

Perception of Nursing Teachers Regarding The Effect of Covid-19 On Clinical Training at Government Nursing College - Khartoum State - Sudan (2022)

¹Mohammed Khalid Hussein Khalid, ²Mahassin Almahi Balla Fadilalla

¹Assistant Professor of MSN, Department of Nursing, College of Nursing and Health Science Technology, Karary University, Sudan, ²Assistant Professor in Medical-Surgical Nursing, Department of Nursing, College of Nursing and Health Science, Jazan University, KSA.

How to cite this article: Mohammed Khalid Hussein Khalid, Mahassin Almahi Balla Fadilalla. Perception of Nursing Teachers Regarding The Effect of Covid-19 On Clinical Training at Government Nursing College - Khartoum State - Sudan (2022). International Journal of Nursing Education / Vol 17 No 2 April-June 2025

Abstract

Background: COVID-19 has impacted the nursing education system worldwide, especially clinical practicum for teachers and learners. To solve this problem, courses in nursing schools across the globe, including those in Khartoum, had to close their doors and meet the World Health Organization and the local guidelines for safety and continuity of Education during the pandemic.

Objective: This research seeks to establish the effect of COVID-19 on the delivery of clinical nursing education in the Khartoum government nursing colleges.

Methodology: A cross-sectional analytical study design was used, and the study's participants comprised only 27 medical-surgical nursing teachers at the governmental nursing colleges in Khartoum. Data was collected using a self-administered online questionnaire created using Google Forms. The data was analyzed using the Statistical Package for Social Services (SPSS) Version 26. Frequency and relationship analyses were estimated using descriptive statistics and non-parametric and chi-square tests.

Results: The study observed that COVID-19 had an adverse effect on the clinical exposure of nursing students, whereas teachers and students were also affected negatively. Teachers were highly concerned about getting infected during clinical training, though a significant association existed between concern about infection and teaching experience.

Conclusion: Accordingly, this study finds that COVID-19 disrupted clinical practices for nursing students in Khartoum. Virtual simulations and hybrid models should be used in future pandemics to prevent discontinuity and decline in the quality of nursing education programs.

Keywords: COVID-19 Pandemic, Nursing Education, Clinical Training, Khartoum Nursing Colleges, Health care Education, Online Education.

Corresponding Author: Mohammed Khalid Hussein Khalid.

E-mail: Dr.mohammedkhalidhuseinkhalid@outlook.com

Submission: Jan 24, 2025

Revision: Feb 25, 2025

Published date: May 29, 2025

Introduction

COVID-19 was first detected in December 2019 in Wuhan, Hubei Province, China; the virus causes the disease and features pneumonia-like symptoms. It grew out of proportion and affected the whole world. On March 11, 2020, in response to the outbreak of COVID-19, the World Health Organization (WHO) made it a world health emergency⁽¹⁾. COVID-19 infected over 34.3 million people across the world by October 2, 2020, and officially killed over 1 million people, whereas it affected over 180 countries^(2, 3). COVID-19 has impacted almost all sectors of everyone's life, especially healthcare facilities and medical Education, forcing institutions to adopt an unconventional system of teaching⁽⁴⁾.

New threats that came with COVID-19 infection and transmission made it difficult for medical and nursing students to follow the regular teaching model of lectures and patient-centered clinical experiences⁽⁵⁾. Nursing education, in particular, encountered several challenges, as more than 50% of the delivery exposes students to clinical practical content⁽⁵⁾. The lockdowns and social distancing measures limited students' access to clinical wards or restricted it to specific simulation exam formats, reducing the time dedicated to knowledge transmission and teaching fundamental behavioral and clinical skills⁽⁶⁾. As a result, nursing schools globally adopted other learning approaches, such as electronic learning, virtual reality, and simulation, to address the clinical practice void⁽⁷⁾.

In Sudan, like other countries, the pandemic slowed down medical schools, including government nursing colleges, and escalated the difficulties of offering quality clinical education. Students and faculty find it challenging to adapt to sudden changes in the environment, and many students complain about the lack of simulation equipment and little or no access to actual patients.⁽⁸⁾

Since clinical practice training is a significant training model in nursing education and the COVID-19 pandemic had a massive influence, it is crucial to undertake a comprehensive review of the problems experienced by educators and

learners⁽⁹⁾. This would allow for determining the direct impacts of the pandemic on clinical training in nursing, assessing different transitional approaches used during this period, and indicating key recommendations for enhancing the future readiness of nursing educational systems^(10, 11).

