



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Correspondence

COVID-19 positive mothers are not more anxious or depressed than non COVID pregnant women during the pandemic: A pilot case-control comparison



Dear Editor,

Most recent studies on SARS-Cov-2 in pregnancy have focused on physical effects of the pandemic on infected mothers and the possibility of vertical transmission rather than the equally pertinent maternal mental wellbeing. There is little doubt that pregnant women express greater levels of anxiety and depression during the pandemic weeks compared to before [1] and in particular, voiced concerns about health of their family and unborn children, as well as anxiety regarding behavioural changes such as social-isolation, working remotely, transport difficulties, childcare and stockpiling (especially of food, hand sanitizers and toiletries) [2].

We had previously used the Generalised Anxiety Disorder Questionnaire-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9) to objectively assess maternal anxiety and depression in a group of 11 laboratory proven SARS-Cov-2 positive pregnant women during the initial pandemic period in the United Kingdom (from 1/3/2020 to 11/5/2020). This showed that median GAD-7 and PHQ-9 scores in these COVID-19 positive mothers rose to a maximum at the height of the pandemic deaths in the UK when “lockdown” rules were instituted but declined later as more information and national guidelines appeared [3]. As of 31/5/2020, we had

prospectively collected more data from an additional three SARS-Cov-2 positive pregnant patients and were able to compare GAD-7 and PHQ-9 scores of 14 laboratory proven COVID-19 positive mothers with that of a control group of non-COVID pregnant women ($n = 14$) matched for ethnicity, age, gestation and parity. The control cohort of asymptomatic non-COVID pregnant women were recruited from antenatal clinics and completed their GAD-7 and PHQ-9 questionnaires in the same week as the index cases.

The median GAD-7 score for the COVID-19 positive mothers were statistically comparable to the non COVID pregnant women (2.72 vs 2.87; $p = 0.9$) (scores of 5, 10, and 15 are taken as the cut-off points for mild, moderate and severe anxiety). Similarly, median PHQ-9 score for the two groups were not statistically different (3.07 vs 3; $p = 0.95$) (scores of 5, 10, 15, and 20 represent boundaries for mild, moderate, moderately severe and severe depression). Interestingly, the anxiety and depression measurements in both groups followed similar trajectories, rising to a peak at the height of the pandemic deaths (around 23/3/2020) and falling sharply after the 17th April 2020 as more published information were available through social media and the Royal Colleges of Obstetricians and Gynaecologists and Midwives Guidelines [4]. In the free text section attached to our GAD-7 and PHQ-9 questionnaires, both groups of COVID-19 positive and non COVID mothers equally expressed specific concerns regarding vertical transmission, potential absence of birth partner's support during active labour, financial insecurities due to loss of livelihood of self or partner and restricted visitors' policy for family and partner in immediate postnatal period.

Table 1

Demographics, GAD-7 (anxiety) and PHQ-9 (depression) scores in COVID-19 positive vs non COVID mothers between 1/3/2020 and 31/5/2020. Data expressed as median and range.

	COVID positive ($n = 14$)	Non-COVID ($n = 14$)	p value
Age (yrs)	32.6 (29–39)	32.9 (27–40)	0.8
Gestation at time of questionnaire (wks)	32.8 (24–39)	32.8 (28–39)	1
Parity	1 (0–4)	1 (0–4)	0.6
% Caucasian	14	7.2	0.3
GAD-7	2.71 (0–5)	2.78 (0–6)	0.9
PHQ-9	3.07 (0–7)	3.0 (0–8)	0.9

Free text comments.

“Anxious about vertical transmission to baby”.

“Is home birth still possible if no complications in pregnancy?”.

“Transferring infection to newborn through secretions through breast feeding”.

“Anxious as no support during induction of labour as partner not permitted in hospital”.

“Not having enough information”.

“Family not being tested as contact tracing not in place”.

“Delaying baby's immunisation due to fear of transmission in hospital”.

“Fear of using public transport”.

“Financial concerns as partner has lost job”.

“Transmission to other children in the family”.

“Schools closed, no support from grandparents, other children at home full-time leading to physical exhaustion”.

The data from our small study indicate that GAD-7 and PHQ-9 median scores were broadly low in both groups, suggesting that the sociodemographic influences of the pandemic affected pregnant women equally irrespective of their COVID status. Nevertheless, it is still vital to appreciate the potential effects of the pandemic on the mental health of vulnerable groups such as pregnant women. Antenatal care is currently conducted virtually, using telephone or video calls, during which non-verbal cues, (previously apparent in face to face appointments), could be missed. Adherence to social isolation and shielding guidances has also resulted in a 25 % increase in domestic violence helpline calls and safeguarding must be ensured in suspected cases. It is therefore crucial that frontline healthcare workers make conscious efforts to inquire about anxiety, depression, stress and sleeping patterns particularly during postnatal consultations, so that those deemed to be at higher risk could be supported by the local specialist mental health carers such as Perinatal Mental Health or Improving Access to Psychological Therapies (IAPT) teams [5] (Table 1).

Funding

None.

Ethical approval

Not required, as registered as part of quality improvement for COVID positive patients

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- [1] Wu Y, Zhang C, Liu H, Duan C, et al. Perinatal depressive and anxiety symptoms of pregnant women along with COVID-19 outbreak in China. *Am J Obstet Gynecol* 2020, doi:<http://dx.doi.org/10.1016/j.ajog.2020.05.009>.
- [2] Corbett GA, Milne SJ, Hehir MP, Lindow SW, O'Connell MP. Health anxiety and behavioural changes of pregnant women during the COVID-19 pandemic. *Eur J Obstet Gynecol Reprod Biol* 2020, doi:<http://dx.doi.org/10.1016/j.ejogrb.2020.04.022> Apr 13. pii: S0301-2115(20)30190-30191. doi: 10.1016/j.ejogrb.2020.04.022. PMID: 32317197.
- [3] Kotabagi P, Essien S, Fortune L, Nauta M, Yoong W. Anxiety and depression levels among pregnant women with COVID-19. *Acta Gynecol Obstet Scand* 2020, doi: <http://dx.doi.org/10.1111/aogs.13928>.
- [4] Royal College of Midwives. Royal College of Obstetricians and Gynaecologists. Corona Virus Infection in Pregnancy. Information for healthcare professionals. V8 17/4/2020. <https://www.rcog.org.uk/globalassets/documents/guidelines/2020-04-17-coronavirus-covid-19-infection-in-pregnancy.pdf>.
- [5] Clark DM. Implementing NICE guidelines for the psychological treatment of depression and anxiety disorders: the IAPT experience. *Int Rev Psychiatry* 2011;23(4):318–27, doi:<http://dx.doi.org/10.3109/09540261.2011.606803>.

P. Kotabagi

Department of Obstetrics and Gynaecology, North Middlesex University Hospital, London, NW18 1QX, UK

M. Nauta

Camden Health Improvement Practice, Margarete Centre, London, NW1 2LS, UK

L. Fortune

North Middlesex University Hospital, London, NW18 1QX, UK

W. Yoong*

North Middlesex University Hospital, London N18 1QX, UK

* Corresponding author.

E-mail address: waiyoong@nhs.net (W. Yoong).

Received 14 July 2020