International Journal of Qualitative Studies on Health and Well-being

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/zqhw20

"The leadership shown by nurses gave me such a boost": health resources used by nurses who experienced COVID-19 pandemic stressors

Annie Oulevey Bachmann, Christine Cohen, Maryline Abt, Ingrid Gilles, Philippe Delmas & Claudia Ortoleva Bucher

To cite this article: Annie Oulevey Bachmann, Christine Cohen, Maryline Abt, Ingrid Gilles, Philippe Delmas & Claudia Ortoleva Bucher (2024) "The leadership shown by nurses gave me such a boost": health resources used by nurses who experienced COVID-19 pandemic stressors, International Journal of Qualitative Studies on Health and Well-being, 19:1, 2432687, DOI: 10.1080/17482631.2024.2432687

To link to this article: https://doi.org/10.1080/17482631.2024.2432687

INTERNATIONAL JOURNAL OF QUALITATIVE STUDIES ON HEALTH AND WELL-BEING
2024, VOL. 19, 2432687
https://doi.org/10.1080/17482631.2024.2432687

Taylor & Francis
Taylor & Francis Group

EMPIRICAL STUDIES

"The leadership shown by nurses gave me such a boost": health resources used by nurses who experienced COVID-19 pandemic stressors

Annie Oulevey Bachmann [a], Christine Cohen [a], Maryline Abt [a], Ingrid Gilles [b], Philippe Delmas [a] and Claudia Ortoleva Bucher [a]

[a]La Source School of Nursing, HES-SO University of Applied Sciences and Arts Western Switzerland, Lausanne, Switzerland; [b]Human Resources Department, Lausanne University Hospital, Lausanne, Switzerland

ABSTRACT

Purpose: To thoroughly describe 1) the stressors experienced by nurses during the first waves of the COVID-19 pandemic, 2) the extent to which experiencing these stressors affected nurses' psychological and physical health and 3) the health resources nurses used to protect and maintain their psychological and physical health during this period.

Method: We used a theory-driven descriptive qualitative design and conducted seven focus groups of 2–5 nurses (total = 23 nurses) distinguished by their degree of contact with COVID-19 patients hospitalized in Switzerland.

Results: A thematic analysis identified three main themes and their respective sub-themes: 1) Lived experiences and stressors (Living in a strange world; Hard work alone behind closed doors; Contaminating or being contaminated; Living at home behind closed doors; A war of attrition after the first wave); 2) Health (Everything is fine; Multiple traumas; Stress; Long-term exhaustion); 3) Resources (Societal and institutional resources; Direct relational resources; Resources specific to individuals).

Conclusions: All the nurses interviewed had been ceaselessly and intensely exposed to stressors in their professional and private lives. However, the repercussions of these stressors on their mental or physical health differed. Indeed, some nurses reported having used resources to protect and maintain their health.

ARTICLE HISTORY
Received 9 September 2023
Accepted 14 November 2024

KEYWORDS
Nurses; sense of coherence; COVID-19; occupational health nursing; qualitative research

Introduction

The COVID-19 pandemic had a major impact on healthcare systems worldwide, and the surge of severely ill patients put a heavy burden on healthcare professionals, particularly nurses (ICN, 2021). From March 2020 to autumn 2021, Switzerland's healthcare system also came under strong pressure as the disease washed over it in four successive, lengthy waves (Wirth et al., 2022). Between each wave, hospitals tried to make up their backlogs of surgical procedures and medical consultations, but this offered no respite to the care teams that had been exhausted by extraordinary workloads and, sometimes, catching the virus themselves (Riguzzi & Gashi, 2021).

During the pandemic's first 18 months, international studies showed that nurses were exposed to numerous stressors: the virus's virulence, exposure to it, feelings of inadequacy (Kalateh Sadati et al., 2021), a lack of knowledge about it, high mortality rates, other extreme or unusual situations, organizational upheavals, a lack of medical equipment, stigma from certain sections of the population, the lack of overall foresight in national healthcare systems, constant changes to regulations linked to the pandemic and, finally, its great length (Benbenishty et al., 2022; Cole et al., 2021; Jo et al., 2021; Labrague et al., 2021; Pappa et al., 2020; Thompson Munn et al., 2021).

The complexity of care situations and the increased workloads affected nurses' health (De Kock et al., 2021; Sampaio et al., 2020; Varghese et al., 2021). This was unsurprising given the huge personal efforts many nurses had made, and by the end of the first wave, many were exhausted or on sick leave (World Health Organization, 2022). Nurses who had remained in their care units and wards during the pandemic had to maintain their high levels of engagement long afterwards to ensure that the non-urgent medical procedures that had been postponed during successive waves could finally be performed (Lewis et al., 2020).

