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Commentary

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The impact of long Covid on people's capacity to work

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Abstract

This commentary addresses the post-COVID-19 syndrome and its implications for workers' health. Post-COVID-19 syndrome consists of a set of physiological and psychological symptoms resulting from SARS-CoV-2 (COVID-19) infection, which occur continuously for several weeks or months. Therefore, it is an affectation that has multiple consequences for the recovery of people's health, and compromises the ability to perform daily activities, including work, whether in person or remotely. Although several studies have been published so far, and several long-term consequences on people's health have been demonstrated, most have not adequately delved into the implications for the health of workers, their families, and the socioeconomic cost for governments. The aim of this paper is to highlight this public health issue and to encourage more specialized research.

Key words: long COVID; public health; post-COVID; work.

Introduction

Since 2020, the persistence of various symptoms as a consequence of SARS-CoV-2 (COVID-19) infection, lasting several weeks or even several months, began to be documented (Rajan et al. 2021). In view of this situation, the World Health Organization (WHO) proposed a specific classification for the disease and developed a clinical definition (Soriano et al. 2022).

> "Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19, with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others which generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time. A separate definition may be applicable for children" (Soriano et al. 2022).

This is a rather generic definition, derived from a consultation with international experts. However, it is important to make three critical observations: (i) it is a provisional and non-specific definition for certain populations, suggesting that more specific conceptualizations could be established for children, older adults, workers, and/or healthcare personnel. In fact, several pediatric societies in Italy proposed a consensual definition of prolonged COVID-19 for children (Esposito et al. 2022); (ii) it does not adequately cover mental health implications, nor does it discriminate between

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effects arising from the post-COVID-19 condition itself and effects imposed by pandemic constraints or everyday life circumstances (Gallegos et al. 2022; Liyanage-Don et al. 2022); (iii) it does not provide further details about the impact of the disease on the ability to perform daily activities, such as work. This work focuses on the effects of prolonged COVID-19 in the working population, since it has been recognized that persistent physical and psychological symptoms complicate people's occupational performance (Delgado-Alonso et al. 2022). Therefore, these complications might not be easily recognizable to employees or employers, which could aggravate workers' health or result in labor conflicts due to decreased work performance.

These questions are due not only to an unsatisfactory conceptual definition, but also to a lack of specialized scientific information. Early reports on the long-term effects of COVID-19 were concerned with highlighting respiratory, functional, cardiopulmonary, gastrointestinal, and dermatological symptom abnormalities, and later neurocognitive, psychological, and psychiatric symptoms (Gallegos and Caycho-Rodríguez 2022; Gallegos et al. 2022). Most of the early studies were based on a post-hospital population and later, an outpatient population. After several critical reviews, the lack of information on underrepresented populations such as children, older adults, and workers, was noted. Attention was also drawn to the social impact of prolonged COVID-19, especially regarding the burden of care for health systems, the cost to families and the economic impact on countries (Rajan et al. 2021).

Post-COVID-19 and worker health

More recent studies have begun to account for long-term effects in specific populations. However, information regarding the impact of post-COVID-19 syndrome on the working population is still insufficient (d'Ettorre et al. 2022). In fact, data on the long-term effects of COVID-19 on this population come from general, rather than specific, studies. For example, one review inferred data on persistent COVID-19 ailments in working-age people from 13 publications, and found that the most persistent symptoms of COVID-19 in working-age people were those of the most common type of COVID-19 (d'Ettorre et al. 2022).

Another review retrieved 11 studies reporting data on people who had difficulty returning to work after being hospitalized or in intensive care units (Gualano et al. 2022). In this study, it was noted that the age and country of origin of the individuals made significant differences. For example, patients from China and the United States returned to work faster than European patients, who took longer. The authors point out that these differences may be related to the ages of the patients included in the studies and the social security system in place in each country (Gualano et al. 2022).

Another review found that almost 50% of the primary studies analyzed reported some degree of impairment of social, work and family life as a consequence of post-COVID-19 involvement. Specifically, some studies included in this review identified that between 9% and 40% of previously hospitalized patients failed to return to work two to three months after discharge. Other studies, analyzed by this same review, identified that between 12% and 23% of non-hospitalized patients with mild and moderate symptoms remained absent from work between three and seven months after the acute phase of the disease. In general, it has been reported that people affected by post-COVID-19 syndrome were forced to reduce or adjust their workload, and some lost their jobs (Nittas et al. 2022).

An observational study, where patients with long-term COVID-19 involvement were evaluated, found that more than 54.6% of people experienced long periods of being unable to work, 34.5% lost their jobs due to illness, 63.9% reported difficulties in performing daily activities, and 17.6% experienced financial difficulties as a result of the disease. These impacts increased with the severity of symptoms, i.e., depending on the course of the illness, the times of incapacity were longer (Guo et al. 2022). Another study reported that after 6 months, 56% of patients showed difficulties in carrying out daily activities, and 47% were unable to return to work (Frontera et al. 2021).