This research aims to evaluate the effects of COVID-19 on clinical training in government nursing colleges in Khartoum State in 2022. More specifically, it seeks to examine the extent of the impact of COVID-19 on the performance of nursing educators, determine the performance of nursing students during the pandemic, analyze the influence of the pandemic on clinical training courses, and assess the alternative approaches that have been used in offering clinical training during the current circumstances.

Methodology

Research Design

This study applied a descriptive cross-sectional research design to assess the effects of COVID-19 on clinical nursing education in the government nursing colleges in Khartoum State-Sudan. Data was obtained from 20 participants of medical-surgical nursing educators at Karary University, Khartoum University, Nilein University Islamic University, Bahri University, and Al-Zaeim University. The primary research site for this study was Karary University, a public university founded in 1996 and supported by the Ministry of Higher Education & Scientific Research.

Data Collection

A close-ended questionnaire structured by the researcher and pre-tested by a supervisor was used in this study. The survey was conducted online using Google Forms to reach the participants during the pandemic restrictions. The sampling technique used was total coverage, and the research involved 27 nursing educators.

Data Analysis

Data was analyzed using Statistical Package for Social Sciences (SPSS) Version 26. Therefore,

non-parametric tests were used, and chi-square tests were used to establish the correlation between participants' responses and demographic data. Descriptive findings were summarized in tables and figures.

Ethical Consideration

Given the delicate nature of the financial information, ethical measures were implemented to guard participant identification. Every participant provided their informed permission, and all the organizational data was anonymized to guarantee their anonymity, thereby safeguarding their privacy. Furthermore, the relevant research complies with the ethical principles for research ethics on projects involving human participants.

Results

1. Demographic Characteristics of Nursing Educators:

The study targeted several qualified educators in Khartoum's governmental nursing colleges.

Hence, the sample size of 27 nursing educators was calculated. The study is reliable and relevant because, despite its size, the sample offers insightful opinions from seasoned teachers (Table 1).

Table 1. Demographic and Professional Characteristics of Participants (n = 27)

| sociodemographic data | | Frequency | Percent |
|-------------------------|--------------|-----------|---------|
| Age | less than 25 | 1 | 3.7 |
| | 26 -31 | 8 | 29.6 |
| | 32-37 | 9 | 33.3 |
| | more than 38 | 9 | 33.3 |
| Education qualification | B.Sc. | 1 | 3.7 |
| | M.Sc. | 16 | 59.3 |
| | PHD | 10 | 37.0 |
| Experience | 1-3 | 4 | 14.8 |
| | 4-6 | 5 | 18.5 |
| | 7-10 | 9 | 33.3 |
| | more than 10 | 9 | 33.3 |