Several international studies published during the pandemic demonstrated its effects on psychological health: psychological distress, burnout, post-traumatic stress, depression, insomnia and fatigue (Alameddine et al., 2021; Alharbi et al., 2023; Franck et al., 2022; Huerta-González et al., 2021; Miljeteig et al., 2021;

CONTACT Annie Oulevey Bachmann a.oulevey@ecolelasource.ch La Source School of Nursing, HES-SO University of Applied Sciences and Arts Western Switzerland, Av. Vinet 30, Lausanne CH-1004, Switzerland

Supplemental data for this article can be accessed online at https://doi.org/10.1080/17482631.2024.2432687

Varghese et al., 2021). Some nurses were put on prolonged sick leave, and others even quit the profession (Poon et al., 2022). Regarding physical health, studies revealed that the main post-infection consequences of contamination by the virus were sleep disorders (Maqbali et al., 2021; Salari et al., 2020), weight gain (Oliver et al., 2022) and fatigue (Lee & Choi, 2022). The pandemic nevertheless also had positive effects on some nurses, both personally and professionally: new opportunities, a sudden awareness of their own strengths or a new vision of what gave meaning to their lives (Finstad et al., 2021; Mo et al., 2022). How could these opposing outcomes in nurses' health have occurred?

Neuman theorized that there were two ways of protecting one's health when exposed to stressors: (1) reducing one's exposure to them or (2) increasing one's resources that are protective of health (Neuman & Fawcett, 2011).

In the pandemic, initial measures to minimize exposure mainly consisted of the timely provision and distribution of personal protective equipment (PPE), such as masks, smocks and goggles, and the implementation of patient isolation in certain care units. A growing understanding of the virus (pathogenesis and treatments) gradually helped to reduce cases of exposure (Rohisha et al., 2023; Scortegagna et al., 2021). Furthermore, nurses mobilized different types of personal and relational resources to maintain their own good health despite the situation (Penachiotti et al., 2023; Rony et al., 2023; Scortegagna et al., 2021; Sehularo et al., 2021; Sierakowska & Doroszkiewicz, 2022). Finally, they benefitted from pre-existing resources in their professional environments, including management planning and support (Sehularo et al., 2021; Sierakowska & Doroszkiewicz, 2022).

The general situation experienced by healthcare professionals in Switzerland at this time was relatively privileged compared to many other countries around the world (Chancellerie Fédérale, 2022): they were rapidly provided with sufficient PPE, and no patients lacked technological respiratory support when they needed it. The partial lockdown measures imposed on the general population were relatively moderate, allowing nurses opportunities to relax. The very widespread provision of rapid, free COVID-19 screening enabled the early detection of infections.

In view of all this, we believed it would be interesting to explore which stressors nurses had encountered working in Switzerland's hospitals depending on the degree of contact they had had with COVID-19 patients. Conscious that, throughout the pandemic, the means of reducing one's exposure to stressors were fairly limited, we instead made the strategic choice to identify the resources that nurses had been able to mobilize to protect their health during those months. Indeed, taking a salutogenic approach to this problem and aiming to identify what definitely helped individuals in such situations, rather than what merely mitigated their circumstances, could also help to develop primary prevention measures that would maintain healthcare professionals' health in any future pandemic. These aims required the use of a qualitative methodology that would be able to capture nurses' detailed perceptions of the stressors they were exposed to and the strategies they used to protect and maintain their health.

Theoretical framework

To appropriately structure our exploration of how some nurses were able to protect and maintain their health despite the stressors they faced during 18 months of exposure to the pandemic, we required a theoretical framework that was sufficiently adaptable for us to imagine health as a state of equilibrium-one that could be altered, or not, by personal and environmental stressors. It also had to structure our exploration of the factors protective of this equilibrium—the health of nurses providing care to hospital inpatients during the pandemic, whether the latter were hospitalized due to COVID-19 or some other ailment.We thus chose the Neuman Systems Model (Neuman & Fawcett, 2011). This framework allows for the eventuality that people can protect and maintain their health status despite exposure to distal or proximal environmental stressors and potentially harmful intrapersonal stressors. It also permits an exploration of factors that might explain how to protect and maintain one's health in the face of exposure to these stressors thanks to the model's theoretical personal, interpersonal and external dimensions. Being aware of these factors could help occupational health experts and managers design primary prevention interventions that would support healthcare professionals in any future pandemic of the scale of COVID-19.

The Neuman Systems Model (Neuman & Fawcett, 2011) also supported our development of interview guidelines for collecting relevant data and, later, categorizing factors protective of nurses' health.

Aims

The present study aimed to explore the experiences of nurses working in French-speaking Switzerland's hospitals during the COVID-19 pandemic's waves from spring 2020 to autumn 2021.

