

A Narrative Review of the Risks of Covid-19 Vertical Transmission during Pregnancy

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Abstract

Background: With the start of COVID-19, a general concern for the health and safety of people remained the chief priority for medical health professionals. Likewise, one concern which was initially overlooked was for the pregnant women and the new-born child's health during the pandemic. With recent reports of an excessive increase in pregnancy during lockdown, it is a critical area to consider that whether there is a chance of vertical transmission of the infectious disease from the mother to the fetus.

Methods: Using narrative review approach the present study endeavored in highlighting the importance of protecting expecting mothers and their infants upon birth from COVID-19. The study collected all the relevant literature on the matter of pregnancy during COVID-19 and its impact using key terms such as pregnancy, COVID-19, vertical transmission. Moreover, the study tried suggesting recommendations based on literature review.

Results: It can be inferred that though currently not enough evidence has been brought into light to suggest pregnant mothers or the infant children as vulnerable, however proper precautionary measures must be taken during these testing times to subdue the imminent threat coronavirus can brought on to the mother or child.

Conclusions: The current study is an attempt to call out to the official authorities and health professionals to develop policies and interventions to support the mother and child during the birthing process and take in consideration the suggested recommendations.

Keywords: *Pregnancy, New-Born, COVID-19, Health Professionals, Interventions*

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Background

During the COVID-19 pandemic, it is estimated globally that around 116 million babies will be born. According to United Nations Children's Fund, exclusively in South Asia, a quarter of them will be born, which in numbers is around 29 million (UNICEF, 2020). There is a prediction that the babies will be born within 40 weeks after the COVID-19 pandemic (RCOG, 2020). This pandemic has caused a lot of damage to the healthcare system and medical sources all over the world (Aqeel et al., 2020; Shuja et al., 2020). Simultaneously, it is equally creating an alarming concern for mothers' health and their new-borns (Dashraath et al., 2020; Sahu et al., 2020; Yang et al., 2020). The Jean Gough, Director of UNICEF regional office for Asia shows the concern about the health of millions of women and infant (UNICEF, 2020).

The South Asian countries, during the outbreak of the COVID-19 pandemic projected the maximum number of births in nine months, include: Pakistan, India, Bangladesh, and Afghanistan. The expectations of births in these countries are as follows: India with 20 million, Bangladesh with 2.4 million, Pakistan with 5 million, and Afghanistan with 1 million (Department of Economics and Social Affairs, 2020). With the rapid increase of COVID-19 throughout South Asia, the new mother will be affected by this pandemic (Breslin et al., 2020). While the new-borns are welcomed by the ruthless truth is surrounding which includes the Global restraints like curfews and lockdowns (Saccone et al., 2020). As the healthcare sector is stunned with the efforts in response to this pandemic and the shortage of medical supply and equipment (Tanne et al., 2020). There is also a lack of healthcare workers, which includes the midwives, adequate or practiced birth attendants because they are reassigned for the treatment of COVID-19 patients (Rasmussen & Jamieson, 2020). In such critical time the present study has tried to collect all the relevant material relating to the risk of COVID-19 transmission during pregnancy for the mother and the child. Additionally, the study also incorporated information relating to the risk of vertical transmission of the infectious disease from the mother to the fetus.

Method

The present study employed a narrative review design and collected published articles on vertical transmission of COVID-19 from mother to fetus. During the study all articles published in various research article database using keywords such as COVID-19, Pregnancy, vertical transmission from December of 2019 to April of 2020 were searched. Then all the relevant information pertaining to the topic of the present study was reviewed and discussed. All original researches, letters to the editor, and various reviews published on the risk of COVID-19 on pregnant mother and fetal health as well as vertical transmission of COVID-19 were included. The relevant articles were collected, and their results were summarized and reported.

Result

Present Research Evidence and Precautionary Measures.

