
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.

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Letter to Editors

# Reduction in the incidence of infectious diseases during the COVID-19 pandemic: A hypothesis

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*Dear editor,*

I have read the article published in Medical Hypotheses by Xianqiang Yu with enormous interest which is about the COVID-19 changes the lifestyle of the population and subtly reduces the incidence of metabolic disease [1]. I agree with the author and I also believe that the incidence of infectious diseases, especially respiratory tract infections, may decrease during the COVID-19 pandemic.

The pandemic of SARS-CoV-2 has affected health care service practices worldwide and has changed it in the same vein. Population-wide anti-SARS interventions such as the use of Personal Protective Equipment (PPE), population-based sanitation and other measures have had an effect on other respiratory tract infections during the SARS outbreak in 2003. It was investigated whether the frequency of some common acute viral respiratory infections was also influenced by such interventions. A connection between public hygienic interventions and the diminished occurrence of influenza and other acute respiratory viral infections was indicated [2]. Furthermore, the weekly influenza activity in the 2019/ 2020 season compared with 5 previous seasons was assessed on seasonal influenza activity during the SARS-CoV-2 outbreak in Japan and it was deduced that in 2020, seasonal influenza activity in Japan was lower than previous years [3].

In the present study, a hypothesis is offered and described which is presented based on three major factors:

1- *Reduction in the prevalence of other infectious diseases due to greater using of Personal Protective Equipment (PPE), social distancing and other sanitizing practices*

In order to minimize the spread of COVID-19, public health interventions, including public education, physical distancing, the use of masks, hand washing, remote work and the avoidance of major events, have been promoted worldwide. The influenza activity indicators for 2020, before and after public health interventions to minimize the coronavirus disease 2019, were compared with the corresponding indicators for the previous three years. Influenza incidence has decreased dramatically, implying that the measures introduced for COVID-19 have been successful in reducing the spread of other respiratory viral diseases [4].

2- *Fewer visits to medical centers, resulting in failure, to diagnose a specific infectious disease due to general quarantine conditions or fear of hospitalized and contaminated environments*

Since the COVID-19 pandemic, the number of newly diagnosed tuberculosis patients has decreased dramatically in Japan and Taiwan. In many areas, the COVID-19 outbreak required lockdowns and limited access to hospitals, particularly for people with non-emergent symptoms and medical check-up was also canceled or postponed. In fact, avoidance of medical care is a significant factor in this regard [5].

3- *Misdiagnosis of other infectious diseases that have similar signs and symptoms of COVID-19 disease, such as influenza, due to overfocus on SARS-COV-2*

The diagnosis has been shifted toward SARS-COV-2 in the current COVID-19 era, and during this pandemic, there is a significant probability of premature diagnosis. Patients who probably may have COVID-19 need crucial re-evaluation for other diagnoses at frequent intervals in the absence of a confirmatory test [6]. The diagnostic process is highly vulnerable to cognitive bias and the current COVID-19 pandemic can trigger incorrect decisions to be made by normally accurate healthcare professionals. The COVID-19 pandemic undermines not only health care providers physical and psychological health, but also the health care system itself, which could have an effect on clinical diagnosis and judgement [7].

Given the above, it is very likely that according to this hypothesis, the rate of other infectious diseases in the current pandemic period could decrease, which is an important issue and can be used for future planning and health care policy making.

## 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.

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