More specifically, our research questions were as follows:

(1) What stressors did nurses experience during the first waves of the COVID-19 pandemic?

(2) To what extent did these stressors affect nurses' psychological and physical health?
(3) Which health resources did nurses use to protect and maintain their psychological and physical health during this period?

Materials and methods

Design

Our qualitative methodology involved conducting focus groups (FGs) with nurses working in Switzerland's French-speaking region. The data analysed were gathered in October 2021 after 18 months and four waves of the pandemic there.

Sample/Participants

The available population comprised nurses working in the hospitals whose management had agreed to participate in a larger research project (Jubin et al., 2023) in French-speaking Switzerland. After completing an online questionnaire, nurses who consented to be contacted were invited to participate in an FG. This method enabled us to ensure the most heterogeneous sample of nurses possible in terms of their age, professional seniority and the types of contact they had experienced with patients hospitalized for COVID-19. These contacts included: 1) direct contact (DC) with infected patients through the provision of care in intensive care units (ICUs) or non-intensive care wards; 2) indirect contact (IC) through the provision of care not dedicated exclusively to COVID-19 patients; and 3) no contact (NC), through the provision of care in hospitals or wards that did not deal with COVID-19 patients. There were no exclusion criteria.

Data collection

Data were collected during guided FG interviews lasting about 90 minutes. By agreement with their employer institutions, nurses were allowed to participate during their paid working hours. Because the pandemic was still ongoing, discussions occurred remotely and were recorded using the Microsoft Teams© platform. Before answering any questions, each participant gave their oral consent to take part, having read the consent information sheet sent to them a week earlier.

A knowledge-mapping approach was used to gather participants' comments, which has the advantage of being considerably faster than traditional methods while producing very similar results (Pelz et al., 2004). This pragmatic method allowed the researchers to represent the key themes raised during a FG in a graphical format on the screen (here, a Teams whiteboard) (Vail, 1999) and enabled participants to validate those themes as the interview progressed. Knowledge mapping occurred in the following stages: (1) developing interview guidelines , (2) carrying out the FG, and (3) analysis and conclusion (Pelz et al., 2004). The investigators began by designing a semi-structured interview guide (see Appendix 1), using the Neuman Systems Model (Neuman & Fawcett, 2011) as a framework for the themes they sought to explore: lived experiences, health and resources protective of health. The guide was tested on two nurses who did not participate in the study.

Each FG was led by a senior researcher. A second senior researcher used the Teams whiteboard and drew a mind map for each of the themes identified as they came up in discussion. These maps were later copied, in their entirety, into Mindmanager© software and sent to all the participants for validation, comments or additions. The researchers added any corrections and extra details onto the maps. The nurses thus participated actively in interpreting and validating the mind maps resulting from each of the questions brought up during the interviews (Burgess-Allen & Owen-Smith, 2010).

Ethics considerations

The Human Research Ethics Committee of the Canton of Vaud (CER-VD) approved the present study (project number: 2020–02845) on 25 January 2021. Participation in the study was purely voluntary.

Analysis

Qualitative analyses began as soon as the participants had validated the mind maps, and their analysis was structured using the Neuman System's Model framework (Neuman & Fawcett, 2011). The separate FGs' mind maps were combined using three themes (lived experiences, health and resources protective of health) and transferred into MaxQDA® qualitative analysis software. Two researchers then performed a systematic thematic analysis of the data's three themes to identify and group together sub-themes and categories (Paillé & Mucchielli, 2008). Helped by a third researcher, these data were condensed for presentation in our results.

Validity, reliability and rigour

The study's internal validity was ensured by triangulating the data collected from the FG participants using three parallel analyses carried out by the study's senior researchers. The study's external validity was ensured by selecting a convenience sample of nurses with diverse professional backgrounds. The study's

reliability and construct validity were ensured by using the concepts defined in the Neuman Systems Model, the detailed documentation of every stage of our research and the MaxQDA® software analyses and memos.

Findings

Seven FGs took place between 5 October and 11 November 2021. Twenty-three nurses (18 women and 5 men) agreed to participate and were distributed between the groups according to their degree of exposure to COVID-19 (see Table I). To ensure participant anonymity, we present minimal sociodemographic data.

The thematic analysis framed by Neuman's Systems Model resulted in the three themes of lived experiences and stressors, health and resources protective of health. Combining and condensing the data enabled us to draw out the different sub-themes presented in the tables at the beginning of each section.

Theme 1: Lived experiences and stressors

This theme corresponds to the interview guide's first questions, which asked nurses how the COVID-19 pandemic had affected them professionally and personally. Five sub-themes emerged (Table II).

