



## Pregnant women and COVID-19: isolation as a physical and psychic impact factor


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### Abstract

*This research aims to reflect upon the inherent impacts of social isolation caused by the new coronavirus (COVID-19) pandemic on the health of pregnant women. It brings up a survey on both physical and psychological aspects of this period on a woman's life, such as physiological and emotional changes. It also raises questions about how these aspects can be directly or indirectly affected by periods of isolation, considering recent research and guidance from health reference organizations.*

**Key words** *Coronavirus, Pregnancy, Epidemic*



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## Introduction

A new virus was discovered in late 2019 in Wuhan, China. Following an investigation of the first cases, the virus was called COVID-19 or SARS-COV-2. Reports of this new disease predicted a potential outbreak, given the number of people quickly infected. This virus is transmitted by direct contact from person to person or by droplets spread by sneezes or coughs of the infected person.<sup>1</sup>

Therefore, preventive measures were implemented aiming to minimize the spread of the virus. Social distancing measures were adopted urging people to avoid crowds and maintain a minimum distance of one and a half meters (five feet) between each other and, in more severe cases, lockdown was recommended, meaning that people could not leave their homes.<sup>2</sup> In order to reduce the transmission of the virus between individuals, the social isolation measure becomes essential, distancing infected or possibly infected people from those that are asymptomatic or healthy, thus avoiding the uncontrollable transmission of the new virus.<sup>3,4</sup>

Due mainly to the various physiological changes that occur in a pregnancy, especially those of the immune and respiratory system, pregnant women were included in the risk group of COVID-19, along with postpartum women, as well as elderly and those with chronic diseases, since they are more likely to be at risk if infected.<sup>5</sup>

Some of the aspects that can be observed in pregnant women is that, during this period, the immune system's NK cells, which make up 60 to 70% of maternal lymphocytes at the beginning of pregnancy, substantially decrease during the course of pregnancy, and it is almost nonexistent by the end of the gestation period.<sup>6</sup> A 2017 research points out that the risk of infection of the upper respiratory tract by viral diseases is potentially greater when the body has a deficit in the immune system.<sup>7</sup> In the respiratory system, on the other hand, there is a 20 to 30% reduction in the functional residual capacity (FRC), as well as an increase in respiratory effort, and in the tidal volume, which can thus induce physiological dyspnea.<sup>8</sup>

During such period of home confinement there are factors that can bring higher risks for pregnant women and that can interfere negatively during pregnancy: sedentary lifestyle, several comorbidities such as overweight, increased blood pressure, glucose intolerance, as well as psychosocial disorders such as depression and anxiety.<sup>9</sup>

Upon the social isolation guidelines currently ongoing in several countries, encouraging pregnant

women to maintain a physically active routine becomes a preventive measure in order to maintain their health. In the past, pregnant women did not perform simple activities for fear of it being damaging for the pregnancy, however, with the evolution of science it was possible to prove that maintaining an active lifestyle is not only safe but also promotes numerous benefits for the mother and her baby.<sup>10</sup>

Thromboembolic diseases have a high incidence during pregnancy. During this period the risk of Venous Thromboembolism (VTE) increases five to ten times.<sup>11</sup> Tang *et al.*<sup>12</sup> analyzed patients diagnosed with severe COVID-19 and showed that 71.4% of those who did not survive and 0.6% of those who survived had evidence of disseminated intravascular coagulation (ICD), indicating the frequency of ICD in severe cases of COVID-19. Therefore, attention and care for this risk group should be intensified.

The negative physical impacts on the health of the pregnant woman in this period can be minimized by practicing physical exercises. Such activities interfere beneficially in several systems of the maternal organism, improving the functions on the cardiovascular system, blood circulation, promoting an improvement in the capture, transport and use of oxygen, as well as helping in the prevention of several specific gestation diseases, such as gestational diabetes, by reducing blood glucose rates,<sup>13</sup> in addition to being an effective measure for the improvement of the immune system.<sup>9</sup>

The American College of Sports Medicine has published a guide that suggests the maintenance of an active life at home during the period of isolation in the COVID-19 pandemic, reinforcing the importance of such habits for our health.<sup>14</sup> Failure to follow these guidelines can negatively affect the individual's physical health during this period.

