

PERMANENT EDUCATION FOR HEALTH MANAGERS IN THE COVID-19 PANDEMIC: SCOPE REVIEW

EDUCAÇÃO PERMANENTE PARA GESTORES DE SAÚDE NA PANDEMIA COVID-19: REVISÃO DE ESCOPO

EDUCACIÓN PERMANENTE PARA GESTORES DE SALUD EN LA PANDEMIA COVID-19: REVISIÓN DE ALCANCE

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Objective: to identify documentary evidence on permanent education actions for health managers arising from the information, decision and action needs triggered by the COVID-19 pandemic. Method: Scoping Review according to Joanna Briggs Institute, between December 2019 and July 2022. Results: 11 studies were selected, classified based on the categories proposed in the *Health workforce policy and management in the context of the COVID-19 pandemic response*, published by the World Health Organization/ Pan American Health Organization. The most observed category was Interventions to support health professionals at the individual level. No studies were found with interventions focused on the organizational environment. Final considerations: there was a positive impact of permanent education actions on the improvement of the well-being of health professionals, on the adequate facing of clinical challenges and on the optimization of the care provided to patients during the pandemic.

Descriptors: Health Manager. Public Health. Education, Continuing. COVID-19.

Objetivo: identificar evidências documentais sobre ações de educação permanente para gestores de saúde decorrentes das necessidades de informação, decisão e ação desencadeadas pela pandemia COVID-19. Método: realizado Scoping Review segundo Joanna Briggs Institute, entre dezembro de 2019 e julho de 2022. Resultados: foram selecionados 11 estudos, classificados com base nas categorias propostas na Política e gestão da força de trabalho em saúde no contexto da resposta à pandemia da COVID-19, publicada pela Organização Mundial da Saúde/Organização Pan-Americana da Saúde. A categoria mais observada foi Intervenções para apoiar os profissionais de saúde no nível

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individual. Não foram encontrados estudos com intervenções voltadas ao ambiente organizacional. Considerações finais: evidenciou-se impacto positivo das ações de educação permanente na melhoria do bem-estar dos profissionais de saúde, no enfrentamento adequado dos desafios clínicos e na otimização do cuidado prestado aos pacientes durante a pandemia.

Descritores: Gestor de Saúde. Saúde Pública. Educação Continuada. COVID-19.

Objetivo: identificar evidencias documentales sobre acciones de educación permanente para gestores de salud derivadas de las necesidades de información, decisión y acción desencadenadas por la pandemia COVID-19. Método: realizado Scoping Review según Joanna Briggs Institute, entre diciembre de 2019 y julio de 2022. Resultados: se seleccionaron 11 estudios, clasificados en base a las categorías propuestas en la Política y gestión de la fuerza de trabajo en salud en el contexto de la respuesta a la pandemia de COVID-19, publicada por la Organización Mundial de la Salud/Organización Panamericana de la Salud. La categoría más observada fue Intervenciones para apoyar a los profesionales de la salud a nivel individual. No se encontraron estudios con intervenciones dirigidas al ambiente organizacional. Consideraciones finales: se evidenció impacto positivo de las acciones de educación permanente en la mejora del bienestar de los profesionales de salud, en el afrontamiento adecuado de los desafíos clínicos y en la optimización del cuidado prestado a los pacientes durante la pandemia.

Descriptorios: Gestor de Salud. Salud Pública. Educación Continua. COVID-19.

Introduction

The pandemic scenario has imposed important difficulties on health systems, such as the need to balance the provision of services in the management of COVID-19. The speed of advances associated with knowledge about the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), required permanent updating of managers, in order to develop strategic planning and ensure the functioning of health systems⁽¹⁾.

The health manager has the responsibility of managing the financial, logistical and sanitary resources and the workforce of a health system or organization. It is the professional who exercises decision-making, influences and accounts for the internal processes of different institutions, such as hospitals, clinics, health centers, government health agencies and other institutions related to the sector⁽²⁻³⁾.

In this sense, the health manager plays a fundamental role in the efficient conduct of a health system or organization, according to their respective approaches, such as public, private or philanthropic management, each with its specific particularities and challenges. To do so, he/she must possess leadership skills, strategic planning capacity and decision-making skills that positively impact quality and access to health services⁽²⁻³⁾.

To perform this function, managers need to improve their knowledge for practical applicability, which usually occurs through educational actions⁽⁴⁾. Constant educational processes, in the logic of Permanent Health Education (PHE), enable these professionals to develop effective strategic planning, which incorporates the understanding of the needs of the population, the work processes involved and the resources made available⁽²⁾.

PHE was founded in the 1980s by the Pan American Health Organization (PAHO), with the purpose of changing the work process of health teams, based on their needs and previous knowledge⁽⁵⁾. In Brazil, in 2004, the National Policy for Permanent Health Education (NPPHE) was established with the objective of transforming practices at work, promoting teamwork, focusing on promotion, humanization and resolution for individual and collective care⁽⁶⁻⁷⁾. In this perspective, PHE followed in its guiding role in the face of the health crisis caused by COVID-19, with its own teaching-learning methodology, being inserted in the daily life of professionals and also of health managers as a foundation for the direction and construction of knowledge in the team⁽⁷⁾.