Table II. Lived experiences and stressors.

Theme	Sub-themes
Lived experiences and stressors	Living in a strange world Hard work alone behind closed doors Contaminate or being contaminated Living at home behind closed doors A war of attrition after the first wave

Living in a strange world

Nurses reported having lived in a strange world between March 2020 and October 2021. This world was strange for at least two reasons. Firstly, there was a "general uncertainty at all levels" (IC). Every usual aspect of life had been turned upside down with no reassurances about how the ever-changing pandemic would evolve or how long it would last. Secondly, at the beginning, the general population took a sudden and "unusual interest in nursing" (IC). This made some nurses uncomfortable: indeed, they felt that it had taken nothing less than a pandemic for the public to realize just how important nurses are to the health system's functioning and public care. However, this interest soon waned, leaving them to return to the shadows (IC).

Hard work alone behind closed doors

During the first waves, "non-essential" staff were no longer authorized into care units. Nurses and other "essential" caregivers found themselves one-on-one with those being cared for, assuming greater responsibilities than ever. In addition, on some wards, "the [usual] staff didn't even enter the rooms anymore. Nurses had to maintain links to those staff and ensure bonds with relatives" (DC). The first element characterizing the hard work occurring behind closed doors in hospitals was that nurses were confronted with continuous multiple demands on their time. These included learning many new things about the virus and its transmission. Indeed, they had "no reference points for providing care" (IC), not to mention that "the instructions changed every two days" (IC), and they were caring for "clinical problems they knew very little about" (NC). They also experienced significant variations in their workloads depending on the cycles of pandemic waves and troughs, the type of ward they worked on, and highly variable staff numbers linked to the absences of nurses who had been infected by COVID-19, further increasing the workloads of those who were holding out.

Another element characterizing the hard work occurring behind closed doors was that the support from senior management during the pandemic's first waves was mostly perceived as inappropriate. Firstly, senior executives were barely present, if at all: the "senior execs were teleworking" (CP). Secondly, local line managers did not seem to know how to use the two types of staff resources they had at hand: the usual members of their staff—"We were able to mobilize ourselves, but the hierarchy was unable to exploit [our availability]" (DC)—and other specialist nurses—"Clinical nurse specialists were left redundant when this really was the moment to use them" (NC). Thirdly, communication between nursing staff and top management was ineffective: "The top management ignored us" (DC), or there were "no answers to the team's questions" (IC).

Table I. Sociodemographic data.

Characteristics	Direct contact (DC)	Indirect contact (IC)	No contact (NC)
Participants [n]	6	10	7
Sex			
Woman	5	7	6
Man	1	3	1
Age [years]	26; 35; 43; 43; 52; 52	28; 30; 30; 32; 38; 43; 43; 49; 49; 49	29; 35; 37; 43; 45; 46; 52
Nursing seniority [years]	4; 14; 20; 21; 30; 30	7; 9; 9; 10; 11; 18; 22; 25; 25; 27	8; 11; 12; 19; 22; 23; 29

Wherever they practised, nurses reported the fear and loneliness they felt when faced with complex, demanding situations, often with heavy responsibilities and high levels of uncertainty. They wondered whether they would be able to keep up with the pandemic's successive waves without missing something: "When I got in the car, I cried: this isn't going to work, we're going to lose people" (NC). They also perceived themselves as the ultimate protectors of patient safety. Intensive care nurses felt scared because they had to work with colleagues (students, nurses or physicians) who lacked knowledge of and experience in intensive care (i.e., using machines, prescribing or applying specific treatments). They frequently felt a sense of loneliness of being the most qualified person on the ward, which boosted their workload even more: "We had to observe and watch over [things] even more" (DC), leading to never-ending "very tough days" (DC).

Finally, the so-called "downgraded levels of care" adopted to deal with the large flows of patients obliged nurses to prioritize, resulting in "very limited human contact" (NC) and "production-line care" (NC). Their work thus became not only harder, with feelings of loneliness as they took on heavy responsibilities, but also dissatisfying due to dealing with a "lack of coherence with their [professional] values" (IC). Their work gradually lost its meaning.

Contaminate or being contaminated

Another important stressor declared was the fear of transmitting or contracting the virus. Some nurses were "scared to bring COVID home" (IC). They were also "worried about their loved ones" (IC). Others felt like "pariahs because there was the possibility of contaminating others who were scared for themselves" (NC). Some of them mentioned that their entourage was worried about them: "The children were afraid for me; I had to reassure them a lot" (DC). For others, things were completely opposite: "I wasn't scared, either for me or my loved ones, and my loved ones weren't scared either" (IC). To protect the people they were caring for, some nurses "put themselves in a bubble" (NC), limiting their social interactions and insulating patients from all contamination. Regarding the risks of nurses themselves being contaminated, feelings were mixed. Some expressed worries or "felt scared" (IC), and others "felt very little stress or fear of being contaminated" (DC and IC).

