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## Gender Perspectives on COVID-19

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### Abstract

Women have been disproportionately harmed in the latest corona virus epidemic, which has had an effect on their personal finances, businesses and communities. Yet women do better than males when it comes to preventing the spread of illness and reducing the mortality rate from existing conditions. The primary explanation is that women's immune systems, in addition to the natural hormonal protection they get, are superior to men's. In addition, women are more likely to engage in preventative actions and adhere more strictly to protection measures, which drastically lessen the likelihood of infection. There is a clear need for further study on the gender differences in COVID-19 infections because to the disparate severity across the sexes. Essential data on sex-related variations in illness outcome and treatment can only be gathered if both males and females participate in fundamental research and clinical trials. Better results for women will not be seen until additional research is conducted in the future that takes into account the unique challenges women encounter when dealing with infectious illnesses and global pandemics from a gendered viewpoint.

**Keywords:** Corona virus, women, immune system, hormones and pandemic

### Introduction

There has been a dramatic rise in the number of confirmed cases of the new corona virus infection throughout the globe in recent years. The spread of the corona virus pandemic has continued unabated. The pandemic has far-reaching and extensive implications for how gender dynamics are seen and comprehended. It is clear from the statistics that men have always been at a considerably greater risk of infection than females since the epidemic began in December 2019. The World Health Organization (WHO) predicted on March 12, 2020, that a pandemic brought on by the corona virus will sweep the globe (WHO, 2020). The adoption of cabin quarantine space and the diversion of severe diseases have been suggested as additional foci of future pandemic prevention efforts in addition to quarantine and isolation measures. Quarantine areas will be contained inside cabins. Knowing whether women fall into the high-risk or low-resistance category is helpful for prevention and treatment. Males are stereotyped as being weaker than females in terms of resilience and in their ability to stop the spread of disease. Studies have shown that men are much slower than women when it comes to clearing their bodies of viral RNA. Research in the last several years has pointed to the testis as a possible host for the corona virus, which might explain why men tend to clear the virus at a slower pace than women. However, additional study is needed to establish the significance of testis involvement in COVID-19 severity and mortality. Gender-specific differences in immunological responses to infections are reflected in the fact that females mount a more robust defense against infection than their male counterparts. A variation in immune response has the potential to significantly impact viral load, illness severity, and death. In addition, variations in environmental sex hormone levels could contribute to the development of certain viruses.

### Impact

The effects of the corona virus on women's health are not limited to the medical field, but instead affect many facets of their lives, including their personal relationships, careers, and routines. Many schools had to postpone classes due to the broad spread of the corona virus, forcing many working mothers to take time off from their professions to care for their

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children. Many establishments have closed their doors as a consequence of the epidemic, with the hotel and tourist sectors bearing the brunt of the fallout. As a result, many low-income women who have relied on the income from these jobs are now at danger of being jobless. The amount of angiotensin converting enzyme 2 (ACE2) receptors in lung cross-sections of smokers is higher than in non-smokers, according to recent research authored by Guoshuai Cai. Anatomical examination of the lungs of ex-smokers allowed for this finding. In order to infect human cells, the coronavirus requires the ACE2 receptor. Because of this, the coronavirus is able to infect humans. This study, according to Guoshuai Cai, might also provide light on why males have historically been more likely to get coronavirus than females. He reached this conclusion after doing more research (Mali, *et al.*, 2020) [7]. Women tend to be more aware of the pandemic and more willing to actively seek aid, both of which contribute to a decline in the prevalence and transmission of the virus. Pros in the field of public health agree that studying coronaviruses in relation to gender is crucial for both the furtherance of scientific knowledge and the wellbeing of the general population (Iwasaki, 2020) [4].

### Immunity and Viral Infection

It has been shown without a reasonable doubt that males are more likely to have a severe response to COVID-19, which results in a higher fatality rate. It is well established that women generate a more robust innate, cell-mediated, and humoral immune response than men do. This phenomenon, which may help to explain why women have a higher rate of survival than men do (Klein and Flanagan, 2016) [5]. These differences in innate and adaptive immune responses are the cause of gender biases in pathogenesis and mortality due to a variety of infections, which are controlled as a result of these differences (Schurz *et al.*, 2019) [9]. Different immune responses are elicited in males and females when they are exposed to the same virus. These responses also differ from one another. For instance, in cases of acute HIV infection, studies have revealed that females have 40% less viral RNA than males do. On the other hand, studies have shown that males have a higher mortality rate owing to hepatitis virus. Both of these findings are supported by evidence. Even while women in general have a superior immune response to pathogen infections, the enhanced immunological response that women experience may also produce immunopathology. Women are more likely than males to be diagnosed with autoimmune diseases such as rheumatoid arthritis, systemic lupus erythematosus, Sjogren syndrome, myasthenia gravis, and multiple sclerosis. Because vaccines provoke a more robust antibody response in females, they are more successful in protecting females. For example, between the ages of 11 and 22, the antibody responses to the measles vaccine were twice as strong in girls as in boys. This was the same regardless of gender. It has been shown that the results of other vaccines, such as those for rubella, hepatitis, rabies, mumps, yellow fever, and influenza, are comparable to those of the flu shot. Another possible influence in disease development is a person's gender, which may be determined by their chromosomal composition. Females have two copies of the X chromosome, whereas males only have one copy of this chromosome. On the X chromosome, there is a large number of genes that are relevant to the immune system. Among the numerous genes