As researchers are still gathering evidence about the virus transmission from mother to new-born during pregnancy or after birth (Tseng, 2020). Due to this, the UNICEF mention all the safety measures for pregnant women to keep themselves protected from the virus (UNICEF, 2020). If they observe any symptoms of COVID-19 in them, they should've sought the advice from the nearby healthcare services. Maintain their social distance, avoid gatherings, and they can use telephone helpline services if they are living in the area which is most affected or they are experiencing acute fever, breathing difficulty, or cough (Abbas et al., 2020; Poon et al., 2020). If the mothers are infected or exhibiting symptoms of infection they can continue feeding as milk samples don't demonstrate the presence of a virus (Chen et al., 2020). But through proper precautions like washing hands, wearing masks, disinfect the surfaces should be followed before approaching the new-born. In addition, confirm the place of birth from the consultant doctor or midwife in order to be on time and to reduce anxiety and after birth (Zimmermann & Curtis, 2020). The doctor's support is additionally required for the timely vaccination for the new-born (Asadi et al., 2020).

The general findings of the mentioned researches indicate there is less than likely a chance for the fetus or newborn child to be infected through vertical transmission. However, it is specifically recommended in all of the researches for the pregnant mother to follow extreme precautions during pregnancy and even after the birth while taking care of the child.

Concerns Regarding Pregnancy and Child Birth During COVID-19.

COVID-19 pandemic control is necessary, but according to UNICEF, it will disrupt the healthcare services to preserve lives like childbirth, the lives of millions of new-borns, and pregnant women, that are at stake due to the disruption of life-saving services (Wang et al., 2020). While the evidence shows that pregnant women are not much exposed to the COVID-19 comparing others, but still UNICEF urges countries about their healthcare sectors that are they capable of providing services to expectant women during their pre-natal, delivery and post-natal period (Favre et al., 2020; Lei et al., 2020). Similarly, the new-borns that are at elevated risk of death need instant emergency services (Dashraath et al., 2020). The families having a baby have to make sure about the health of baby and mother. They have to be supportive to start breastfeeding, medication and vaccines for their baby's health and nourishment (Liang & Acharya, 2020).

Discussion

By reviewing all the available literature, it is safe to say that for the current time the risk of vertical transmission of COVID-19 is less than likely. However, at the same time it is of utmost importance to take care of both the pregnant mother and the newborn child from the infectious disease and proper measures should be employed to safeguard the mother and child from COVID-19.

Table 1

Articles Utilized in Summarizing Results for the Present Study

Author	Year	Title	Key Finding
Asadi, L., Tabatabaei, R. S., Safinejad, H., & Mohammadi, M.	2020	New Corona Virus (COVID-19) Management in Pregnancy and Childbirth.	Managing strategies during child birth during pandemic
Breslin, N., Baptiste, C., Miller, R., Fuchs, K., Goffman, D., Gyamfi-Bannerman, C., & D'Alton, M.	2020	Coronavirus disease 2019 in pregnancy: early lessons.	Though symptoms of infection were found in mothers the born infant tested negative for Covid-19.
Chen, Y., Peng, H., Wang, L., Zhao, Y., Zeng, L., Gao, H., & Liu, Y.	2020	Infants Born to Mothers with a New Coronavirus (COVID-19).	COVID-19 in pregnant woman can cause fetal distress but does not infect newborns.
Dashraath, P., Wong, J. L. J., Lim, M. X. K., Lim, L. M., Li, S., Biswas, A., Choolani, M., Mattar, C., & Su, L. L.	2020	Coronavirus disease 2019 (COVID-19) pandemic and pregnancy.	No definite evidence of vertical transmission
Fakari, F. R., & Simbar, M.	2020	Coronavirus Pandemic and Worries during Pregnancy; a Letter to Editor.	Stress and Anxiety among pregnant mothers about birthing and feeding newborn babies.
Favre, G., Pomar, L., Musso, D., & Baud, D.	2020	2019-nCoV epidemic: what about pregnancies?	Infection with COVID-19 in pregnant women can have adverse effects including miscarriage, fetal growth restriction, and preterm birth or death of the mother
Lei, D. W. C., Li, C., Fang, C., Yang, W., Cheng, B., Wei, M., Xu, X., Yang, H., Wang, S., & Fan, C.	2020	Clinical characteristics of pregnancy with the 2019 novel coronavirus disease (COVID-19) infection.	No neonatal asphyxia was observed in newborn babies. Amniotic fluid, cord blood, neonatal throat swab, and breastmilk samples from six patients were tested for SARS-CoV-2, and all samples tested negative for the virus.
Saccone, G., Carbone, F. I., & Zullo, F.	2020	The novel coronavirus (2019-nCoV) in pregnancy: What we need to know.	Notably, infection of 2019-nCoV during pregnancy seems less serious compared to infection of SARS-COV and MERS-COV with