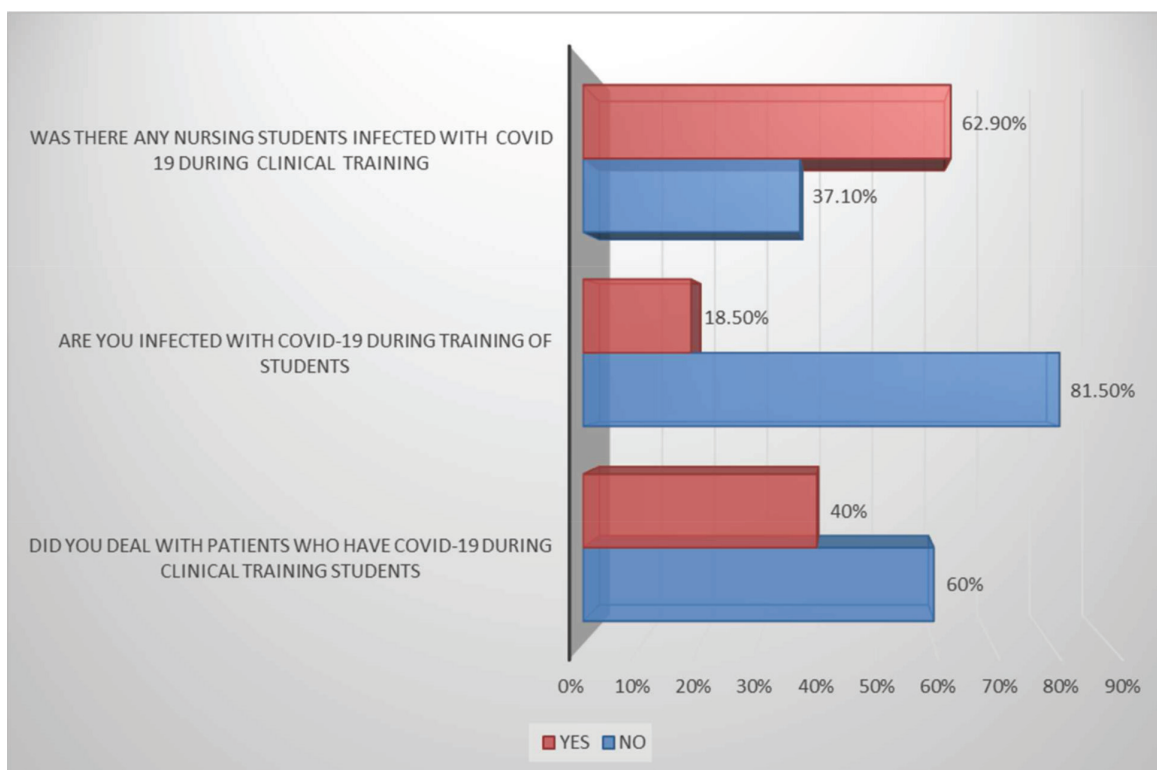


Figure 1: COVID-19 Exposure and Infection during Clinical Training

2. COVID-19 Impact on Teacher's Performance

The participants' level of agreement was relatively high; the number one fear was getting infected, scoring a mean of 1.74 (SD = 0.71). The students strongly agreed that there were increased absences, with a mean score of 2.52 (SD = 1.48) and decreased motivation, with a mean of 2.44 (SD = 1.45), as shown in **Table 2**.

Table 2. Impact of COVID-19 on Nursing Educators' Performance (n = 27)

| | Mean | Std. Deviation | Overall response |
|---|--------|----------------|------------------|
| Effect of covid-19 on teachers performance | | | |
| fear of being infected with COVID-19 during clinical training of nursing students | 1.7407 | .71213 | agree |
| increase the number of absences of teachers in clinical training | 2.5185 | 1.47727 | Strongly agree |
| decrease motivation in clinical training | 2.4444 | 1.45002 | Strongly agree |

3. COVID-19 Impact on Students' Performance

To analyze the impact of COVID-19 on nursing students' performance, Participants agreed that the pandemic influenced students' stress levels positively by mean = 1.59, SD = 0.84, more absenteeism during clinical training by mean = 1.63, SD = 0.88, delayed graduation timelines by mean = 1.56, SD = 0.89 and academic results by mean (**Table 3**).

Table 3. Impact of COVID-19 on Nursing Students' Performance

| Effect of COVID-19 on students' performance | Mean | Std. Deviation | Overall response |
|---|--------|----------------|------------------|
| the performance of clinical training during COVID-19 increases the stress on students | 1.5926 | .84395 | Strongly agree |

Continue....

| | | | |
|--|--------|---------|----------------|
| the number of absences of the students increase in clinical training | 1.6296 | .88353 | Strongly agree |
| COVID-19 delays the time of graduation students | 1.5556 | .89156 | Strongly agree |
| the COVID-19 affects the grades of students | 2.2593 | 1.34715 | Strongly agree |

4. COVID-19 impact on clinical training course

COVID-19 had implications for clinical training courses. Participants firmly disagreed that the training period was adequate and the course aims and goals were met (mean = 3.04; SD = 1.48) and disagreeable mean = 3.44; SD = 1.12). The reaction to the statement of having an adequate number of patients for training purposes was another set of neutral responses (mean = 3.33, SD = 1.07), as shown in **Table 4**.