PHE, as a systematic and global strategy, can encompass in its process several specific

educational actions. Training is one of the most used strategies for the development of institutional skills, through the development of individual skills, corresponding to intentional and planned actions, whose mission is to strengthen knowledge, skills, attitudes and practices. Such educational actions may include face-to-face and distance learning courses, in-service learning and discussion groups⁽⁸⁾.

Faced with the pandemic, the World Health Organization (WHO) and the Pan American Health Organization prepared the document *Health workforce policy and management in the context of the COVID-19 pandemic response* guiding the actions of health policy makers and managers responsible for planning, recruiting, training, provisioning, deploying, protecting and managing the health workforce. This document was subdivided into five categories of support: interventions to support health professionals at the individual level; interventions to empower and optimize the role of health professionals; interventions aimed at the organizational environment; interventions directed to health workforce enablers across the system; favorable environment⁽¹⁾.

In times of the COVID-19 pandemic, adequate, reliable and timely evidence-based information becomes even more relevant. The production and synthesis of knowledge made available in a timely manner to those who are in the first line of coping with COVID-19 is a basic requirement to improve the responsiveness, as well as strengthening and increasing investments for the production of scientific evidence⁽⁹⁾.

Given the above, this study is justified by the urgency of planning, management and preservation of the workforce necessary for the management of pandemics with maintenance of essential health services. Given that other reviews on the subject are not in progress or have not yet been adequately explored, there is a need to fill this important knowledge gap in this specific area. Thus, the COVID-19 pandemic represented an unprecedented challenge for health managers, requiring the rapid implementation of effective management strategies adapted to the emergency context. The

contributions intended in this study are related to the identification of the main documentary evidence used, under the logic of PHE, to direct the performance of these professionals.

In this sense, the objective of this study was to identify documentary evidence on permanent education actions developed for health managers, arising from the information, decision and action needs triggered by COVID-19.

Method

This is a Scoping Review that follows the proposal of the Joanna Briggs Institute (JBI). This method seeks to map concepts and identify knowledge gaps in existing evidence focused on a given area⁽¹⁰⁾. The Checklist PRISMA Extension for Scoping Reviews (PRISMA ScR), which aims to provide guidance on the conduct and reporting of scope reviews, was used for the search and selection process of the studies in this review⁽¹¹⁾.

Preliminarily, the literature review was performed, which allowed the confirmation of the novelty of the research and the existence of significant literature for its development. This occurred through a refined search in the Cochrane Library prior to data collection. Thus, the studies found in this database did not participate in the selection of eligible studies.

Subsequently, a research question based on the Population, Concept and Context (PCC) strategy was developed for a Scoping Review⁽¹²⁾, thus defining the following: P - health managers; C - permanent educational actions; and C - COVID-19 pandemic, with a focus on management practice. Based on this strategy, the guiding question was established *What were the educational actions aimed at health managers arising from the information, decision and action needs triggered by COVID-19?*

The search strategy was developed together with a professional librarian from the Federal University of Paraná (UFPR) and conducted in three stages. Initially, a limited search was performed in the Virtual Health Library (VHL) to evaluate the keywords, descriptors and input terms used in the description of the articles. Then,

using the descriptors and keywords identified, searches were performed in the following electronic databases: CINAHL, Embase, Medline via PubMed and Scopus via EBSCO. Additionally, gray literature was searched on Google Scholar. Finally, to complement the search, the references of the selected articles were examined in order to identify studies that were not obtained in the original search strategy. No language restrictions were applied to the search.

Searches were conducted between December 2019 and July 2022. The initial search strategy

used was ('health manager') AND ('coronavirus disease 2019' OR 'covid 19') AND ('education, continuing'). For each database, the search strategy was adapted, as described in Chart 1. Studies were considered as opinion articles, reviews, case studies, quantitative and qualitative. The exclusion criteria adopted were publications that addressed academic or community health education, as well as those that did not detail permanent education actions carried out specifically for health managers.

Chart 1 – Search strategies used in the Virtual Health Library, CINAHL, Embase, Medline through Pubmed, Scopus through EBSCO and Gray Literature databases (continued)

