

Working schedule, sleep quality and susceptibility to COVID-19 in healthcare workers

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Dear Editor,

We read with interest the recent paper by Ran *et al.* on predisposing factors for healthcare workers (HCWs) infection during the COVID-19 outbreak [1]. In particular, data collected by the authors evidenced that longer duty hours appeared to be a risk factor for COVID-19. The authors cited previous studies that sustained prolonged work would possibly increase the risk of respiratory infections. They concluded that “duty hour restrictions (less than 10 hours/day) should be considered, depending on the medical staff’s specific role” [1]. We agree with the authors of the paper that working schedule could be an important factor of susceptibility to COVID-19, but we would like to focus the attention on shift working also.

HCWs have an increased risk of contracting COVID-19 due to their close contact with patients affected by SARS-CoV-2. In our country, Italy, more than 16,000 HCWs have tested positive for COVID-19 and at least 115 physicians and 30 nurses have died after contracting coronavirus, confirming the high risk of healthcare professionals [2, 3]. Further studies on this population should be conducted for understanding the reasons of increased susceptibility and high mortality in categories of HCWs. As known, HCWs often suffer from sleep disorders and low sleep quality, due to work-related stress, sleep deprivation and shift work [4]. Since circadian rhythm disruption may impair immune system function, some scholars sustained that it could enhance susceptibility to infection [5, 6]. A recent prospective cohort study showed that shift workers in healthcare had 20% more acute respiratory infection and influenza-like illness than non-shift workers [7]. These infections also appeared to be more severe also. Perceived sleep quality seems to be an underlying mechanism in the relation between shift work and increase infection susceptibility [8]. No studies have been still conducted on the association between shift work, sleep quality and COVID-19 infection, but it is presumed that the mechanisms are similar. Stress could also played a determinant role in worsening sleep quality, as already evidenced in previous studies [4]. Undoubtedly, during the COVI-19 outbreak, HCWs are exposed to an unprecedented stressful situation of unknown duration, with an important emotional involvement. For these reasons, recommendations to

healthcare staff on working schedule – including the considerations of Ran *et al.* on prolonged hours – should be widespread in the hospitals and well known by hospital managers.

Finally, we believe that future studies on susceptibility of HCWs to COVID-19 should not limit to analyze the demographic characteristics of workers and the presence of protective equipment, but they should also consider working conditions in the hospital, including an analysis of shift work and its effects of sleep quality. The study by Ran *et al.* could be a starting point.

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Competing interests

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