Living at home behind closed doors

Once their working day was finished, however, nurses were subject to the same precautionary restrictions as the rest of Switzerland's population, with important limitations on social interactions that generated feelings of social isolation and solitude. They had "few social contacts because of the protection measures", despite many viewing these interactions as a resource that usually counterbalanced their demanding professional lived experiences (IC). During the pandemic's first wave, children could neither attend school nor participate in after-school activities with their friends. In addition to their professional stressors, nurses had to manage "the upheavals in usual schedules" and take on tasks they had never had to do before (IC). Thus, it was "hard to manage your family at home" (IC).

A war of attrition after the first wave

After the first and subsequent waves, hospitals' rapid returns to normal activity and their races to catch up on their backlogs in scheduled surgeries, for both health and financial reasons, were perceived as exhausting and as worsening the exhaustion linked to the efforts nurses had made during the preceding wave: "During June, July, August, we had to catch up on the [surgical] schedule, and I was exhausted" (IC). Nurses felt that hospitals' senior management teams had not considered the amount of effort they had expended and were focused exclusively on financial issues: "[For the] management, the higher-ups, I'm just a number, I've just got to generate a return" (IC). Nurses' lived experiences of the pandemic's successive waves and the subsequent periods of catching up were "a descent into hell: more patients but no increase in personnel" (DC). The situation was made worse by a massive increase in resignations. There were "lots of departures and resignations" (DC) and more occurrences of sick leaves of shorter and longer durations.

Theme 2: Health

This theme relates to the question, "How did you feel physically and psychologically before the pandemic, during the pandemic and now?" We chose the term "Health" for this theme, and its components can be categorized into four sub-themes (see Table III).

Everything is fine

In autumn 2021, after 18 months of the pandemic, some nurses stated how well they felt: "I feel healthy today" (DC). They particularly expressed the fact that "physically, everything's going really well" (DC).

Multiple traumas

However, in the wards treating COVID-19 patients (DC and IC), some nurses were affected by two types of traumas: those linked to the avalanche of deaths and

Table III. Health.

Theme	Sub-themes
Health	Everything is fine
	Multiple traumas
	Stress
	Long-term exhaustion

those linked to the shocking transformation of their work environment. Some nurses expressed their total dismay at being faced with hopeless situations or mass deaths. Nothing much could be done for some critically ill patients, despite all their personal engagement and the institutional resources expended: "All the patients died; our job is pointless" (DC). These numerous deaths repeatedly exposed nurses to distressed families, although often at a distance. This affected them emotionally: "What affected me the most were the deaths when the family couldn't be there" (DC). Moreover, nurses' workplace environments were striking in themselves. Some nurses worked "for several days without seeing daylight" (DC). Due to quarantines, nurses felt lonely and isolated from each other, particularly at night. Patients lying in medically induced comas with their eyelids taped shut turned their environment into "a zombie ward" (DC).

Stress

Nurses spoke of experiencing stress due to several causes that evolved over time. The start of the pandemic affected some nurses immensely; its unprecedented character caused "intense fear, worry" (DC and IC). Exposure to this extraordinary situation caused some who had been in DC with infected patients to develop sleep disorders: "great difficulty sleeping, impossible to stay asleep for more than three hours" (DC). They explained this phenomenon as due to their brooding thoughts of death, fears for their own lives, the lack of resources and images of patients in distress. Unfortunately, nurses' stress levels never managed to come down over the long term. The pandemic's recurring stressful waves, followed by returns to highly paced activities, exposed them to increasing feelings of persistent pressure. This set off "stress, feelings of pressure, weight loss" (DC).

Long-term exhaustion

Over time, the pandemic's first 18 months exhausted some nurses, affecting them in several ways. The pandemic's extraordinary length and successive waves led to growing psychological exhaustion. "Today, I'm a bit shaken. I can feel the psychological fatigue and huge weariness in the face of the distress felt by patients and families" (DC). They found it very difficult not "knowing when it's going to end" (DC) and felt angry because "If [the number of patients] continues going up, there'll be no more human resources left" (DC). As the waves succeeded one another, nurses' physical resistance started to wane, and they expressed how their fatigue increased. They felt they were "walking a tightrope" (IC). Others said that they could no longer "be available to and help others because they were exhausted" (IC) and that "twelve-hour shifts were very long to bear and physically tough" (DC). Sadly, after resisting as best they could despite their increasing physical or psychological fragility, some nurses suffered a breakdown: "It was like trying to give somebody a drink from my own empty glass" (IC). Some nurses went beyond their psychological limits and experienced burnout or post-traumatic stress disorder. "Sick leaves—they're happening now because we are exhausted" (NC).