Database	Search strategies
VHL	('health manager') AND ('coronavirus disease 2019' OR 'covid 19') AND ('education, continuing')
CINAHL	('health manager' OR (('health'/exp OR health) AND ('manager'/exp OR manager))) AND ('2019 novel coronavirus disease'/exp OR '2019 novel coronavirus disease' OR (2019 AND novel AND ('coronavirus'/exp OR coronavirus) AND ('disease'/exp OR disease))) OR ('interprofessional education'/exp OR 'interprofessional education' OR 'education, continuing' OR "capacity building" OR "training courses" OR "health human resource training")
Embase	('health manager' OR (('health'/exp OR health) AND ('manager'/exp OR manager))) AND ('2019 novel coronavirus disease'/exp OR '2019 novel coronavirus disease' OR (2019 AND novel AND ('coronavirus'/exp OR coronavirus) AND ('disease'/exp OR disease))) OR 'interprofessional education'/exp OR 'interprofessional education' OR 'education, continuing' OR 'capacity building' OR 'training courses' OR 'health human resource training')
Medline through PubMed	('health manager' OR (('health'/exp OR health) AND ('manager'/exp OR manager))) AND ('2019 novel coronavirus disease'/exp OR '2019 novel coronavirus disease' OR (2019 AND novel AND ('coronavirus'/exp OR coronavirus) AND ('disease'/exp OR disease))) OR ('interprofessional education'/exp OR 'interprofessional education' OR 'education, continuing' OR "capacity building" OR "training courses" OR "health human resource training")
Scopus through EBSCO	'health AND manager' OR 'health'/exp OR health AND 'manager'/exp OR manager AND '2019 AND novel AND coronavirus AND disease'/exp OR '2019 AND novel AND coronavirus AND disease' OR 2019 AND novel AND 'coronavirus'/exp OR coronavirus AND 'disease'/exp OR disease OR 'interprofessional AND education'/exp OR 'interprofessional AND education' OR 'education, AND continuing' OR "capacity building" OR "training courses" OR "health human resource training")

Chart 1 – Search strategies used in the Virtual Health Library, CINAHL, Embase, Medline through Pubmed, Scopus through EBSCO and Gray Literature databases (conclusion)

Database	Search strategies
Gray literature	('health manager' OR (('health'/exp OR health) AND ('manager'/exp OR manager))) AND ('2019 novel coronavirus disease'/exp OR '2019 novel coronavirus disease' OR (2019 AND novel AND ('coronavirus'/exp OR coronavirus) AND ('disease'/exp OR disease))) OR ('interprofessional education'/exp OR 'interprofessional education' OR 'education, continuing' OR "capacity building" OR "training courses" OR "health human resource training")

Source: created by the authors.

After performing the search in the databases and in the gray literature, a reviewer imported the identified records to the Mendeley Web Importer to manage the references and remove the duplicates. Titles and abstracts were analyzed according to the eligibility criteria for the research. The eligibility criteria corresponded to studies that addressed permanent education actions developed for health managers, arising from the information, decision and action needs, triggered by COVID-19. The complete texts of the selected studies were fully evaluated in order to compose the literature of this review.

Two reviewers independently extracted data from the publications and performed analysis of the studies blindly. In the event of disagreements between the two reviewers, an additional reviewer was invited to set the deadlock.

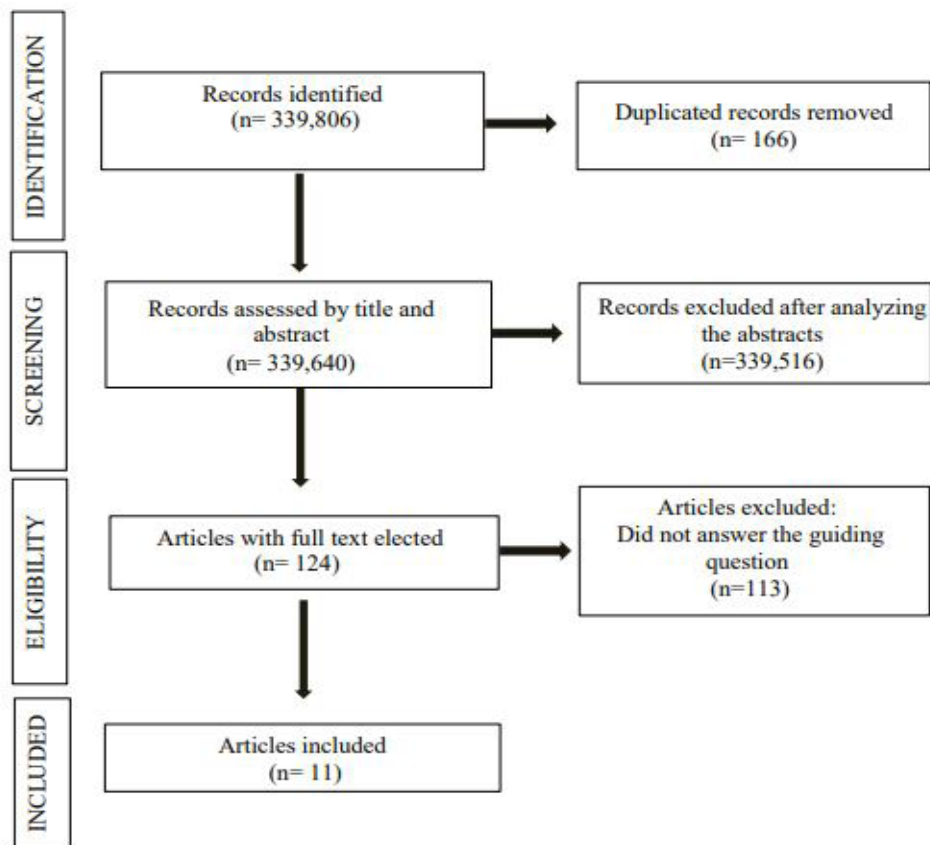
The data were extracted with the aid of an Excel table, from the Microsoft Office 365 operating system, in order to organize the findings relevant to the structuring and grouping of the literature. Among them: year, country, title, objective, type of study/approach and conclusion. The actions found were summarized and synthesized in a narrative way in a chart, and then classified, considering the five categories laid out in the document *Health Workforce*

Policy and Management in the Context of the COVID-19 Pandemic Response⁽¹⁾.

