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LETTER

Differences in HADS and SF-36 scores 1 year after critical illness in COVID-19 patients

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Dear Editor,

Long-term outcomes among coronavirus disease 2019 (COVID-19) survivors have been a cause for concern [1–3]. Similarly, patients surviving critical illness from other conditions have shown anxiety, depression and altered quality of life, contributing to post-intensive care syndrome (PICS). The specific contribution of COVID-19 beyond the non-specific contribution of critical illness, however, remains unknown. In this study, we matched and compared critically ill survivors admitted to the intensive care unit (ICU) for COVID-19 to critically ill patients admitted for pneumonia or acute respiratory distress syndrome unrelated to COVID-19. We explored hospital Anxiety and Depression Scale (HADS) and the Short Form (36) Health Survey (SF-36) scores 1 year after hospitalization.

We used two cohorts of critically ill patients: the French-COVID cohort (COVID-19 cohort, clinical trial NCT04262921) [4] and the FROG-ICU cohort (control cohort, clinical trial NCT01367093) [5]. We selected patients who survived 12 months post-hospitalization and subsequently had HADS and SF-36 scores assessed. 40 patients from each cohort were matched based on age, sex, comorbidities (diabetes, hypertension, chronic heart failure, previous stroke, obesity, chronic obstructive pulmonary disease, liver disease, smoking, asthma, and cancer), and treatments (renal replacement therapy, mechanical ventilation, and use of vasopressors/inotropes; Supplemental Table 1).

At 1 year, the COVID-19 vs control group median scores for HADS depression were 3 [1, 6] vs 2 [0, 6] ($p=0.807$); for HADS anxiety were 4.5 [2, 9] vs 2 [0, 6] ($p=0.213$); for the SF-36 physical component were 62.5 [40.8, 75.8] vs 55.2 [37.3, 73.3] ($p=0.264$) and for the SF-36 mental component were 70.1 [44.5, 87.1] vs 58.9 [44.4, 72.8] ($p=0.08$) (Fig. 1). SF-36 domains significantly higher in the COVID-19 vs controls were the emotional well-being (80 [65, 88] vs 64 [52, 72], $p=0.004$) and the social functioning (75 [62.5, 100] vs 62.5 [50, 87.5], $p=0.047$). Other domains were not significantly different between groups.

This study has limits. The control cohort enrolled between 2011 and 2013, so changes in clinical practice over time may have occurred. It was carried out primarily in France and had a limited sample-size with substantial loss to follow up. In addition, the outcomes measured in this study are not exhaustive and other functional outcomes were not collected. Finally, patients were recruited primarily in the pre-vaccination pandemic phase and were infected with the alpha variant, so results may not be generalizable to other scenarios.

Long-term outcomes of patients with COVID-19 and critically ill patients have been concerning [1–3], however the interaction between COVID-19 and critical illness 1 year post-COVID-19 diagnosis has not yet been explored. In this case–control study, we identified no statistically significant difference in HADS and the physical and mental components of the SF-36 scores between groups. Of note, depression and anxiety scores were

