

Letter Regarding “Impact of the COVID-19 Pandemic on Training and Well-Being of Nephrology Residents in France and Belgium”

To the Editor: Since March 2020, nephrologists have faced challenges owing to COVID-19: in dialysis delivery, higher rates of acute kidney injury, and increased mortality in patients with concomitant COVID-19 and kidney dysfunction.¹ The impact of the pandemic on European nephrology residents’ emotional well-being and learning of theoretical knowledge and practical skills was not studied. This binational survey was created in May 2021 by the young Belgian and French nephrologists’ association (*Club des Jeunes Néphrologues*). Methods are detailed in the [Supplementary Methods](#).

Our study included 133 nephrology residents: 125 from France and 8 from French-speaking Belgium.

Participation was homogeneous on the territory and proportional to the cumulative hospitalization rate for COVID-19 ([Figure 1a](#)).

Survey results are presented in [Table 1](#). Of the respondents, 75.9% considered their theoretical training negatively affected. Concerning learnings, kidney biopsy was the most affected procedure (36.1% of unsatisfied participants), 66.2% of the residents felt that they had acquired new knowledge outside nephrology, and 66.9% had improved capacity in palliative care.

Concerning well-being, there was a significant negative impact on global morale (42.9%; [Figure 1b](#)) and work efficiency (48.9%), but with preserved happiness at work. The residents were rather worried on the health of their relatives (88.7%) than their own (43.8%). They were mostly able to find support from their colleagues and relatives.

Overall, French-speaking nephrology residents were heavily involved in the management of the COVID-19 crisis, because of their transversality, frequent implication in other specialties (notably intensive care unit), and long cursus,² with a significant impact on their mental health, theoretical learning, and practical knowledge of nephrology.

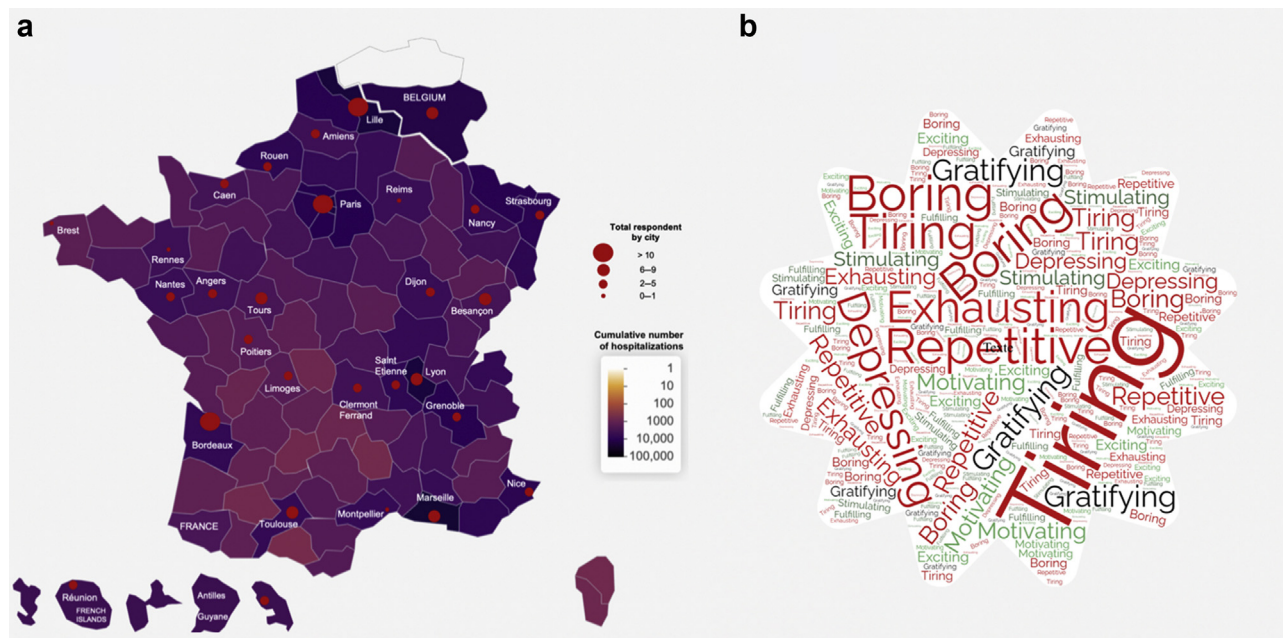


Figure 1. (a) Correlation between the number of participants in the survey and the cumulative number of hospitalizations for COVID-19. The colored areas reveal the cumulative number of hospitalizations from March 15, 2020, to May 1, 2021, by territorial department (France: national data SIVIC data.gouv.fr & Laboratoire Icube CHRU Strasbourg, Dr. Fabacher *et al.*/Belgium: national federal institute “Sciensano”), and the diameter of red dots is proportional to the number of participants. (b) Adjectives used by residents to characterize their work. Specific words used by residents to characterize the time-period, using the online software www.nuagedemots.fr revealing in visual form the frequency of the words used.

