# New-Onset Diabetes in Long COVID: An Emerging Challenge for the Health System in Low- and Middle-Income Countries

Sir,

Coronavirus disease 2019 (COVID-19) and diabetes are the two major pandemics threatening global health. While it is well known that a significant proportion of COVID-19 patients are likely to develop new-onset diabetes during the acute phase,[1] emerging evidence shows that new-onset diabetes is also a post-acute sequela of COVID-19 (also called "long COVID"). The systematic review by Harding JL *et al.*[2] included 14 studies examining the risk of new-onset diabetes in people with COVID-19 compared to those without COVID-19. Of the 14 studies, 12 (86%) reported a significant positive association between COVID-19 and new-onset diabetes, with relative risks ranging between 11% and 276% over 30 to 457 days following recovery. These studies were conducted among 42.1 million people (18% had COVID-19) in the U.S., the UK, and a few European countries. In addition to this systematic review, three meta-analyses[3-5] concerning the risk of new-onset diabetes after COVID-19 have been published. One of these meta-analyses of eight studies (nine cohorts) with nearly 40 million people reported that the incidence of new-onset diabetes after COVID-19 was 15.5 events per 1000 person-years.[5] Of note, no studies from low- and middle-income countries (LMICs) were available to be included in the Harding JL *et al.* systematic review and the three meta-analyses.

Four LMICs, including India, China, Brazil, and Mexico, are among the top ten countries with the highest number of people with diabetes worldwide. Incidentally, these are the same LMICs heavily affected by COVID-19, contributing to a considerable proportion of global deaths from this pandemic. On the contrary, the case fatality rate of COVID-19 is declining in these countries due to increased vaccination rates, availability of more effective treatments, reduced virulence of the virus, and high population prevalence of infection-induced immunity. Consequently, the number of COVID-19 survivors is increasing who are at risk of developing a wide variety of cardiometabolic disorders, including new-onset diabetes. Thus, it is essential to study the magnitude of incidence and the risk of new-onset diabetes in COVID-19 survivors in LMICs to understand whether COVID-19 is fueling the growing diabetes pandemic in these countries. If this is the case, the health system in LMICs should be able to handle this menace. However, the health system's preparedness for emerging infectious diseases and the management of diabetes along the care cascade is generally poor in LMICs. Adding fuel to the fire, COVID-19 has been draining the limited healthcare resources and heavily disrupting the healthcare delivery in many LMICs. Detection of new-onset diabetes during the post-acute phase of COVID-19 involves frequent follow-ups and testing of glycemic parameters. These require strong political commitment, substantial allocation of resources to the health system, and an organized approach to collecting data, such as electronic health records.

In summary, emerging data from high-income countries show that the incidence and risk of new-onset diabetes among COVID-19 survivors are high.[2-5] However, little is known about these in LMICs, emphasizing the urgent need for long-term follow-up studies among recovered COVID-19 patients in these settings.

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## Conflicts of interest

There are no conflicts of interest.

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