In addition to the physical aspects associated with this period, several impacts related to the pregnant woman's emotional health may arise. Thus, during this phase of a woman's life, hormonal imbalances are common and imply sudden mood swings that consequently generate several emotional conflicts such as fear, anxiety and insecurity.<sup>15</sup> When added to the process of social isolation, which is a situation that requires patience, and which also interferes with the appearance of stress and anxiety,<sup>16</sup> it increases a probable psychic illness.

One of the most stressful situations during this pandemic period is the unpredictability and uncertainty about the control and severity of the disease, which added with the lack of information can raise the concern of our society as a whole.<sup>17</sup> The fear of

being infected by the virus and having pregnancy problems because of it can be a constant concern during this period. Fear itself is an emotional response to a real or perceived threat, unlike anxiety that behaves as an anticipation of a future threat.<sup>18</sup>

Studies made in areas affected by COVID-19 were carried out in order to identify the psychological impacts of it on society. One of these studies showed that 16.5% of the general population had moderate to severe depressive symptoms; 28.8% showed symptoms of moderate to severe anxiety and 8.1% of moderate to severe stress.<sup>19</sup> When evaluating only individuals in isolation, another study showed that the level of anxiety is directly correlated with stress.<sup>20</sup>

An effective way of achieving psychological and social well-being is having a social support network, especially during pregnancy. This network is usually formed by the partner, children, other family members and friends who help with essentials, domestic tasks, guidance and emotional support.<sup>21</sup> During social isolation the support network is reduced, since other family members who do not live in the same house and friends are no longer physically present. It is a time of uncertainty and fears beyond those that are already plaguing their minds in such a delicate period in a woman's life, which may facilitate the onset of anxiety attacks.

The practice of physical exercise regularly has the ability to minimize feelings of anxiety and stress in individuals,<sup>22</sup> in addition to improving mood, self-esteem and well-being.<sup>23</sup> In stressful moments, such as the social distancing experienced nowadays, staying active is beneficial for body and mind.

Internet and social media are widely known, so it is recommended at this time of isolation to use them for your own benefit. Even to get in touch with family or friends, keeping the support network close even when they need to be physically apart. Moreover, the Federal Council of Psychology<sup>24</sup> encouraged psychological care to be made through video calls, if they cannot be carried out in person.

The practice of physical activities at home is also adequate to maintain physical fitness and psychological well-being. According to the American College of Sports Medicine,<sup>25</sup> it can be carried out three to five times a week, for at least thirty minutes. Professional guidance made by physiotherapists or physical education teachers is necessary, even at a distance.

Using technology in favor of physical and psychological well-being, to interact with family members and friends, and to receive guidance of health professionals is of paramount importance. Especially during pregnancy when there are so many physical and psychological changes, it is essential to maintain the health of body and mind within this period.

### Author's contribution

Almeida MO and Portugal TM contributed to elaboration of the article. Assis TJCF and Almeida MO contributed to the revision of the manuscript. All the authors approved the final version of the manuscript and are responsible for the context of the article.

### References

1. Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmun.* 2020; 109: 102433.
2. Farias HS. O avanço da Covid-19 e o isolamento social como estratégia para redução da vulnerabilidade. *Espaço e Economia. Rev Bras Geogr Econ.* 2020; 17.
3. OPAS (Organização Pan-Americana de Saúde). "Folha informativa - COVID-19 (doença causada pelo novo coronavírus)". Portal Eletrônico OPAS Brasil; 2020.
4. Melo K. COVID-19: Saiba a diferença entre quarentena e isolamento. 2020. Disponível em: <https://agenciabrasil.ebc.com.br/saude/noticia/2020-03/covid-19-saiba-diferenca-entre-quarentena-e-isolamento>
5. Brasil. Ministério da Saúde. Protocolo de Manejo Clínico do Coronavírus (COVID-19) na Atenção Primária à saúde. Brasília, DF; 2020.
6. Fiuza C, Morais PB. Aspectos Imunológicos essenciais na Gestação Regular. *J Applied Pharm Sci.* 2017; 4 (3): 42-51.
7. Channappanavar R, Perlman S. Pathogenic human coronavirus infections: causes and consequences of cytokine storm and immunopathology. *Semin Immunopathol.* 2017; 39 (5): 529-39.
8. Cunningham FG, Leveno KJ, Blomm SL, Hauth JC, Rouse DJ, Spong CY. *Obstetria de Williams.* 24 ed. McGraw Hill Brasil; 2016.
9. Ferreira MJ, Irigoyen MC, Consolim-Colombo F, Saraiva JFK, De Angelis K. Vida Fisicamente Ativa como Medida de Enfrentamento ao COVID-19. *Arq Bras Cardiol.* 2020. 114 (4): 601-2.
10. Soares DSC, Soares JJ, Graup S, Streb AR. Atividade física na gestação: uma revisão integrativa. *Rev Perspect Ciênc Saúde.* 2017; 2 (2): 71-84.