			no cases of maternal death, or perinatal death.
Sahu, K. K., Mishra, A. K., & Lal, A.	2020	A twin challenge to handle: COVID-19 with pregnancy.	Baby and the mother both do not suffer from any peripartum complication.
Tseng, J.-Y.	2020	Potential implications of SARS-CoV-2 on pregnancy.	In light of the new coronavirus (SARS-CoV-2) having similar pathogenic characteristics as SARS-CoV and MERS-CoV, pregnant women who become infected are at risk for adverse maternal and fetal complications
Wang, S., Zhou, X., Lin, X., Liu, Y., Wu, J., Sharifu, L. M., Hu, X., Rong, Z., Liu, W., Luo, X., Chen, Z., Zeng, W., Chen, S., Ma, D., Chen, L., & Feng, L.	2020	Experience of Clinical Management for Pregnant Women and Newborns with Novel Coronavirus Pneumonia in Tongji Hospital, China.	Based on previous pandemic experiences both mothers and newborns are prone to suffer from upper respiratory tract infection. Meanwhile, because of being susceptible to SARS-CoV-2, pregnant women are more likely to develop complications or even progress to severe cases after being infected with SARS-CoV-2
Yang, H., Wang, C., & Poon, L. C.	2020	Novel coronavirus infection and pregnancy.	Currently, there is no evidence that pregnant women are more susceptible to COVID-19 infection and that those with COVID-19 infection are more prone to developing severe pneumonia. There is also no evidence of vertical mother-to-baby transmission of COVID-19 infection when the maternal infection manifests in the third trimester.
Zimmermann, P., & Curtis, N.	2020	Coronavirus infections in children including COVID-19: An overview of the epidemiology, clinical features, diagnosis, treatment and prevention options in children.	SARS-CoV, MERS-CoV and SARS-CoV-2 infections seem to affect children less commonly and less severely as compared with adults.

Recommendations for the Families and Clinicians.

In this present situation there is an urgent appeal to the governments and healthcare sectors to safeguard the lives of babies on behalf of all the mothers around the globe (Fakari & Simbar, 2020).

Recommendations for the families.

UNICEF provided a number of suggestions to take precautionary measures. The suggestions included: 1) Providence of adequate services like prenatal, postnatal, and during delivery. 2) If some of them need care relevant to COVID 19. 3) Ensuring the provision of protective equipment for healthcare workers. 4) Furthermore, ensure the testing and vaccination of COVID 19 when available in the market so that they can best provide their services to all the new-borns and pregnant women (UNICEF, 2020).

Recommendations for the clinicians. There are several recommendations for clinicians and obstetricians to follow as well. Like, 1) Encourage and allow the healthcare teams with proper training and well equipped, with fresh birth kits. 2) To go door to door to instruct the women of rural areas about maternal waiting units, and mobile health units through which they can acquire services they want. 3) Also, the uniform distribution of lifesaving kits for the mother and her new-borns (Liang & Acharya, 2020; Rasmussen et al., 2020).

Conclusion

For treating pregnant mothers during prenatal, delivery, postnatal period and new-borns UNICEF calls for the direct investment in the healthcare sector and for experienced workers having the proper equipment and medication to ensure the health of every mother and her new-born. As the COVID-19 develops the fear of getting infected due to which the women don't seek healthcare services, at the same time due to the pandemic, the healthcare sectors are already disrupted, but the workers of healthcare services and midwives need support to provide their most efficient services to the mother for a safe birth and provide information about the delayed or space pregnancies to the women who want to.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding authors on reasonable request.

Authors contributions

KHS: study design, literature search, first draft, manuscript revisions, approval of the final version. SS: literature search, first draft, manuscript revisions, approval of the final version. MH: literature search, manuscript revisions, approval of the final version. AR: literature search, manuscript revisions, approval of the final version.

Ethics approval and consent to participate

The integrate study was approved by the National Institute of Psychology Review Board. Written consent was obtained from all participants.

Competing interests

The authors declare to have no competing interests.

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