Table 4. Impact of COVID-19 on clinical training course

| Effect of COVID-19 on clinical training course | Mean | Std. Deviation | Overall response |
|--|--------|----------------|-------------------|
| the period of the clinical training course was enough | 3.0370 | 1.48016 | Strongly disagree |
| There is the appropriate number of patients for clinical training | 3.3333 | 1.07417 | neutral |
| The objective of the clinical training course during COVID-19 was achieved | 3.4444 | 1.12090 | disagree |

5. Alternate methods for clinical training

These paradigmatic shifts to patient care include using many other approaches to clinical training during COVID-19. Participants also agreed to use skills labs (mean = 1.37, SD = 0.49) and reduce hospital training times (mean = 1.70,

SD = 0.99). Putting off clinical training (mean = 2.44, SD = 1.45) and stopping the hospital training (mean = 2.00, SD = 1.21) were also reported. (Table 5)

Table 5. An alternative method used for clinical training of students

| An alternative method used for clinical training of students: | Mean | Std. Deviation | Overall response |
|---|--------|----------------|------------------|
| Training students in the skills lab | 1.3704 | .49210 | Strongly agree |
| Decrease the period of training students in hospital | 1.7037 | .99285 | Strongly agree |
| Postponed the time of clinical training of students | 2.4444 | 1.45002 | Strongly agree |
| Stop clinical training of students in hospital | 2.0000 | 1.20894 | Strongly agree |

6. Demographics and Fear of COVID-19 Infection

A positive, moderate, and significant correlation between teaching experience and perceived risk of contracting COVID-19 during clinical practice ($t = 4.46$, $p = 0.001$) revealed that the more senior the teacher, the higher the perceived risk of COVID-19 infection. It was further observed that there were no correlations between the patient's age and the disease duration ($p = 0.07$) or education level ($p = 0.07$), as illustrated in Table 6.

Table 6. Association between Demographic characteristics and Teachers' responses on the impact of COVID-19 on Clinical Education

| fear of being infected with COVID-19 during clinical training of nursing students | Demographic characteristic | p-value |
|---|----------------------------|----------------|
| | age | P-value (.07) |
| | Experience | P-value (.001) |
| | Educational Qualification | P-value (.07) |

Discussion

This paper aims to reveal the emergent risks, anxiety, and disruptions of clinical training experienced by nursing educators and students enrolled in the Khartoum government nursing colleges during the COVID-19 pandemic⁽¹²⁾. Consequently, the research results shed light on various ways COVID affected nursing education and enlighten the aspects that need to be addressed or enhanced.

Regarding age, 33.3% of the nursing educators in the study fell under 32-37 years while 33.3% were more than 40 years of age⁽¹³⁾. These age groups are considered to be at a higher risk of COVID-19 morbidity and mortality because infection with the virus tends to be more severe in older adults. Therefore, there is a need to employ more significant protective measures when implementing this new system⁽¹⁴⁾.

The academic qualification of the educators revealed that 59.3% possessed a master's degree in nursing, while 37% possessed a PhD⁽¹⁵⁾. These figures show that academic professionals in the teaching staff are at a high level and essential for curriculum implementation and change during emergencies.

The study also highlighted that 56.5% of the educators observed nursing students get infected with COVID-19 during the interphase of clinical training, out of which 62.9% of the educators claimed nursing students were infected while training in clinical facilities⁽¹⁷⁾. This paper directly captures the challenges of clinical training in a pandemic learning environment since students have to engage with the patients as part of their practice, and they are bound to come across patients who may be favorable for COVID-19⁽¹⁸⁾. The possibility of passing the virus to family members and other loved ones also reinforces this anxiety, making teaching and even learning very difficult for both teachers and learners⁽¹⁹⁾.

The dangers to the educators were also apparent, as 18.5% of tutors mentioned that they contracted COVID-19 while undertaking clinical practice. This statistic highlights the direct threat to hospital educators, especially during a pandemic. Infection

among educators is detrimental to their health and impacts the delivery of Education because of the many cases of teacher absenteeism⁽²⁰⁾.

Another issue noted in the study was the challenging Burden on educators, especially with 40% being forced to work as COVID-19 caretakers during the pandemic. Infection controls during the pandemic were scarce during the study period, and even the essential workers barely had enough personal protective equipment (PPEs)⁽²¹⁾. The lack of PPE exposure added to the challenges experienced by educators and students as basic precautionary measures like wearing face masks were ineffective in high-risk areas of hospitals.

According to the study findings, COVID-19 reduced teaching performance by impacting how educators teach; hence, it had a negative influence. The mean response scores of 1.7, 2.5, and 2.44 proved that educators agreed that the pandemic hurt teaching performance. This result supports other studies in countries like Ethiopia, where Anguso et al., (2021) revealed that 59.9% of nursing educators believed COVID-19 negatively affected clinical learning⁽²²⁾.