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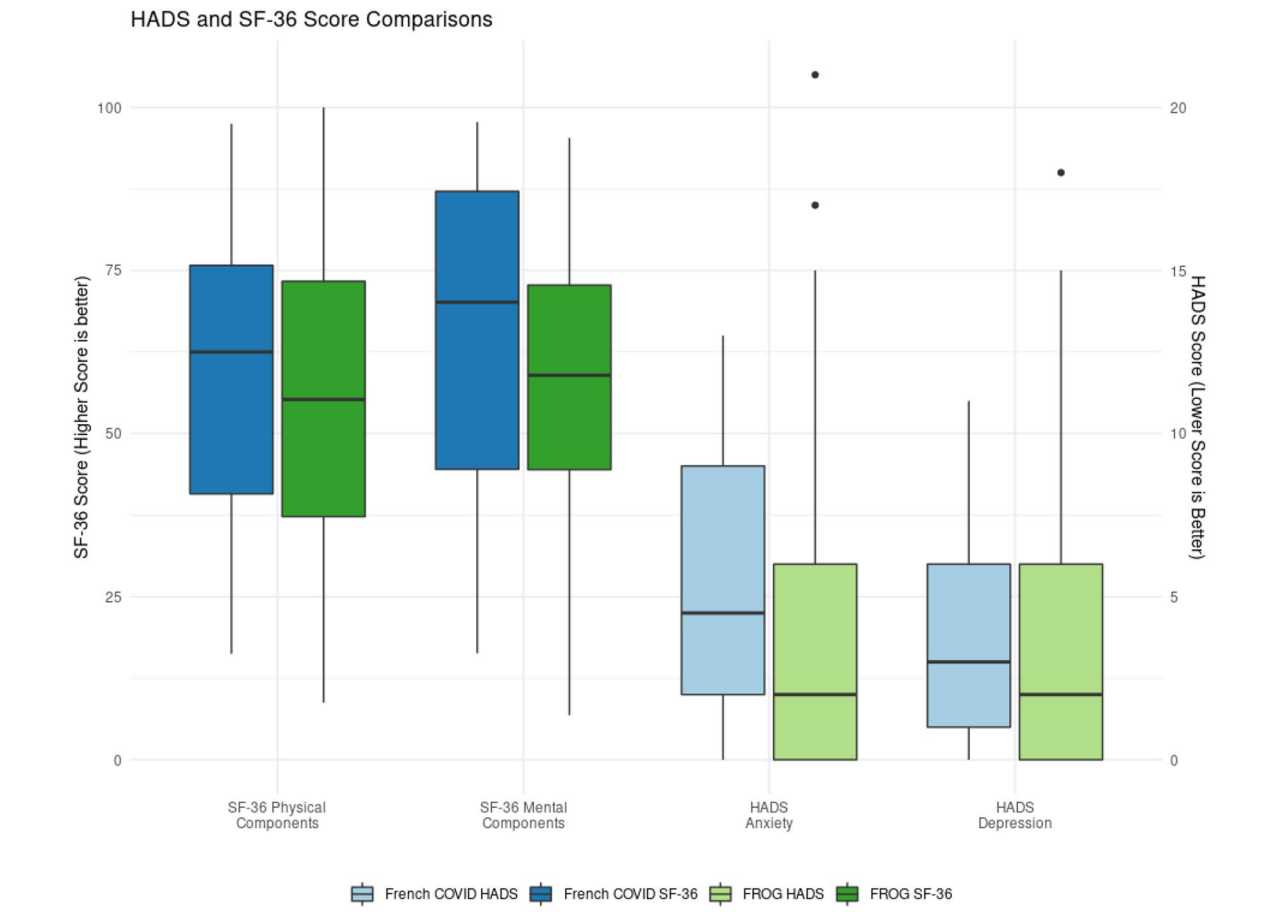

Fig. 1 Domains of the Hospital Anxiety and Depression Scale (HADS)and Short Form 36 in 12 months (SF-36[a]), in the matched cohorts. The SF-36 Physical Components includes the physical function domain, bodily pain domain, general health domain, physical function domain. The SF-36 mental components includes the mental health domain, energy and fatigue domain, emotional wellbeing, and social function

low and within normal range, although emotional wellbeing and social functioning domains were higher in COVID-19 survivors, suggesting better outcomes. This study provides reassuring preliminary data on the specific impact of COVID-19 on outcomes after critical illness. Future work should confirm these findings in larger cohorts and identify potential risk factors and drivers of poor long-term functional outcomes after critical illness to better understand strategies that could mitigate these outcomes.

Supplementary Information
The online version contains supplementary material available at https://doi.org/10.1007/s00134-022-06797-9.

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Author contributions
ML designed and supervised the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. RTT, BD, NF, and JG contributed substantially to the study design, data analysis and interpretation, and the writing of the manuscript.

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Declarations

Conflicts of interest
All authors declare no conflict of interest.

Ethical approval
The French COVID cohort (COVID-19 cohort, clinical trial NCT04262921) awas approved by the institutional review board CPP-Ile-de-France VI (ID RCB: 2020-A00256-33). The FROG-ICU study (Control cohort, clinical trial NCT01367093) was approved by the institutional review board (board CPP-Ile-de-France IV, IRB n°00003835 and Commission d'éthique biomédicale hospitalo-facultaire de l'hôpital de Louvain, IRB n° B403201213352).

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