Theme 3. Resources

This theme relates to the questions investigating how certain nurses managed to maintain their health despite 18 months of the pandemic (Table IV). The types of resources described in the Neuman Systems Model were used to categorize the sub-themes. This allowed us to identify the origins of nurses' resources: those specific to individual nurses, those resulting from their interpersonal relationships and those from their societal and institutional environments.

Societal and institutional resources

The pandemic's first few months put the nursing profession under an exceptional media spotlight. The public showed them appreciation and esteem that they were not used to. Some employers rapidly put in place measures to support them. Probably for the first time at such a scale, some participants felt that people were directly telling them how much they esteemed and trusted in their skills and how much they admired their professional commitment and judgement. Nurses felt good about this recognition: "My profession was brought into the spotlight" (NC).

Support from senior and hierarchical line managers was considered adequate, at least during the first wave: "The hierarchy was on top of its game, attentive in supporting us" (NC). Extra benefits were sometimes offered, such as "Massages, baskets of fruit, coffees, parking fees and childcare" (DC and IC). Therapeutic backup, such as by occupational health specialists, was put at ICU nurses' disposal to help them protect and maintain their health. Unfortunately, this did not last, but nursing staff "became aware of what occupational well-being really was" (DC). For some nurses, however, attending end-of-shift debriefings was impossible due to the extra work required with their families during periods of confinement.

Another important resource was feeling appreciated, valued and recognized for their work by patients: "We know why we're here. We know why

Table IV. Resources.

Theme	Sub-themes
Resources	Societal and institutional resources
	Direct relational resources
	Resources specific to individuals

we go work" (NC). Nurses described how "this carried them" (NC).

Direct relational resources

Two groups of people were essential to helping nurses protect and maintain their health: the care teams they worked with and their personal entourage. The support offered by colleagues in nursing care teams included attentive, judgement-free listening, understanding, mutual respect, mutual solidarity, strong bonds, shared experiences, joy, trust, a little relief, good-naturedness, laughs, kindness and benevolence. Together, anything seemed possible: the "leadership by nurses gave them a boost and strengthened them". Moreover, as care teams were forced to help each other, nurses were able to "meet new people, create new bonds and share new procedures" (NC and IC). Unfortunately, the recurrent waves altered the quality of this dynamic: "After the first wave, we didn't ask each other how we were anymore" (DC) because "We couldn't deal with other people's distress anymore" (DC). In addition to the support from their colleagues, support from line managers manifested itself through recognition of nurses' work, attentiveness to their needs, consideration for their expertise, allowing them a certain degree of autonomy, an attentive ear, being "available" for them, concern for them as individuals and the quality of their relationships, appropriate levels of supervision and an ability to effectively relay teams' needs up the hierarchy. Nurses also greatly appreciated "having their schedules arranged as a team" (IC) or arranging their hours and shifts among themselves.

As a complement to their professional support, nurses' personal entourages (spouses, children, friends, family and neighbours) were perceived as "cocoons" (IC) or "protective bubbles" (NC), where you "could take your mind off things, play games and stop talking about COVID" (DC) or where lived experiences at work could be shared: "My family was very sensitive to what I was going through, and I got to have a good cry" (DC). There was a redistribution of domestic chores and family tasks to help support nurses, and their children "got involved in doing household chores" (IC and DC) and "continued even after the end of the lockdown" (DC and IC). This enabled nurses to "concentrate on their [paid] work" (IC). These benefits were mitigated when families were more physically distant: "I've got no family here. It took me two years to see them again [in Canada]. We did some Zoom calls, but it wasn't enough. My network here couldn't compensate for this" (IC).

Resources specific to individuals

Our participants used a variety of personal resources to protect their health during the first 18 months of the pandemic, such as diverse strategies for caring for themselves: doing physical activity "to clear your head and tire yourself out in another way" (DC), enjoying nature "to recharge your batteries" (CI), refocusing on themselves "to get some perspective on things" (NC) or participating in leisure activities (travelling between waves, cooking). They also used and developed their professional knowledge to protect themselves from contamination by the virus (NC) and "to perform well in the middle of a crisis" (DC). Even if they might be putting their own health at risk, nurses reported that the pseudo-normality of their professional activities contributed to maintaining their health during the lockdown: "We got up every day to go to work; we still had social contacts" (IC).