COVID-19 was also evaluated regarding its effects on student performance, and the results were negative⁽²³⁾. It is worth pointing out that all mean response scores are >1.5, where educators agreed that the pandemic negatively impacted students' Clinical Education. Clinical practice is the most essential requirement of nursing education because it helps students learn practical lessons expected of them⁽²⁴⁾. However, the pandemic upset this crucial learning segment; numerous students could not accomplish the training or attain the goal set by their clinical courses.

The challenges in clinical training were further amplified by the realization that the duration of the clinical training courses was inadequate during the pandemic. The respondents stated that the goals of clinical training courses are unfulfilled, insinuating that students fail to learn and equally acquire clinical skills⁽²⁵⁾. These findings emphasize the importance of better ideas to maintain and enhance clinical Education during crises.

Conclusion

This study finds that the COVID-19 pandemic negatively affected the government college nursing education in Khartoum state regarding teachers' performance, students' performance, and clinical practicum. Teachers were at a higher risk of stress and disruption of personal training, and the students received fewer practical sessions, thereby having poor learning outcomes and developing expertise. Duties of clinical training courses were reduced, and all-important goals were not achieved, which proves the presence of several deficiencies in practical knowledge⁽²⁶⁾. It is concluded that there is a desperate need for strategies, enhancing safety measures, and courses of action to sustain and improve the quality of nursing education in the face of future health emergencies and their long-term repercussions.

Limitations of Study

Despite the useful information supplied by this study, significant limitations should be acknowledged:

1. **Small Sample Size:** The study only included 27 nursing educators, which limits how broadly the results can be applied to other nursing faculty members. A larger sample might improve the results' robustness.
2. **Limited Geographic Scope:** The research used only government nursing schools in Khartoum, Sudan. As a result, the results could not accurately reflect teachers' experiences working in private schools or other areas with distinct educational and healthcare systems.
3. **Online Data Collection:** A self-administered online questionnaire was used to collect the data, which might have resulted in response bias. The accuracy of the data may have been affected by variables like restricted interaction, internet accessibility, and the potential for socially acceptable answers.
4. **Cross-Sectional Design:** Data was collected simultaneously using a cross-sectional approach. This approach's inability to analyze

changes over time restricts the capacity to evaluate the COVID-19 pandemic's long-term effects on clinical training.

5. **Lack of Student Views:** The study did not include direct feedback from nursing students; instead, it only looked at the opinions of educators. Students' opinions could offer a more thorough assessment of the impact because disruptions to their clinical training directly impacted them.
6. **Potential Selection and Response Bias:** A non-random sample of respondents may have been obtained because participation was voluntary. Teachers who faced major difficulties during the epidemic would have been more inclined to participate, which could have skewed the results in favor of more negative conclusions.

Funding Sources: This research received no external funding.

