and meta-analysis. *Am J Obstet Gynecol* 2021;224:35–53.
- Didikoglu A, Maharani A, Pendleton N, *et al.* Early life factors and COVID-19 infection in England: a prospective analysis of UK Biobank participants. *Early Hum Dev* 2021;155:105326.
- Buermann B, Marazziti D, Uvnäs-Moberg K. Can intravenous oxytocin infusion counteract hyperinflammation in COVID-19 infected patients? *World J Biol Psychiatry* 2021;22:387–98.
- Imami AS, O'Donovan SM, Creeden JF, *et al.* Oxytocin's anti-inflammatory and proimmune functions in COVID-19: a transcriptomic signature-based approach. *Physiol Genomics* 2020;52:401–7.
- Jardine J, Relph S, Magee LA, *et al.* Maternity services in the UK during the coronavirus disease 2019 pandemic: a national survey of modifications to standard care. *BJOG: Int J Obstet Gyn* 2021;128:880–9.
- Townsend R, Chmielewska B, Barratt I, *et al.* Global changes in maternity care provision during the COVID-19 pandemic: a systematic review and meta-analysis. *EClinicalMedicine* 2021;37:100947.
- Horsch A, Lalor J, Downe S. Moral and mental health challenges faced by maternity staff during the COVID-19 pandemic. *Psychol Trauma* 2020;12:S141–2.
- Thapa SB, Mainali A, Schwank SE, *et al.* Maternal mental health in the time of the COVID-19 pandemic. *Acta Obstet Gynecol Scand* 2020;99:817–8.
- Chen D, Yang H, Cao Y, *et al.* Expert consensus for managing pregnant women and neonates born to mothers with suspected or confirmed novel coronavirus (COVID -19) infection. *Int J Gynecol Obstet* 2020;149:130–6.
- Guidelines QC. Perinatal care of suspected or confirmed COVID-19 pregnant women guideline No. MN20.63-V2-R25. Queensland health, 2020. Available: <http://www.health.qld.gov.au/qcgc>
- Lalor J, Ayers S, Celleja Agius J, *et al.* Balancing restrictions and access to maternity care for women and birthing partners during the COVID-19 pandemic: the psychosocial impact of suboptimal care. *BJOG* 2021;128:1720–5.
- Minckas N, Medvedev MM, Adejuyigbe EA, *et al.* Preterm care during the COVID-19 pandemic: a comparative risk analysis of neonatal deaths averted by kangaroo mother care versus mortality due to SARS-CoV-2 infection. *EClinicalMedicine* 2021;33:100733.
- Reingold RB, Barbosa I, Mishori R. Respectful maternity care in the context of COVID-19: a human rights perspective. *Int J Gynecol Obstet* 2020;151:319–21.
- Brooks SK, Webster RK, Smith LE, *et al.* The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 2020;395:912–20.
- Saccone G, Florio A, Aiello F, *et al.* Psychological impact of coronavirus disease 2019 in pregnant women. *Am J Obstet Gynecol* 2020;223:293–5.
- Topalidou A, Thomson G, Downe S. COVID-19 and maternal mental health: are we getting the balance right? *Medrxiv [Preprint]* 2020.
- Howard LM, Molyneaux E, Dennis C-L, *et al.* Non-psychotic mental disorders in the perinatal period. *Lancet* 2014;384:1775–88.
- Čosić K, Popović S, Šarlija M, *et al.* Impact of human disasters and COVID-19 pandemic on mental health: potential of digital psychiatry. *Psychiatr Danub* 2020;32:25–31.
- Pain C, Disasters LR. Pandemics and mental health. *Can Med Assoc J* 2020;192.
- Wu Y, Zhang C, Liu H, *et al.* Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China. *Am J Obstet Gynecol* 2020;223.
- Corbett GA, Milne SJ, Hehir MP, *et al.* Health anxiety and behavioural changes of pregnant women during the COVID-19 pandemic. *Eur J Obstet Gynecol Reprod Biol* 2020;249:96–7.
- Davenport MH, Meyer S, Meah VL, *et al.* Moms are not OK: COVID-19 and maternal mental health. *Front Glob Womens Health* 2020;1.
- Iyengar U, Jaiprakash B, Haitsuka H, *et al.* One year into the pandemic: a systematic review of perinatal mental health outcomes during COVID-19. *Front Psychiatry* 2021;12:674194.
- Ahmad M, Vismara L. The psychological impact of COVID-19 pandemic on women's mental health during pregnancy: a rapid evidence review. *Int J Environ Res Public Health* 2021;18:7112.
- Riseup-PPD COST Action. Task-force "Perinatal Mental Health and COVID-19 Pandemic", 2020. Available: <https://www.riseupppd18138.com/covid-19-taskforce.html> [Accessed 3 Dec 2021].
- Fonseca A, Ganho-Ávila A, Lambregtse-van den Berg M, *et al.* Emerging issues and questions on Peripartum depression prevention, diagnosis and treatment: a consensus report from the cost action riseup-PPD. *J Affect Disord* 2020;274:167–73.
- Motrico E, Mateus V, Bina R, *et al.* Good practices in perinatal mental health during the COVID-19 pandemic: a report from Task-Force RISEUP-PPD COVID-19. *Clínica y Salud* 2020;31:155–60.
- Samele C, Frew S, Urquía N. Mental health systems in the European union/Union member states status of mental health in populations and benefits to be expected from investments into mental health: European profile of prevention and promotion of mental health (EuroPoPP-MH):[main Report], 2013. Available: [https://ec.europa.eu/health/sites/default/files/mental\\_health/docs/europopp\\_full\\_en.pdf](https://ec.europa.eu/health/sites/default/files/mental_health/docs/europopp_full_en.pdf)
- Field MJ, Lohr KN. *Clinical practice guidelines: directions for a new program*. Washington DC: National Academies Press, 1990. <https://www.doi.org/10.17226/1626>
- Field MJ, Lohr KN. *Guidelines for clinical practice: from development to use*. Washington DC: National Academies Press, 1992. <https://www.doi.org/10.17226/1863>
- Best practices. Bitpipe. Available: <https://www.bitpipe.com/tlist/Best-Practices.html> [Accessed 3 Dec 2021].