It is noteworthy that, although this research did not need the ethical assessment in committees to be developed, since the materials used are in the public domain and thus do not directly and indirectly involve human beings, this was developed under the methodological and ethical rigor required for health research.

Results

Of the 339,806 articles initially found in the searches, 339,640 remained after the removal of the duplicates and were submitted to the first reading by title and abstract. Subsequently, the abstracts of 339,516 articles were reviewed. Among them, 124 articles met the eligibility criteria and were selected for full analysis. Of these, 113 articles were excluded because they did not address permanent education actions aimed at health managers, related to information, decision and action needs during the COVID-19 pandemic. Thus, 11 articles were included in the sample of this review, because they meet the proposed objective and the eligibility criteria (Figure 1).

Figure 1 – Flowchart of the study selection process

Source: created by the authors.

The included articles refer to Africa (n=2), Canada (n=2), the United States (n=2), Australia (n=1), Brazil (n=1), Iran (n=1), Iceland (n=1) and Mexico (n=1). Among them, ten are in English

and one in Portuguese. Seven case studies and four experience reports were identified. As for the method used, ten studies were qualitative and one mixed, as presented in Chart 2.

Chart 2 – Studies selected according to year, country, title, objective and journal, type of study and conclusion

(continued)

Year/ Country	Title/Objective	Journal Type of study / approach	Conclusion
2020/ Brazil ⁽¹³⁾	Nursing Observatory: COVID-19 monitoring tool in nursing professionals/ To present the Nursing Observatory as an official communication vehicle of the Federal Nursing Council/ Regional Nursing Councils system, on the epidemiological situation of COVID-19 in Brazilian Nursing.	Enfermagem em Foco. Case study/ qualitative	Nursing Observatory represented a valuable collaboration by Cofen for monitoring and follow- up COVID-19 in Nursing professionals and contributed to reducing costs for the Cofen/Coren System, as a communication tool for the national and international media, national health agencies and international nursing professionals.

Chart 2 – Studies selected according to year, country, title, objective and journal, type of study and conclusion (continued)

Year/ Country	Title/Objective	Journal Type of study / approach	Conclusion
2020/ Iceland ⁽¹⁴⁾	How primary healthcare in Iceland swiftly changed its strategy in response to the COVID-19 pandemic/ To describe how Primary Health Care (PHC) in Iceland changed its strategy to deal with the COVID-19 pandemic.	BMJ Open. Case study/ qualitative	As the first point of contact in the COVID-19 pandemic, PHC in Iceland was able to quickly change its strategy, preserving traditional maternity and childcare, indicating a very solid PHC with great flexibility in its organization.
2021/ Australia ⁽¹⁵⁾	The COVID-19 System Shock Framework: Capturing Health System Innovation During the CovidD-19 Pandemic/ To systematically collect, collate and analyze evidence on the direct and indirect impact of COVID-19 on the functioning of the health system from a child health perspective.	Int J Health Policy Mana. Case study/ qualitative	Using the COVID-19 System Shock Framework (CSSF), it was demonstrated that the innovation capacity of the Sydney Children's Hospitals Network (SCHN) was fundamental to ensuring its resilience during the pandemic.
2022/ United States ⁽¹⁶⁾	The effect of a nurse manager's authentic leadership intervention on nurses' well-being: A single unit QI project/ To improve the quality of well-being in the nursing team	Nurs Forum. Case study / qualitative	The program taught nurse managers several strategies found in the literature that contributed to a positive work environment, promoted employee engagement and assisted nurses with resilience. Nurse managers must demonstrate authentic leadership skills such as trust, transparency, consistency, effective communication, and self-reflection.
2021/ Mexico ⁽¹⁷⁾	Educating health professionals about COVID-19 with ECHO telementoring/ To present the teleservice program of the Extension for Community Healthcare Outcomes (ECHO) Project at the University of New Mexico to support the updating of health professionals	American Journal of Infection Control. Case study/ Mixed	Due to the continuation of the pandemic and the strong participation of Office Hours ECHO, this weekly telementoring program may be a necessary educational forum for clinical and non-clinical healthcare professionals. This innovative COVID-19 telementoring program provided just-in-time evidence-based information to clinical and non-clinical healthcare professionals, amplifying the response by spreading their newly acquired knowledge to patients and colleagues.

