

Unguided research and noncompliance may have intensified the COVID-19 pandemic

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Abstract

In February 2020, WHO officially named the novel coronavirus disease as the Coronavirus disease 2019 (COVID-19), and on March 11, proclaimed it a pandemic. The daily increasing number of cases infected with COVID-19 has distressed people and alarmed health authorities worldwide. While no prophylactic vaccine or effective drug for COVID 19 exists, the pandemic is mainly managed by avoidance strategies. We posit that two factors may have accelerated the propagation of the pandemic. First, undertaking unguided research may have negatively influenced the intervention measures against the pandemic. Second, noncompliance with timely in-house isolation of infected cases has undoubtedly worsened the pandemic. Successful management of the pandemic highly depends on the cumulative knowledge about the virus.

Highlights:

* The number of COVID-19 cases has surpassed 3,241,495 globally by 30 April 2020.

* We posit that factors which may have facilitated the progression of the pandemic include undertaking of unguided scientific research and initial noncompliance with health advice.

The COVID-19 pandemic

Coronaviruses are enveloped RNA viruses of the family *Coronaviridae*, subfamily *Orthocoronavirinae*, in the order *Nidovirales*. Among all the RNA viruses, Coronaviruses contain the largest genome, which is composed of sense, single-stranded RNA.¹ In December 2019, a novel Coronavirus emerged in the Huanan wholesale seafood market in Wuhan, China. That city became the epicentre whence the virus subsequently spread into more than 210 countries—rapidly within two months.²⁻⁴ In February 2020, the World Health Organization (WHO) officially called the corresponding disease due to the new virus as the “novel Coronavirus disease 2019”, abbreviated as COVID-19. On March 11, 2020, WHO proclaimed the COVID-19 outbreak as a “pandemic” to alert all the member countries.^{5,6} Subsequently, the virus was found to act discrepantly in different populations, leading to a varied range of clinical spectra that range from a mild influenza-like illness to a severe respiratory disease that mostly culminates in septic shock or multiorgan failure and death.⁵

The daily situation reports released by WHO reflect a high rate of fatalities of the cases infected with COVID-19.⁷ More than 3,241,483 infected cases were confirmed globally as of 30 April 2020, while the death rate sadly continues to rise exponentially.⁸ This increasing trend has generated intense apprehension among both the public and the health authorities of many nations. For instance, the International Olympic Committee agreed with the Japanese governmental authorities to postpone the Tokyo 2020 Olympic Games for a year.⁹ Similarly, many other social activities, festivals, carnivals, sporting matches, cafés, cinemas, workplaces, concerts, religious or wedding ceremonies and funerals, playgrounds, schools, university campuses, and many other mass-gatherings around the globe are now variedly postponed, cancelled, or closed in response to the

shockingly contagious nature of the disease. The situation is worsened by the fact that no vaccine is available, and no scientifically proven drug exists to combat the SARS-CoV-2 infection.^{10,11}

Genomic comparisons have shown that SARS-CoV-2 is closely related to SARS-CoV,^{12,13} suggesting that COVID-19 and the severe acute respiratory syndrome (SARS) of 2003 epidemic may potentially share transmission routes, pathogenetic characteristics, and likely intermediate hosts. The source of the virus has been debated since its outbreak and discovery.^{14,15} Bats, Asian palm civets, pangolins, or snakes have been alluded to as candidate intermediate hosts or reservoirs that could have facilitated the transfer of the virus across species to humans.^{13,16} Conspiracy theories claiming that the virus is manmade and has escaped research laboratories have also been stirred but refuted.^{13,17} Nevertheless, scientists have not conclusively confirmed the zoonotic nature or the intermediate host of the virus.¹⁸⁻²⁰

In this perspective, we posit that the emergence and relatively quick progression of the COVID-19 pandemic may have been spurred by two factors.

Unguided research

Skimming the COVID-19 news and research literature connotes that researchers and medical experts are ostensibly witnesses or bystanders of an unprecedented health catastrophe instead of being inventors or indicators of a conclusive remedy; people are inevitably the participants in a global avoidance strategy while regressive economical and psychosocial effects of the pandemic are looming. Seemingly, the avoidance strategies will likely continue until a vaccine is produced to prevent the course of the disease. The present pandemic will subside eventually; however, the experts confess the lack of complete understanding of the characteristics of the virus and of the disease,²¹ and lack of a proven therapeutic strategy against the two, which have predominantly guided the worldwide avoidance strategies. In this case, potential antiviral therapies, pathogenesis mechanisms, vaccines, serological testing, and absolute immunity after initial infection are not proven. One could argue that lack of information and public panic thus call for prohibition of less-guided scientific and medical research and undertaking of prioritized well-guided research. Indeed, being ethically corrected is not merely obtaining the approval by an ethics committee on the minimal number of laboratory animals to be used in a certain experiment! In other words, discovery projects on new disciplines should have been supported by research funders, universities, and government-funded institutes across the world. Thus, the present priorities for supporting academic and medical research should be revised according to the public-health demands instead of individual academic ambitions or interests. Four months has passed since the inception of COVID-19 while thousands of research teams are deep at work on the subject, but the pathogenic mechanisms of the virus are still unclear while new signs and symptoms are being added as characteristics of COVID-19.^{22,23} And the clinical picture of the disease is being painted slowly while it is evolving with varied presentations or associations that have potentially evolved temporally and spatially.²⁴⁻²⁹ Altogether, COVID-19 has been a Pandora's Box itself rather than the new virus escaping the Box³⁰ and has caused an exemplary and unprecedented death toll following its emergence, implying that the hypotheses and research questions following the 2003 and 2012 viral outbreaks of SARS and Middle East respiratory syndrome were not properly focused to consider such a potentially threatening new viral outbreak.³¹ COVID-19 can only prove that the past collective knowledge, research output, spent funding, and lifespan-worth of efforts of many researchers are unable to defeat the pandemic soon. The present research output is also unable to respond immediately to the present public desire for defeating the pandemic. National ethics committees and funding bodies thus should prioritize research in the wake of this pandemic. Indeed, clinically and epidemiologically useful rationales should be prioritized and subjected to rigorous peer-review by field experts, especially in the context of emerging pathogens and multi-drug resistant pathogens. Presently, the total number of infected cases by SARS-CoV-2 has surpassed three million while we hope that this fatality rate would cease. We posit that present or previous less-guided research has indirectly caused our global inability to prevent the COVID-19 pandemic.

Untimely easing the restrictive measures and risk of recurrence of the pandemic

Encouraging the people to stay home and self-isolate to avoid exposure to suspected cases or to asymptomatic

carriers is the ultimate approach to prevent further casualties by COVID-19. Early during the pandemic, many people did not comply with “in-house isolation” requirement, as a promising measure against the pandemic, or the countermeasure was not promoted or enforced by in some occasions.^{32,33} Recently, some news suggests removal of the restrictions, which could potentially result in the recurrence of the pandemic. Global restrictive measures should be enforced until the pandemic curve becomes flat; otherwise, new waves of the pandemic are imminent. Underestimation of the role of complete quarantine and early lifting of quarantine measures are factors that may worsen the COVID-19 pandemic.

Conclusions

The present COVID-19 pandemic has gravely affected the global human health, psychosocial fabrics, economies, legislations, human rights, education, cyber security, and social events. We believe many complex factors may underlie the worsening course of the pandemic but would like to highlight unguided research and noncompliance with health measures as two important ones. Using the experiences and knowledge gained thanks to this pandemic will help health authorities better manage the present and efficiently prevent the future outbreaks of COVID-19.

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