1    **Supplementary Material**

2    Table A1. Questions for pilot testing

Questionnaire for key expert: pilot testing
<ul style="list-style-type: none"><li>• Do you think that the content of the questionnaire is adequate?</li><li>• What do you think about the questions in general?</li><li>• Is there any of the questions that seem to be strange or unusual?</li><li>• Do you advise changing any of the questions?</li><li>• Do you recommend including or removing any questions?</li><li>• What is your opinion on the order of questions?</li><li>• How appropriate is the response categories?</li></ul>

3

## Questionnaire on changes in perinatal mental health care during the COVID-19 Pandemic

We define **Perinatal Mental Health (PMH<sup>1</sup>)** as the biopsychosocial well-being during pregnancy, childbirth, and postpartum. PMH problems can occur anytime during pregnancy or within the first postpartum year or they can include previous mental health problems that reappear or worsen during the peripartum period. They refer to depression, anxiety, posttraumatic stress disorder following childbirth, and other illness, such as postpartum psychosis, bipolar disorder, and schizophrenia, that need urgent psychiatric treatment.

The following questions refer specifically to any of the following instruments related to perinatal mental health and COVID-19 pandemic **in your country<sup>2</sup>**:

- **Mental Health Policies-** A mental health policy refers to an organized set of values, principles, and objectives to improve mental health and reduce the burden of mental disorders in a population.
- **Guidelines-** Systematically developed recommendations to assist in practitioner and patient decision making about treatments for clinical conditions.
- **Protocols-** A comprehensive set of criteria outlining the management steps for a single clinical condition.
- **Best Practice-** A technique or methodology that through experience and research has proven reliably to lead to the desired result. Also, a practical definition of best practice is knowledge about what works in specific situations and contexts.
- **Documents-** Documents that provide information or evidence or serve as official records.

Section 1 Mental Health Policies,	<p><b>A. 1 Since the COVID-19 outbreak, have the main <u>policies, guidelines, or protocols</u> regarding Perinatal Mental Health (PMH) changed in your country?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/></p>
--	--

<sup>1</sup> <https://www.thelancet.com/series/Perinatal/perinatal-mental-health>

<sup>2</sup> WHO Assessment Instrument for Mental Health Systems. Version 2.2. Geneva, World Health Organization, 2005 (WHO/MSD/MER/05.2; [https://www.who.int/mental\\_health/evidence/AIMS\\_WHO\\_2\\_2.pdf](https://www.who.int/mental_health/evidence/AIMS_WHO_2_2.pdf), accessed 15 April 2020).