Chart 2 – Studies selected according to year, country, title, objective and journal, type of study and conclusion

(continued)

Year/ Country	Title/Objective	Journal Type of study / approach	Conclusion
2021/ Canada ⁽¹⁸⁾	Describes the design, delivery, and evaluation of an Extension for Community Health Outcomes virtual educational program focused on COVID-19.	JMIR Mental Health. Case study/ qualitative	Increased confidence across all program core competencies shows that the ECHO model was an effective way to improve manager skills to support the mental health needs of people with intellectual and developmental disabilities.
2020/ United States ⁽¹⁹⁾	The four C's can help guide end-of-life challenges related to COVID-19/ To guide managers in the face of end-of-life challenges related to COVID-19	Case Management Monthly. Experience report/ not applicable	The four C's referred to the key areas that case managers need to focus on to ensure the best outcomes for everyone involved in end-of-life care.
2021/ South Africa ⁽²⁰⁾	African National Public Health Institutes Responses to COVID-19: Innovations, Systems Changes, and Challenges/ To describe the experiences of the National Public Health Institute (INSP) in Africa.	Health Security. Experience report/ not applicable	Creative uses of technology, including virtual training and drone messaging, have contributed to sharing information and combating misinformation. However, several challenges related to the lack of trained bioinformatics personnel remain amid advances in addressing the COVID-19 pandemic.
2021/ Canada ⁽²¹⁾	Health Professional Redeployment and Cross-Training in Response to the COVID-19 Pandemic/ To establish guidelines on the redeployment and cross-training of healthcare professionals.	Healthcare Quarterly. Experience report/ not applicable	The results were positive and led to recommendations to improve organizational readiness.
2022/ Iran ⁽²²⁾	Management Strategies During the COVID-19 Pandemic Crisis: The Experiences of Health Managers from Iran, Ardabil Province/ To improve the quality of well-being in the nursing team.	Disaster Med Public Health. Case study/ qualitative	In critical situations, managers used multiple strategies for decision-making and crisis control. Therefore, the health system can use the findings of the current study to adequately respond to similar crises and train future managers.

Chart 2 – Studies selected according to year, country, title, objective and journal, type of study and conclusion (conclusion)

Year/ Country	Title/Objective	Journal Type of study / approach	Conclusion
2022/ Zambia ⁽²³⁾	International capacity building via the “new norm” of virtual teaching and volunteering/Present the work carried out through Health Education England’s volunteer placement program, run by the Tropical Health and Education Trust (THET) initiative, in which United Kingdom doctors can volunteer in Africa.	British Journal of Nursing. Experience report/ not applicable	International health partnerships faced challenges in sustaining structure, maintaining awareness and the pace of activities. Given this, the hybrid format approach proved to be successful.

Source: created by the authors.

Among the studies selected in this review, most (eight) deal with educational actions implemented through virtual platforms aimed at managers and members of the health team. The other studies addressed this action in the hybrid format, composed of face-to-face and remote teaching (two), and face-to-face (one).

Regarding the educational actions described in the articles, the analysis of the published information was classified according to the categories set forth in the document *Health workforce policy and management in the context of the COVID-19 pandemic response*⁽¹⁾, described in Chart 3.

Chart 3 – Description of Permanent Health Education actions by category

(continued)

Category 1	Interventions to support healthcare professionals at the individual level
A1 ⁽¹³⁾	Technological system called Nursing Observatory. Features: electronic form, infection data, deaths of the Brazilian population and nursing professionals.
A2 ⁽¹⁴⁾	Educational actions with employees about the COVID-19 disease, use of personal protective equipment (PPE) and alternative management plans in hybrid work.
A3 ⁽¹⁵⁾	Educational actions originating from an Emergency Operations Center. Twice-weekly conference calls, Reviews of clinical documents and public policies, Infectious disease training, Education for potential redeployment of personnel across the service network, Remote education aimed at developing standard operating processes (SOPS) for emergency management.
A4 ⁽¹⁶⁾	Well-being program: website with resources for managers and nursing professionals, educational material to guide the implementation of strategies, assistance from the project manager in any task to support greater dedication of time to the program.
A5 ⁽¹⁷⁾	Extension for Community Healthcare Outcomes (ECHO) Ontario Adult Intellectual and Developmental Disabilities: Mental Health in the Time of COVID-19 (ECHO AIDD-COVID) virtual educational program.

Chart 3 – Description of Permanent Health Education actions by category

(conclusion)