Despite the situation, some nurses were able to see the positive aspects of what they were living through (DC) or to adapt satisfactorily: "You get used to a style of life; you develop strategies to deal with changes" (NC). Their ability to accept the limitations of their professional capabilities, "not to think that you're responsible for everything" (IC), or to put things into perspective, "realizing how lucky I was to be in Switzerland" (IC, NC and DC), also supported some of them. Their sense of personal responsibility and professional values helped others to hold out for better days: "I don't want to let down my colleagues and my patients" (IC).

Finally, practising their profession during such exceptional circumstances helped many nurses become aware of their strategic position in Switzerland's healthcare system. They rediscovered meaning in their work: "You know why you're there; you know why you go to work [in the morning]" (NC). This made nurses proud of themselves: "The leadership shown by nurses gave me such a boost—it strengthened me—and all that helps to compensate for the fatigue" (IC).

Discussion

We conducted seven focus groups to undertake an in-depth exploration of nurses' lived experiences, perceived health and the resources protective of their health that they used during the COVID-19 pandemic. Some nurses had been in direct contact with SARS-CoV-2-infected patients in French-speaking Switzerland's hospitals, others not. This discussion section examines three major issues: the evolution of stressors over time, their repercussions on nurses' psychological and physical health, and the diverse resources they used to cope with those stressors.

In March and April 2020, during the first significant peak in hospitalizations, our results showed that nurses had to continuously adapt their knowledge and skills. After this first spike in cases, instead of workloads dropping back to their already intense

levels, nurses had to deal with two other phenomena that were contributing to maintaining high levels of work pressure: (i) under-staffing throughout the entire summer (because colleagues were obliged to take their holidays and sick-leave rates were higher), and (ii) catching up on the backlog of non-urgent surgical procedures and other treatments. By autumn 2020, care teams were already feeling over-stretched by the constant and multiple changes induced by the pandemic since the spring. A large proportion of nurses were feeling emotionally and psychologically weakened by all this. However, during the following winter, they once again had to deal with several consecutive spikes in infection rates, with the second and third waves being even more intense than the first. For months, each time the pandemic's pressure on nurses dropped, they had to catch up on other work. Participating nurses recognized that these programmes were necessary, but they felt that the intense and continuous demands put on them were measures principally designed to reduce the financial impacts of the pre-existing crisis in the country's healthcare system. As the World Health Organization noted (2020), the pandemic began in a professional context already characterized by insufficient numbers of nursing staff and demands that nurses raise their productivity to streamline their work for cost reasons. This phenomenon was also present in Switzerland (Merçay et al., 2021). Participants fully agreed with the Federal Government of Switzerland's admission that it had been ill-prepared for the second wave and had underestimated nurses' exposure to the pandemic's stressors when it planned massive catch-up programmes for postponed surgeries and treatments (Chancellerie Fédérale, 2022). These programmes ignored nurses' needs to some respite after their intense efforts.

More specifically, in our study, nurses in direct contact with COVID patients (in ICUs) reported a massive surge in patients in highly critical conditions, the emergency opening of many extra patient beds, having to manage situations in collaboration with nursing colleagues who had come to reinforce critical care wards but who were not trained in the relevant care techniques, and lastly, being in charge of patient safety and the proper functioning of wards despite the crisis. They were thus highly exposed to specific stressors that they felt their management underestimated. One study using a grounded theory approach looked at frontline nurses' lived experiences during the pandemic and found that, as with our DC participants, they reported more negative experiences than positive ones (Kelley et al., 2022).

The stressors evoked by nurses participating in the present study who were not in direct contact with COVID-19 patients differed. With waves of staff seconded to support ICUs, the number of working hours scheduled for those remaining on their original wards increased. They also felt obliged to ensure the same quality of care as usual despite the lack of staffing resources, which led to many experiencing feelings that their work had lost its meaning. Nurses seconded to help their ICU colleagues experienced other types of stressors, such as feeling totally unprepared and unskilled. Indeed, as Yıldırım et al. (2021) showed, nurses obliged to work on secondments to ICUs suffered from their lack of appropriate knowledge and skills to ensure the safest possible care for patients in highly unstable health situations. However, the present study revealed that whatever type of ward they worked on, most nurses put in a variety of high-intensity efforts over long periods to ensure the quality and security of care. Unfortunately, some of them felt that societal recognition was aimed massively and disproportionately at nurses working in ICUs, leaving those continuing to fulfil their normal roles in worse conditions in the shadows. Another study also reported that non-frontline nurses' huge efforts were never truly recognized or highlighted by their management, the general public or politicians (Mohammed et al., 2021).