<b>guidelines, and protocols</b>	<p><b>If Yes, please:</b></p> <p><b>A.1.1 When were the changes <u>first</u> implemented?</b>  <i>Please provide the exact date; if you do not know the exact date, specify month or stage in the pandemic.</i></p> <p><b>A.1.2 Were any additional changes introduced at some point during the COVID-19 pandemic (e.g., when COVID-19 vaccination became available)?</b>  <i>Please list all additional changes and specify at <u>what point</u> during the pandemic these were introduced.</i></p> <p><b>A.1.3 Which of these changes are still currently undergoing?</b>  <i>Please list all changes still undergoing.</i></p> <p><b>A.2 Describe the main policies regarding PMH &amp; COVID-19.</b></p> <p><b>A.3 Please provide us with an example of these policies (web link, document link, etc.; if not available in English, it can be in your language)?</b></p> <p><b>A.4 In your opinion, how adequate are these policies?</b>  <i>(Scale 1-7, 1 = not adequate, 7 = highly adequate)</i></p> <p><b>In your opinion, are there any areas that need to be further addressed within these policies?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure <input type="checkbox"/></p> <p><b>If Yes, please:</b></p>
--------------------------------------	---



	Describe the main areas that need to be further addressed within these policies (e.g., more investment in PMH, providing online services etc.):
<b>Section 2 Mental Health Care Practices</b>	<p><b>B. Please describe changes to mental health care practices since the COVID-19 outbreak in your country.</b></p> <p><b>B. 1. Since the COVID-19 outbreak, have the following <u>practices</u> regarding <u>PRENATAL</u> mental health changed in your country at any point?</b></p> <p>— Regular in-person appointments: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Virtual care appointments: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Phone call appointments or messaging for questions/concerns: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Emergency care: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Home visits: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Routine enquiry about domestic violence: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Other:.....</p> <p>—</p> <p><b>B. 2. Since the COVID-19 outbreak, have the following <u>practices</u> regarding <u>POSTNATAL</u> mental health changed in your country at any point?</b></p> <p>— Regular in-person appointments: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Virtual care appointments: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Phone call appointments or messaging for questions/concerns: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Emergency care: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Home visits: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p> <p>— Routine enquiry about domestic violence: Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable <input type="checkbox"/></p>

	<p>— Other:.....</p> <p><b>B.3. Of the previously listed services, which are <u>currently</u> in effect in your country regarding <u>PRENATAL</u> mental health?</b></p> <p>— <input type="checkbox"/> Regular in-person appointments</p> <p>— <input type="checkbox"/> Virtual care appointments</p> <p>— <input type="checkbox"/> Phone call appointments or messaging for questions/concerns</p> <p>— <input type="checkbox"/> Emergency care</p> <p>— <input type="checkbox"/> Home visits</p> <p>— <input type="checkbox"/> Routine enquiry about domestic violence</p> <p>— <input type="checkbox"/> Other:.....</p> <p><b>B. 4. Of the previously listed services, which are <u>currently</u> in effect in your country regarding <u>POSTNATAL</u> mental health?</b></p> <p>— <input type="checkbox"/> Regular in-person appointments</p> <p>— <input type="checkbox"/> Virtual care appointments</p> <p>— <input type="checkbox"/> Phone call appointments or messaging for questions/concerns</p> <p>— <input type="checkbox"/> Emergency care</p> <p>— <input type="checkbox"/> Home visits</p> <p>— <input type="checkbox"/> Routine enquiry about domestic violence</p> <p>— <input type="checkbox"/> Other:.....</p>
<p><b>Section 3</b></p> <p><b>Best practices</b></p>	<p><b>C. 1. In your view, what are the <u>best practices</u> that have been implemented for treating PMH during COVID-19 in your country (e.g., adequate information about the COVID-19 pandemic and its psychological impact, facilitating social support and offering e-resources for psychological support)? Please, describe.</b></p> <p><b>C. 1. 1. Are you aware of any evidence concerning their effectiveness?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

	If Yes, please explain.
<b>Section 4 Barriers</b>	<p><b>D. 1. Since the COVID-19 outbreak in your country, have there been any barriers to usual care in terms of PMH (e.g., financial barriers, transportation barriers, lack of infrastructure in telemedicine)?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If Yes, please explain.</p> <p><b>D. 2. Of these specific policies, protocols, and guidelines regarding PMH &amp; COVID-19 that you have described, have there been any <u>major challenges or barriers to their implementation (e.g., lack of staff, unstable internet connection)</u>?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If Yes, please explain.</p> <p>a) Institutional/organizational challenges/barriers</p> <p>b) Challenges/barriers as referred by health care practitioners</p> <p>c) Challenges/barriers as referred by patients/families</p>
<b>Section 5 Resources</b>	<p><b>E. In your opinion, have <u>sufficient resources</u> (financial or otherwise) been invested into these specific policies, protocols, and guidelines regarding PMH &amp; COVID-19 in your country?</b></p> <p><i>(Scale 1-7, 1 = strongly disagree, 7 = strongly agree)</i></p>
<b>Section 6 Benefits</b>	<p><b>F. 1 What are the expected <u>economic and social benefits</u> of investments in these policies, protocols, and guidelines on PMH &amp; COVID-19 (e.g.,</b></p>