Category 2	Interventions to empower and optimize the role of healthcare professionals
A6 ⁽¹⁸⁾	Weekly 1.5-hour sessions were held from April 17, 2020 to May 22, 2020 for 6 weeks. It included introductions, a mindfulness exercise led by the family counselor, Wellbeing Check-in, COVID-19 related research and policy updates, Didactic presentation based on the day's curriculum topic, and a case-based discussion in which a Participant (caregiver) presented an anonymous case from their practice, web-based ECHO AIDD-COVID Resource Portal with reference materials related to the ECHO program.
A7 ⁽¹⁹⁾	Continuing education developed by HCPro accredited American Nurses Credentialing Center's Commission on Accreditation, 150-minute course available every quarter (March, June, September, December) of 2020.
A8 ⁽²⁰⁾	Extension Platform for Community Healthcare Outcomes and Field Epidemiology and Laboratory Training Program (FELTPs) as a means of educating professionals in the public and private sectors.
Category 3	Interventions aimed at the organizational environment
A9 ⁽²¹⁾	Cross-training plan for coping consisting of 5 stages: 1) Realization of the scope of practice for the professions; 2) Professional regulatory faculties contacted to obtain disciplinary information; 3) Redistribution strategy developed based on a literature review, government dictates and adherence to the collaborative assistance team model; 4) Potential functions defined and trainers identified; 5) Established a team support strategy to ensure that the emotional needs of healthcare professionals were met, in order to ensure the well-being and resilience of the team (practice).
Category 4	Interventions targeting health workforce enablers across the system
A10 ⁽²²⁾	Cyberspace as a disseminator of instructions and guidance, between coordinators and managers, and training in epidemic management.
A11 ⁽²³⁾	Six-week senior clinical leadership program and lectures on kidney transplantation, resuscitation training for clinical nurse anesthetists and medical anesthetists; Neonatal life support training and a six-week skills program for registered nurses working in critical care.

Discussion

Of the five categories referenced, the results were obtained in four of them. There were no articles that addressed topics related to *Category 5 - Environment favorable to gender, equity and socioeconomic factors in the COVID-19 pandemic context*.

Category 1 – Interventions to support healthcare professionals at an individual level

These interventions, under the COVID-19 pandemic context, with actions aimed at the prevention and control of infection and mental health of health professionals⁽¹⁾, corresponded to the most observed category, in order to present

as one of the points of greatest concern of managers due to the high spread of the virus among the workforce. Therefore, given the possibility of collapse of the health system and the deficit in the number of professionals in several countries, educational actions aimed at preventing and controlling transmission in the health area were implemented⁽¹³⁻¹⁷⁾.

In Brazil, in March 2020, the Federal Nursing Council created the Crisis Management Committee, which culminated in the *Nursing Observatory* information system. Its purpose was to generate information on the progress of COVID-19 and the situation of nursing professionals in the country, with data analysis, processing and access to information, being a tool to support decision-making of managers during the health crisis⁽¹³⁾.

Information systems play a crucial role in managing the data and information required for management, with the speed required by the pandemic, and are essential to have evidence to act, make the best decisions possible and adapt policies that allow better intelligence in health actions. Properly disaggregated health data allow planning actions to reduce possible health inequalities at different levels of care, especially for people in vulnerable situations⁽²⁴⁾.

Regarding the public availability of data for health surveillance, it is understood that it is not only carried out by federal, state and municipal health departments and services, but also by several universities, research institutions, press and civil society in general. It becomes an instrument for monitoring the public good, directing actions and interventions, and technically assisting managers and decision makers. Therefore, access to data can contribute to reducing inequality in a country with continental dimensions, which can only be possible thanks to the structure of health information systems⁽²⁵⁾.

Monitoring systems, such as the *Monitoring COVID-19* initiative, aim to disseminate data about the pandemic with easy understanding, enabling the comparison of trends. In addition to data on coronavirus cases and deaths, the system allows the cross-checking of statistics with isolation measures and information related to traffic, laws and related decrees⁽²⁵⁾. The dissemination of timely and quality information contributes to coping with the pandemic, as well as combating the wave of disinformation and circulation of false news, a challenge that States continue to face for the advancement of vaccination in the population, the main protective measure against the disease⁽²⁶⁾.

The study conducted in Iceland, shortly after the information on the spread of COVID-19, pointed to the preparation for coping with the disease by adapting the *National Pandemic Response Plan*, developed prior to the outbreak. Its actions, aimed at containing the spread of the virus, included educational measures implemented by the Chief Epidemiologist of Iceland and the National Commissioner of the

Department of Civil Protection and Emergency Management of the Iceland Police⁽¹⁴⁾.

In Australia, in the face of the COVID-19 pandemic, rapid responses focused on management measures were developed effectively and achieved positive results with the crisis. This result came from the implementation of innovations that occurred in several sectors, including the hospital. The Sydney Children's Hospitals Network (SCHN), a provider of child health services in the southern hemisphere of the country, has implemented educational actions that have positively affected both the workforce and institutional governance⁽¹⁵⁾.

The mental health of health professionals was also a reason for improving managers' knowledge. Faced with work overload, situational anxiety and risk of infection for health professionals and their families, programs were developed in order to direct the actions of leaders and preserve the occupational capacity in the short and long term of these workers⁽¹⁵⁾.

Well-being is at the forefront of nursing leadership focus, given the impact of the COVID-19 pandemic. This is a case study⁽¹⁶⁾ of a university hospital in the United States that converged efforts to achieve the satisfaction of its professionals. In pursuit of this goal, nursing managers were submitted to the welfare program, implemented by the quality improvement (QI) project, aimed at creating a positive work environment, promoting employee engagement and assisting nurses with resilience, using educational actions to achieve positive results. The managers who developed the guidelines prescribed by the program were able to act in promoting the well-being of their employees. Moreover, they achieved professional recognition and effectiveness and/or awards within the national health system⁽¹⁶⁾.