A study conducted in Peru with metallurgical workers identified that more than 80% of workers recovered from COVID-19 returned to routine work, while those with persistent COVID-19 symptoms returned at a rate of between 43% and 75%, depending on the type of work (Dávila Morán 2021). Another study in Spain indicated that only 50% of workers were able to return to work after a year with persistent symptoms of COVID-19, the most predominant symptoms being fatigue and cognitive problems (Delgado-Alonso *et al.*, 2022). An exploratory online survey of workers in various sectors identified that less than 15% had returned to work after persistent COVID-19, and between 53% and 50% reported a moderate capacity, both physically and psychologically, for daily work (Lunt et al. 2022). Health care workers were a heavily scrutinized population during the pandemic, and several studies have warned of the importance of addressing the long-term sequelae of COVID-19 in this population, as health care capacity could be affected (Haller et al. 2022; Peters et al. 2022; Selvaskandan et al. 2022).

Taken together, the limited, specific data available so far suggest that post-COVID-19 syndrome has serious health consequences for workers. Not only is it

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important to have more evidence about this effect on work performance, but it is also necessary to develop an adequate approach to this health problem in the population of workers. Although certain recommendation guidelines have been established to guide the return of workers to their usual work environments (Garzillo et al. 2022), specific guidelines have yet to be developed to consider workers who are experiencing long-term effects of COVID-19 (Wickert et al. 2022). This is important because prolonged COVID-19 may manifest long after the viral infection and corresponding medical discharge. Even the appearance of new symptoms after a few months may not correlate with the initial symptoms or the incidence of severity. Therefore, not only is it important to have guidelines for the return to daily work, but it is also necessary to establish guidelines for monitoring the possible long-term effects of COVID-19 in the working population.

In this regard, the need to adapt the work environment and pace for workers with post-COVID-19 sequelae has been raised, in order to enable more flexible working hours and successfully meet the needs of each employee (Stewart-Patterson et al. 2021; Babnik et al. 2022). However, before considering these adaptations, it is advisable to analyze and evaluate the depth of the post-COVID-19 impact on the development of work activities. This caveat is given on the basis that some rehabilitation programs for workers with post-COVID-19 symptoms, although showing significant improvement, actually had only modest results, since only 43% had effectively returned to work (Brehon et al. 2022).

Of course socioeconomic status, social vulnerability and inequality in access to adequate medical care not only help determine the restoration of people's health, but can also enhance unfavorable health outcomes, all of which influences quality of life and affects the return to work (Declercq et al. 2022). The restoration of health is a necessary condition for the return to work, but the late onset of persistent symptoms could go unnoticed by workers, affecting performance and functional capacity for the performance of work activities.

On the other hand, the COVID-19 immunization process, although it contributed to the return to work for many people and reduced hospitalizations and deaths, has not achieved the desired effectiveness in limiting contagions and reinfections. More conclusive studies are still needed to know whether COVID-19 vaccines are successful in reducing long-term effects (Ledford 2021). For the time being, it has been suggested that recovery from COVID-19 infection and the manifestation of prolonged symptoms are not strictly dependent on the number of doses of COVID-19 vaccines administered, nor on the severity of the disease experienced by the patients (Godeau et al. 2021). For this reason, it becomes a priority to emphasize the importance of expanding specialized studies on the working population in the post-COVID-19 context.

Conclusions

It is clear that the COVID-19 pandemic is not over, despite the lifting of preventive measures in many countries, and the return of restrictions in other countries. The new post-COVID-19 impact on people's health not only makes the end of this pandemic much more complex and uncertain, but also entails various implications for the context of work, families, society, and the economy of the countries. So far, very little information is available on the impact of prolonged COVID-19 on the population of workers, whether on-site or remote. However, research evidence indicates that the burden of prolonged COVID-19 is significant in the working population, which should prompt further studies and the development of specialized management strategies in work settings.

The little information available comes from general studies, and most of these studies have been carried out in Europe, Asia, and the United States, so there is a call for more in-depth studies in other regions where there is less knowledge. Addressing this problem should not only be a priority for scientific research and public health systems, but also for the recovery of the global economy, particularly in middle- and low-income countries, since their socioeconomic recovery will depend on the capacity of their workforce. The biggest challenge of prolonged COVID-19 is not in returning to regular work, as many people have resumed their normal daily functions, but in healthfully maintaining the ability to work and enjoy daily life.

Conflict of interest statement. The authors declare no conflict of interest.

Data Availability

No data were used in this study.

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