Conflict of interest: none

References

1. Pavlichenko B. Economic impact of COVID-19 pandemic measures on functioning of the enterprises from the selected branches in Poland. *Humanities and Social Sciences*. 2021;29(44):29-31.
2. Levenson M. Scale of China's Wuhan shutdown is believed to be without precedent. *The New York Times*. 2020;2.
3. Sáfrán AK. Spinning plates. 2022.
4. Woolliscroft JO. Innovation in response to the COVID-19 pandemic crisis. *Academic medicine*. 2020;95(8):1140-2.
5. Sklar DP. COVID-19: lessons from the disaster that can improve health professions education. *Academic Medicine*. 2020;95(11):1631-3.
6. Calhoun KE, Yale LA, Whipple ME, Allen SM, Wood DE, Tatum RP. The impact of COVID-19 on medical student surgical education: implementing extreme pandemic response measures in a widely distributed surgical clerkship experience. *The American Journal of Surgery*. 2020;220(1):44-7.
7. Akers A, Blough C, Iyer MS. COVID-19 implications on clinical clerkships and the residency application process for medical students. *Cureus*. 2020;12(4).
8. Khasawneh AI, Humeidan AA, Alsulaiman JW, Bloukh S, Ramadan M, Al-Shatanawi TN, et al. Medical students and COVID-19: knowledge, attitudes, and precautionary measures. A descriptive study from Jordan. *Frontiers in public health*. 2020;8:253.
9. Rose S. Medical student education in the time of COVID-19. *Jama*. 2020;323(21):2131-2.
10. Dewart G, Corcoran L, Thirsk L, Petrovic K. Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse education today*. 2020;92:104471.
11. Jackson D, Bradbury-Jones C, Baptiste D, Gelling L, Morin K, Neville S, et al. Life in the pandemic: Some reflections on nursing in the context of COVID-19. *Journal of clinical nursing*. 2020;29(13-14):2041.
12. Al Mahdi TAS. Preparedness of Sudanese medical students for COVID-19 challenge: Knowledge, perceptions, and readiness to participate in the campaign against the disease. Performance of GeneXpert test compared to conventional methods in diagnosis of childhood tuberculosis in Khartoum, Sudan. 27.
13. Mwikali M, Salim N, Sylvester I, Munubhi E. Nurses' knowledge, perceived challenges, and recommended solutions regarding premature infant care: A mixed method study in the referral and tertiary hospitals in Dar es salaam, Tanzania. *PLoS one*. 2023;18(3):e0281200.
14. Bank W. The COVID-19 pandemic: Shocks to education and policy responses: World Bank; 2020.
15. Hickey KT, Taylor JY, Barr TL, Hauser NR, Jia H, Riga TC, et al. Nursing genetics and genomics: The International Society of Nurses in Genetics (ISONG) survey. *Nurse education today*. 2018;63:12-7.
16. Shanafelt T, Ripp J, Trockel M. Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *Jama*. 2020;323(21):2133-4.
17. Dhindayal S, Letsoalo MP, Gengiah TN. Mental health outcomes and workplace quality of life among South African pharmacists during the COVID-19 pandemic: a cross-sectional study. *Journal of Pharmaceutical Policy and Practice*. 2022;15(1):66.
18. Hayat AA, Keshavarzi MH, Zare S, Bazrafcan L, Rezaee R, Faghihi SA, et al. Challenges and opportunities from the COVID-19 pandemic in medical education: a qualitative study. *BMC Medical Education*. 2021;21(1):247.
19. Bozkurt A, Jung I, Xiao J, Vladimirsch V, Schuwer R, Egorov G, et al. A global outlook to the interruption of education due to COVID-19 pandemic: Navigating

- in a time of uncertainty and crisis. *Asian Journal of Distance Education*. 2020;15(1):1-126.
20. Mohammed AO, Khidhir BA, Nazeer A, Vijayan VJ. Emergency remote teaching during Coronavirus pandemic: the current trend and future directive at Middle East College Oman. *Innovative Infrastructure Solutions*. 2020;5:1-11.
 21. Morris H, Murray R. Healthcare, hygiene, and personal protective equipment (PPE). *Medical Textiles: CRC Press*; 2021. p. 261-310.
 22. Angasu K, Bekela T, Gelan M, Wakjira D, Melkamu E, Belachew B, et al. Covid-19's negative impacts on clinical learning and proposed compensation mechanisms among undergraduate midwifery and nursing students of Jimma University. *Advances in Medical Education and Practice*. 2021:1411-7.
 23. Gonzalez T, De la Rubia MA, Hincz KP, Comas-Lopez M, Subirats L, Fort S, et al. Influence of COVID-19 confinement on students' performance in higher education. *PloS one*. 2020;15(10):e0239490.
 24. Ferri P, Stifani S, Morotti E, Alberti S, Vannini V, Di Lorenzo R, et al. Nursing students' evaluation of clinical learning environment and supervision models before and during the COVID-19 pandemic: a comparative study. *Acta Bio Medica: Atenei Parmensis*. 2023;94(6).
 25. Gordon M, Patricio M, Horne L, Muston A, Alston SR, Pammi M, et al. Developments in medical education in response to the COVID-19 pandemic: a rapid BEME systematic review: BEME Guide No. 63. *Medical teacher*. 2020;42(11):1202-15.
 26. Noll G. Value Perceptions Of Basic Clinical Laboratory Assistant Training With Certification. 2021.
 27. Motte-Signoret E, Labbé A, Benoist G, Linglart A, Gajdos V, Lapillonne A. Perception of medical education by learners and teachers during the COVID-19 pandemic: a cross-sectional survey of online teaching. *Medical education online*. 2021;26(1):1919042.
 28. Askim J, Christensen T. Crisis decision-making inside the core executive: Rationality, bureaucratic politics, standard procedures and the COVID-19 lockdown. *Public Policy and Administration*. 2022:09520767221129676.