The rampant increase in COVID-19 infections in 2020 highlighted the need to improve and strengthen the skills of professionals⁽¹⁷⁾. In this perspective, the Extension for Community Healthcare Outcomes program, a virtual education model widely used to empower and create virtual communities of practice, was

adapted for the care of people with intellectual and developmental disabilities in the pandemic context. This program incorporated teaching methodologies that reached professional care managers, such as doctors, nurses, and public and private organizations. This educational action has produced positive effects in the practice of caring for people with intellectual disabilities⁽¹⁷⁾.

The diversity of experiences and approaches in different countries, such as Iceland⁽¹⁴⁾ and Australia⁽¹⁵⁾, highlights the importance of learning from the strategies adopted in different contexts. The individualized approach and mental health care stood out as key points to preserve the health workforce and ensure an effective response to the crisis. Furthermore, the exchange of information and the adaptation of good practices were fundamental for health managers in coping with the pandemic.

Category 2 – Interventions to train and optimize the role of healthcare professionals

This category included documents related to the development of competencies and the optimization of necessary COVID-19 response functions⁽¹⁾. The planning of the response to the COVID-19 pandemic was elaborated based on competencies through educational actions. With the pandemic, health managers were included in educational projects through virtual platforms in order to achieve an effective response⁽¹⁸⁻²⁰⁾.

Through the needs of knowledge about transmission, protection against infection, management, treatment and control of infection caused by COVID-19, the ECHO Project emerged on March 23, 2020, to share the best information and practices among health professionals in different communities. The project consisted of an educational forum, which directed the actions of several professionals submitted to this teaching-learning process⁽¹⁸⁾.

In the state of Virginia, in the United States, a continuing education program was implemented to address the end-of-life challenges related to COVID-19. Its elaboration was based on the theory of Fink – Samnick, considering the four

C's, capacity, competence, confrontation and choice, as educational guides of the manager's practice. Capacity, according to the theory, seeks to ensure the participation and understanding of the patient and his/her family members' capacity in the care plan. Competence is linked to the certification of the patient's mental state for decision-making in relation to care. Coping was developed based on plans that support the patient's emotional needs, and the choice allows autonomy for family members and patients in the face of care planning⁽¹⁹⁾.

African countries have worked to improve preparedness for public health threats by investing in laboratory capacity and training public health professionals. To face the COVID-19 pandemic, National Public Health Institutes (NPHI) were developed, responsible for essential functions such as disease surveillance, response to outbreaks and emergencies, communication and health promotion and use of evidence to provide guidance for policies and programs. These institutes were composed of associations that acted as leaders of the African Regional Network⁽²⁰⁾.

The International Association of National Public Health Institutes (IANPHI) has integrated NPHI and used virtual platforms such as ECHO to train more than 10,000 managers in all districts and South Africa, from both public and private sectors. Moreover, it made use of webinars to share information both nationally and internationally. The field epidemiology and laboratory training program (FELTP) was another strategy used in the country, aimed at training public health professionals in applied epidemiology, surveillance and health practice⁽²⁰⁾.

It is possible to infer that, through NPHI and IANPHI, many health managers were guided and trained in different sectors, promoting the effective dissemination of evidence-based information for coping with the pandemic, since they allowed health professionals to develop skills necessary to respond effectively to the demands of COVID-19⁽¹⁹⁻²⁰⁾. On the other hand, the exchange of knowledge and experiences, especially through virtual platforms, proved to

be a valuable strategy to improve responses in public health on a large scale⁽²⁰⁾.

Category 3 – Interventions aimed at the organizational environment

This category, which includes documents aimed at the reorganization of the attributions developed by health professionals⁽¹⁾, was the least observed.

The reorganization of care, based on previous epidemics, were the focal points of managers' training in Canada. To ensure adequate capacity for coping with the disease, the Ottawa Hospital, located in Canada, focused efforts to develop an interdisciplinary response aimed at cross-training its professionals⁽²¹⁾.

This response was developed in five stages, with the aim of ensuring that employees felt competent and safe to perform their duties in their new role. Faced with this strategy, health managers were directed by educational actions developed by the Canadian government based on the Influenza H1N1 pandemic, type A, which demanded the redefinition of the scope of institutional practice directed to the new context⁽²¹⁾.

The impact of this intervention with health managers was significant, as it involved profound changes in human resource management and the redefinition of the scope of institutional practice at Ottawa Hospital, Canada. However, it was found that the interventions directed to the organizational environment were the least observed. This is a warning sign for the importance of prioritizing the training of these managers and strengthening management during public health crises. Thus, the COVID-19 pandemic highlighted the need for an interdisciplinary and adaptable approach in the health context, requiring from managers leadership skills, strategic planning and management of human and financial resources⁽¹⁻⁴⁾.

Category 4 – Interventions targeting health workforce enablers across the system

This category corresponded to educational measures aimed at better management of labor during the outbreak⁽¹⁾. The need for agility in the decision-making process for coping with the COVID-19 pandemic resulted in the development of educational strategies, oriented to the actions of managers, coordinators and team leaders. Thus, countries such as Iran and Zambia have developed training to improve this process in their territories⁽²²⁻²³⁾.