Table 1. Survey results

Respondent information	
Nephrology residents	<i>N</i> = 133
Age	27 ± 2
Country of origin	
France	125 (94.0)
Belgium	8 (6.0)
Sex, male	70 (53.6)
Validated residency semesters (6 mo)	5 ± 2
Practical training	
Assignment	
COVID-19 medicine department	69 (51.9)
Non-COVID-19 medicine department	105 (78.9)
COVID-19 intensive care unit	68 (51.1)
Non-COVID-19 intensive care unit	29 (21.8)
Other	11 (8.3)
% of time spent in COVID-19 unit	16.7 ± 28.9
Teaching of invasive procedures impacted:	
Venous catheter placement	23 (17.3)
Arterial catheter placement	22 (16.5)
Kidney biopsy	48 (36.1)
Salivary gland biopsy	29 (21.8)
Pleural puncture	26 (19.5)
Ascites puncture	30 (22.6)
Lumbar puncture	29 (21.8)
Better communication with:	
Medical teams	48 (36.1)
Paramedical teams	54 (40.6)
Other specialists	55 (41.4)
Patients	52 (39.1)
Patients' families	58 (43.6)
Better management of palliative support	89 (66.9)
Responsibilities	
Much less	5 (3.8)
Rather less	3 (2.3)
Same	79 (59.4)
Rather more	37 (27.8)
Much more	9 (6.8)
Less bedside teaching	64 (48.1)
Theoretical training	
Local theoretical formation negatively impacted	106 (79.7)
Regional or national theoretical formation negatively impacted	101 (75.9)
Online resources sufficient for training	
Not at all	43 (32.3)
A little	73 (54.9)
A lot	15 (11.3)
Extremely	2 (1.5)
Missing face-to-face format	
Not at all	8 (6.0)
A little	39 (29.3)
A lot	54 (40.6)
Extremely	32 (24.1)
Aspects of teaching impacted by videoconference format	
Interactivity	96 (72.1)
Exchanges with the teacher	80 (60.1)
Dynamism	79 (59.4)
Ability to focus	95 (71.4)
Regular bibliographic research about COVID-19	31 (23.3)
Less nephrology	74 (55.6)
Acquisitions of new knowledge (other than nephrology)	88 (66.2)
Mental health	

(Continued)

Table 1. (Continued) Survey results

Happiness at work	
Not at all	11 (8.3)
A little	55 (41.3)
A lot	64 (48.1)
Extremely	3 (2.3)
Estimated weekly work hours	61.5 ± 8.8
Words that best describe the past year	
Repetitive	99 (74.4)
Boring	43 (32.3)
Depressing	36 (27.1)
Tiring	69 (51.9)
Exhausting	37 (27.7)
Gratifying	25 (18.8)
Stimulating	17 (12.8)
Motivating	19 (14.3)
Fulfilling	4 (3.0)
Exciting	6 (4.5)
Negative impact on the moral	
Not at all	9 (6.7)
A little	31 (23.3)
A lot	57 (42.9)
Extremely	36 (27.1)
Negative impact on the efficiency at work	
Not at all	36 (27.1)
A little	65 (48.9)
A lot	25 (18.8)
Extremely	7 (5.3)
Worrying about its own health	
Not at all	72 (54.1)
A little	53 (39.8)
A lot	8 (6.0)
Extremely	0 (0.0)
Worrying about the health of its relatives	
Not at all	15 (11.3)
A little	64 (47.4)
A lot	49 (36.8)
Extremely	6 (4.5)
Support from colleagues	113 (85.0)
Support from relatives	120 (90.2)

The questions were organized in the following 4 categories: respondent information, theoretical training, practical training, and mental health (descriptive statistics).

American nephrology fellows perceived less impact on their education,³ but adaptation to online teaching technologies seemed better than in our study. Furthermore, 42% reported an alteration of their quality of life and 33% a poorer work-life balance.³

In a recent previous study, only 34.4% of French residents considered the teaching of kidney biopsy to have been sufficient during their residency,⁴ and it therefore seems to worsen with the crisis.

This study alerts to the negative impact of the pandemic on the training of nephrology residents. Despite a significant increase in the physician's workload,⁵¹ maintaining quality training for their young colleagues must remain a priority.

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AUTHOR CONTRIBUTIONS

Design: VM, MB, ASG, CL, and AH.

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Writing (editing): ASG, CL, AB, AH, and MB.

Supervision: MB.

All authors approved the final version of the manuscript.

SUPPLEMENTARY MATERIAL

[Supplementary File \(PDF\)](#)

[Supplementary Methods.](#)

[Supplementary Reference.](#)

[STROBE Statement \(PDF\).](#)

1. Bruchfeld A. The COVID-19 pandemic: consequences for nephrology. *Nat Rev Nephrol.* 2021;17:81–82. <https://doi.org/10.1038/s41581-020-00381-4>
2. Lohéac C, Maisons V, Bureau C, Bertocchio JP. Amending of the 3rd cycle of medical studies in France: what the nephrologists stand for. Article in French. *Nephrol Ther.* 2020;16:50–58. <https://doi.org/10.1016/j.nephro.2019.06.002>
3. Pivert KA, Boyle SM, Halbach SM, et al. Impact of the COVID-19 pandemic on nephrology fellow training and well-being in the United States: a national survey. *J Am Soc*

Nephrol. 2021;32:1236–1248. <https://doi.org/10.1681/ASN.2020111636>

4. Bobot M, Maisons V, Chopinet S, et al. National survey of invasive procedural training for nephrology fellows and residents in France: from bedside mentoring to simulation-based teaching. *Clin Kidney J.* 2021;14:445–447. <https://doi.org/10.1093/ckj/sfaa111>

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