	<p><b>reduce the prevalence of the perinatal mental health problems, improving family relationships)?</b></p> <p><input type="checkbox"/> <b>Not applicable</b></p> <p>Economic benefits:</p> <p>Social benefits:</p> <p>Individual benefit for patients:</p> <p>Individual benefit for health care practitioners:</p> <p><b>F. 2 Are these benefits sustainable?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If Yes, please explain.</p>
<p><b>Section 7</b></p> <p><b>Short- &amp; Long-term expectations</b></p>	<p><b>G. 1 What are the short- and long-term <u>expectations</u> of the policies, protocols, and guidelines you have described, regarding PMH &amp; COVID-19?</b></p> <p>Short-term expectations (during the pandemic):</p> <p>Long-term expectations (after the pandemic):</p>
	<p><b>Please describe if you would like to share anything that was not captured with the previous questions:</b></p>

1  
2  
3  
4  
5

#### Background questions

<p>Please state your area of specialization (check everything that applies to you)</p>	<p><input type="checkbox"/> Nurse</p> <p><input type="checkbox"/> Midwife</p>
--	---



	<input type="checkbox"/> Clinical social worker <input type="checkbox"/> General practitioner <input type="checkbox"/> Obstetrician/Gynaecologist <input type="checkbox"/> Psychiatrist <input type="checkbox"/> Psychologist <input type="checkbox"/> Psychotherapist <input type="checkbox"/> Other: Please specify _____
Highest academic degree ( <i>e.g., MSc, PhD</i> )	
Job position in your institution related to Perinatal Mental Health (PMH)	<input type="checkbox"/> High level of responsibility ( <i>e.g., director</i> ) <input type="checkbox"/> Medium level of responsibility ( <i>e.g., manager</i> ) <input type="checkbox"/> Low level of responsibility ( <i>e.g., specialist</i> ) <input type="checkbox"/> <i>Not applicable/not affiliated with an institution</i>
Years of experience (in total)	<input type="checkbox"/> up to 1 year <input type="checkbox"/> 2-5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> more than 10 years
Years working in Perinatal Care and/or Perinatal Mental Health (PMH)	<input type="checkbox"/> up to 1 year <input type="checkbox"/> 2-5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> more than 10 years
Current employer ( <i>please check all that apply</i> )	<input type="checkbox"/> Public <input type="checkbox"/> Private  <input type="checkbox"/> Birth centre <input type="checkbox"/> Hospital <input type="checkbox"/> Home birth <input type="checkbox"/> Primary care service <input type="checkbox"/> Academic/Research <input type="checkbox"/> Counselling office

	<input type="checkbox"/> Non-governmental organization <input type="checkbox"/> Other: Please specify _____
How many patients/clients attend your institution per year?	_____ <input type="checkbox"/> Not applicable
How many patients/clients do you see per year?	_____ <input type="checkbox"/> Not applicable
Please specify your <b>gender</b>	Female <input type="checkbox"/> Male <input type="checkbox"/> Other <input type="checkbox"/>
Please specify your <b>age</b>	<input type="checkbox"/> up to 25 years <input type="checkbox"/> 25-29 years <input type="checkbox"/> 30-39 <input type="checkbox"/> 40-49 <input type="checkbox"/> 50-59 <input type="checkbox"/> more than 60
Country name	
Location of your institution	<input type="checkbox"/> urban area <input type="checkbox"/> sub-urban area <input type="checkbox"/> rural area

1

2

## Appendix 2. Informed consent sheet



RISEUP-PPD  
Research Network  
in Peripartum  
Depression Disorder



DEVOTION  
COST ACTION CA18211  
Perinatal Mental Health & Birth Related Trauma:  
Maximising Best Practice & Optimal Outcomes

**Changes in perinatal mental health care during the COVID-19 Pandemic: A collaborative research study between the COST Actions RISEUP-PPD and Devotion**

The COST Action Riseup-PPD (CA18138), in the framework of the Task Force “Perinatal Mental Health and COVID-19 pandemic”, and the COST Action DEVOTION (CA18211) aims to study the changes in perinatal mental health care during the COVID-19 Pandemic.

We are carrying out a short survey for experts in perinatal care and/or perinatal mental health. We are seeking your **professional views and opinions** on the extent of perinatal mental health and the COVID-19 pandemic in your country.

Your participation in this survey is entirely **voluntary** and **anonymous**. All information that we collect will be kept **confidential** and will be analyzed at a group level. There are no known risks related to participation in the study. There will be no direct benefit to you, but your valuable experience could help us in tailoring the best practices for perinatal women during the COVID-19 pandemic and in future similar scenarios. The survey will take 15-20 minutes.

If you have any questions or require further information, please contact:

**Eleni Vousoura, PhD, Greece**

**Email:** eleni.vousoura@gmail.com

If you consent voluntarily to participate in this survey, please click “Next”.

Thank you for your contribution!