11. De Oliveira ALML, Marques MA. Profilaxia de tromboembolismo venoso na gestação. *J Vasc Bras.* 2016; 15 (4): 293-301.
12. Tang N, Bai H, Chen X, Gong J, Li D, Sun Z. Anticoagulant treatment is associated with decreased mortality in severe coronavirus disease 2019 patients with coagulopathy. *J Thromb Haemost.* 2020; 18: 1094-9.
13. Acencio FR, Soaigher KA, Del Col MTF, Cortez DAG. Efeitos fisiológicos decorrentes do exercício físico no organismo materno durante a gestação. *Cinergis.* 2017; 18 (1): 73-6.
14. American College of Sports. (ACSM). Staying active during the coronavirus pandemic. [acesso 19 Abr 2020]. Disponível em: [https://www.exercisemedicine.org/assets/page\\_documents/EIM\\_Rx%20for%20Health\\_%20Staying%20Active%20During%20Coronavirus%20Pandemic.pdf](https://www.exercisemedicine.org/assets/page_documents/EIM_Rx%20for%20Health_%20Staying%20Active%20During%20Coronavirus%20Pandemic.pdf)
15. Marques ACM, Souza LF, Veríssimo MRG. Gestação e seus fatores emocionais. 2019. [Trabalho de conclusão de curso em Psicologia]. Anápolis: Centro Universitário de Anápolis – UniEvangélica 2019.
16. Bittencourt RN. Pandemia, isolamento social e colapso global. *Rev Espaço Acadêmico.* 2020; 19 (221): 168-78.
17. Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. *Asian J Psychiatr.* 2020; 51: 101990.
18. Manual diagnóstico e estatístico de transtorno mentais (DSM-5). American Psychiatric Association. 5 ed. Porto Alegre: Artmed; 2014.
19. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health.* 2020; 17 (5): 1729.
20. Xiao H, Zhang Y, Kong D, Li S, Yang N. Social capital and sleep quality in individuals who self-isolated for 14 days during the coronavirus disease 2019 (COVID-19) outbreak in January 2020 in China. *Med Sci Monit.* 2020; 26: e923921.
21. Oliveira MR, Dessen MA. Alterações na rede social de apoio durante a gestação e o nascimento de filhos. *Estud Psicol.* 2012; 29 (1): 81-8.
22. De Oliveira Neto L, Elsangedy HM, Tavares VDO, Teixeira CVS, Behm DG, Silva-Grigoletto ME. Training in home-based training during COVID-19 (SARS-COV2) pandemic: physical exercise and behavior-based approach. *Rev Bras Fisiol Exerc.* 2020; 19 (Supl. 2): S9-S19.
23. Rocha JF, Rocha JRC, Costa JBB. Gestação e exercícios físicos: qualidade de vida para a mãe e o bebê. *Rev Diálogos Saúde.* 2019; 2 (1): 53-64.
24. Conselho Federal de Psicologia. Resolução CFP nº 11 de 11 de maio de 2018 – Regulamentação da prestação de serviços psicológicos realizados por meios de tecnologias da informação. [acesso 22 Abr 2020]. Disponível em: <https://atosoficiais.com.br/cfp/resolucao-do-exercicio-profissional-n-11-2018-regulamenta-a-prestacao-de-servicos-psicologicos-realizados-por-meios-de-tecnologias-da-informacao-e-da-comunicacao-e-revoga-a-resolucao-cfp-no-11-2012?origin=instituicao&q=11/2018>
25. American College Of Sports Medicine, et al. ACSM's guidelines for exercise testing and prescription. Lippincott Williams & Wilkins; 2013.

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