that may be found on the X chromosome, pattern recognition receptors such as toll-like receptor 7, toll-like receptor 8, and interleukin-1 receptor associated kinase 1 are among the most common. It is possible that a man's immune system will function in a different way than a woman's immune system when it comes to the process of clearing the viral load and damaged cells. It has been well documented that necrosis occurs in male stressed pulmonary endothelial cells, but apoptosis is more likely to occur in female stressed pulmonary endothelial cells (Zemskova, *et al.*, 2020) [10].

### Gender-based Violence

The majority of academics now believe that violence against women should be regarded as a global health concern. According to [oe.cd/vaw2020](https://oe.cd/vaw2020), more than one-third of women throughout the globe have been the victims of physical and/or sexual abuse at the hands of a partner in an intimate relationship or by a person other than a partner in an intimate connection. There is a high probability that COVID19 will make an already serious situation much worse. The history of man-made and natural disasters provides evidence that containment efforts almost always result in an increase in the number of cases of violence or abuse committed against women. The social repercussions of COVID19, such as the inability to leave the home, the loss of social relationships, the presence of children all day after schools are closed, and the tensions that are inherent to being forced to cohabitate, are likely to represent an additional justification for violence by some. The problem of domestic violence, which is often carried out by men, has its roots in patriarchal masculinities, which confer power and authority on men at the expense of women. Patriarchal masculinities are at the core of the issue. As the crises and unpredictability at the individual and familial levels continue to play out, those who commit acts of violence may turn to increasingly violent actions in an effort to reclaim control and release pent-up emotions within the confines of the lockdown. Because economic control is one of the most effective tools in the hands of abusers, the potential downstream consequences of COVID 19 – which include higher rates of unemployment (for both women and men), lost wages, and job insecurity – pose a particular threat to women who are in abusive relationships. It's possible that victims are forced to stay with their abusers because they have no other option. Therefore, it is very necessary for governments to make the safety of intimate partners a priority in every aspect of their response to the COVID 19 pandemic that involves public policy. As a result of the fact that economic control is a primary tactic utilized by abusers, women who are in relationships that are abusive are more susceptible to the potential downstream effects of COVID19, which may include increased rates of unemployment (for both women and men), decreased income, and job insecurity. It is a significant issue when a person is prevented from leaving an abusive spouse due to financial constraints. Because of this, it is of the utmost importance that the COVID19 policy responses of governments focus on putting a stop to violence against intimate partners.

### Family Relationships

Because of the COVID-19 pandemic and the ensuing lockdowns and school cancellations, grandparents are providing less assistance with child care than before. Many

research (for an overview, see Del Boca *et al.*, 2020)<sup>[1]</sup> have shown that women have borne a disproportionate share of the increasing family responsibilities, thus widening gender gaps. Even in families where both parents were able to work from home, duties for housekeeping and child care were not shared equitably. Working from home has the potential to encourage more participation from males in household tasks, which is not an impact that was expected in advance. However, the post-hoc asymmetry is more severe since there were already disparities to begin with. Del Boca *et al.* (2021)<sup>[2]</sup> looked examined how 800 typical Italian working women and their husbands divided up household and child care duties during the first and second waves of the COVID-19 pandemic in Italy, one of the nations struck worst by the epidemic. When it came to nations that were affected severely by the epidemic, Italy was right up there (April 2020 and November 2020). The OECD believes that, even before the epidemic, women spend an extra two hours daily doing unpaid domestic chores than men do. This is due to the fact that women often take on more housework.

### Conclusion

Many lives have been lost, and the COVID-19 epidemic will have far-reaching effects on public health and the economy. Animals have been the source of three major coronavirus epidemics in the past 20 years (SARS-CoV in 2002, MERS in 2012, and SARS-CoV-2 in 2019). Many viruses, including SARS-CoV, MERS, Ebola, Rabies, Nipah, and Hendra, have been traced back to bats as a reservoir. It's important to note that viruses come in a wide variety of forms. In certain places, males have been shown to be more susceptible to developing severe symptoms and dying away as a direct consequence of contracting COVID-19. Stress tolerance is another area where men and women vary, with women showing more resilience in the face of a variety of adversities, including hunger and illness. While women can handle more stress than men, men have a poorer tolerance for a variety of pressures. This may be an additional element in the development of COVID-19 in males and females differently. It is probable that more than one of these elements is at play, but it is unclear which ones contribute to the etiologic discrepancy between the sexes. In all likelihood, sex differences contribute to how the immune system functions. Male animals continue to be the preferred option for modeling, and the use of female animals in research and clinical trials is far less prevalent (Liu and Mager, 2016). Due of increased vulnerability, women should be given special attention during the COVID-19 pandemic. Frontline healthcare workers are more likely to be women, as are primary caregivers at home, workers in the informal economy and people who need access to healthcare facilities.

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