Iran was one of the first countries, along with China, affected by the COVID-19 pandemic, requiring effective management strategies to control the spread of SARS-CoV-2. The strategies developed were based on experiences already lived during the Influenza A H1N1 pandemic. The information was passed on to health managers through the internet, also used as an educational disseminator with instructions and guidance to health coordinators. Another action directed to managers was the development of the epidemic management training program in order to identify the needs of the future to provide greater efficiency to operational managers⁽²²⁾.

Zambia, a country located in southern Africa, received support from volunteers from Health Education England, even in times leading up to the COVID-19 pandemic. This relationship promoted support in obtaining funding, leadership, coordination and governance of projects, as well as providing educators to support activities. In the face of the crisis caused by SARS-CoV-2, hybrid actions were developed, incorporating in practice virtual volunteering, which provided training aimed at clinical leadership performed at the University Hospital of Lusaka⁽²³⁾.

Such interventions not only empower managers to make informed decisions, but also provide greater confidence and skills to deal with the unexpected challenges posed by the pandemic. In addition, international support and collaboration with other countries can enrich local capabilities and enable a more comprehensive approach tailored to the specific

needs of each context, being essential to ensure the best possible response to health crises and to build more resilient health systems prepared to face the challenges of the future^(1,9).

Category 5 – Environment favorable to gender, equity and socioeconomic factors in the COVID-19 pandemic context⁽¹⁾

Interventions related to this category were not observed. The lack of studies in this category revealed a knowledge gap in the permanent education actions developed for health managers, arising from the information, decision and action needs, triggered by COVID-19, to address gender issues, equity and socioeconomic factors.

The consequences of the pandemic, both in terms of health and socioeconomic impact, have been more severe for vulnerable groups such as women, ethnic minorities, low-income people and marginalized communities⁽²⁷⁾. The inclusion of a gender and equity perspective in permanent education actions for health managers is fundamental to ensure that the policies and actions adopted are fair and meet the needs of all groups in society, given the need to recognize that the pandemic does not affect all people in the same way and that certain groups may be more negatively impacted, due to pre-existing structural and socioeconomic factors⁽¹⁾.

Effective pandemic management cannot be limited to virus control alone, but it must also consider the social and economic impact on people's lives. By addressing these issues with health managers, there will be a better contribution to a more complete and compassionate response that respects the diversity of experiences and needs of the population. Moreover, the inclusion of a gender and equity perspective not only improves the response to the pandemic, but can also be a solid basis for facing future health crises.

As a limitation of this study, it is noteworthy that, despite the period of the research (December 2019 to July 2022) being appropriate regarding the pandemic period, for having quantity of relevant publications of research on the subject, and the initial number of articles selected by title and

abstract seem high, in the selection and eligibility phases of this review, there was low inclusion of articles. This number is probably related to the fact that permanent education actions developed for health managers triggered by COVID-19 do not follow the same logic of actions directed to other health professionals.

This study, by identifying documentary evidence of permanent education actions for health managers, contributes to providing subsidies for the improvement of training actions and support to information, decision and action demands required by such professionals in public health emergency situations, such as the COVID-19 pandemic. In addition, this study can contribute to strengthening the management of health systems in facing the challenges imposed by pandemic scenarios.

Final considerations

The publications included in this study revealed how challenging it was for managers to perform their functions and duties in the COVID-19 pandemic context, given the scarcity of educational actions that were directed at them, under the logic of PHE. On the other hand, the studies pointed out the importance of developing educational actions in mitigating the effects of the COVID-19 pandemic, since they allowed managers to mobilize skills for decision-making with public administration, governance, planning, health care and implementation of public health policies.

There was a diversity of strategies used by countries, such as virtual platforms, webinars, training programs and international collaborations, interventions to support health professionals at the individual level – the most observed category. This demonstrated the search for innovative approaches and the search for sharing best practices among managers from different regions.

However, it is worth pointing out the need for educational measures to be specific for health managers. Moreover, it is important to highlight educational measures that address issues of the

environment favorable to gender, equity and socioeconomic factors, a category absent in the findings of this study, and the organizational environment, tasks developed by health professionals, category less observed in the texts analyzed. The pandemic has further exposed social and economic, gender and organizational inequalities, and it is essential that health managers are aware of these issues and consider these aspects in their decisions and actions.

Finally, there is the need to reaffirm PHE as a strategy for transforming management practices, required in and in relation to the work process itself, in favor of the search for innovations and technological solutions in the face of the challenges imposed, not only from those arising from a health crisis, but also from the daily health management.

Collaborations:

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2 – analysis and interpretation of data: Taynara Lourenço de Souza, Aida Maris Peres, Priscila Meyenberg Cunha Sade and Dora Yoko Nozaki Goto;

3 – writing and/or critical review: Taynara Lourenço de Souza, Aida Maris Peres, Priscila Meyenberg Cunha Sade, Dora Yoko Nozaki Goto and Danélia Gómez Torres;

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Competing interests

There are no competing interests.

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