For 18 months, the nurses in our study were exposed to extraordinary stressors in their professional and private lives. During semi-lockdowns, schooling and many professional activities took place at home. Homes became mixed public and private spaces: school and paid work stressors invaded them. Hwang (2022) noted that before the pandemic, nurses were already experiencing stressors linked to their private lives, such as difficulties managing their work—life balance due to irregular working schedules. As our participants showed, the pandemic worsened these difficulties. Stressors were also related partly to nurses' fears of the virus affecting them and others (their entourage and patients) and partly to the changing dynamics in their relationships with their loved ones (homeschooling, teleworking, isolation). Both of these elements were also revealed by healthcare professionals interviewed in Germany (Frenkel et al., 2022).

Sadly, decision-makers and healthcare managers did not seem to have realized the full extent of nurses' long-term exposure to multiple, varied, high-intensity stressors in the exceptional context of a global pandemic, in both the private and public spheres of their lives, regardless of the position held.

During the period observed, participants were divided into two groups according to their health: those who noted that their health gradually deteriorated or deteriorated at the very beginning of the pandemic and those who had no problems. Some participants who were in direct contact with COVID-19 patients explained that, from the very beginning of

the pandemic, they had lived through experiences such as feeling powerlessness in the face of the multitude of deaths and working in a disturbing auditory and visual environment that led to a variety of health problems. One prospective longitudinal study also revealed that care situations involving COVID-19 patients were the largest sources of emotional distress among frontline nurses (Van Steenkiste et al., 2022).

The general lack of knowledge about the virus and, for some of those participating nurses on secondment, the lack of specific competencies also generated intense anxiety. The nurses interviewed by Jun and Rosemberg had also felt ill-prepared (Jun & Rosemberg, 2022). As Crowe *et al*. revealed (2022), nurses who had worked in similar ICU situations in 2021 mentioned lots of mental health symptoms (Crowe et al., 2022). Some of our participants explained how their prolonged exposure to the stressors described above began to have repercussions on their psychological health, gradually affected their physical health, and finally pushed them to the limit, when they suffered a breakdown. One descriptive study of 488 ICU nurses in the USA revealed moderate-to-high levels of professional exhaustion and emotional distress (Guttormson et al., 2022). Another cross-sectional descriptive study of 264 nurses identified other health problems, such as fear, insomnia, professional exhaustion, physical problems and even obsessive-compulsive disorders, phobias, substance abuse and suicidal ideation (Melnyk et al., 2022). A third study of hospital personnel, covering the pandemic's first eight months, also revealed increased levels of professional exhaustion (Armstrong et al., 2022). In two further studies, deteriorating working conditions linked to the pandemic were associated with poor mental health and occasional burnout (Rivas et al., 2021; Serrão et al., 2021). The psychological distress due to the pandemic's first wave was made worse by the equally stressful situations being lived through in some of our participants' homes. One study has shown that the workload pressures affecting nurses' private lives during this period were the primary predictor of their self-perceived psychological stress (Frenkel et al., 2022). Nevertheless, it is interesting to note that some of our participants, especially those working in ICUs, expressed no worries about their physical health, even after 18 months of the pandemic. Two hypotheses might explain this. Firstly, while our FGs were running, nurses were still dealing with managing the crisis and may still have been in a phase of shock that impedes one's ability to truly feel one's injuries. Secondly, ICU nurses' existing resources may have been sufficient to protect and maintain their health and carry them forward through the pandemic.

Indeed, to cope with this health catastrophe and attempt to maintain good health, many of the nurses interviewed used some resources protective of their health. Apart from the individual resources of their characters (optimism, courage, abnegation), one significant personal resource used by some of the interviewees, at least in the pandemic's first months, was the unprecedented recognition of their profession by the media and the public. During the pandemic, feeling valued by society was also a factor protective of other frontline nurses' health (Lewis et al., 2020). As Jun and Rosenberg noted (2022), nurses felt pride in their contribution to dealing with the pandemic, which they and society in general felt was essential and gave meaning to their work. Another resource mentioned by some of our participants was knowing when and how to prioritize self-care—as a sort of primary prevention intervention—by adapting to what was possible, or perhaps authorized, such as doing sports, walking in nature or outdoor leisure activities. The fact that Switzerland's population did not undergo a total lockdown certainly helped nurses working there to look after themselves and their health despite the pandemic.

Some of our participating nurses mentioned that sharing their professional lived experiences with members of their entourage, clearing their minds while sharing leisure activities and being discharged from some educational tasks and domestic chores were precious interpersonal health resources. In line with our participants, interpersonal relationships in the private sphere were among the most frequently mentioned resources in the study by Melnyk et al. (2022). When nurses had one, entourages acted like a support group watching over them (Jun & Rosemberg, 2022).

Our study results also indicated that nurses relied on one another to get through this situation. This phenomenon was found in another study that presented teams as an important coping resource (Jun & Rosemberg, 2022). Some line managers in the present study were indeed perceived as valuable resources for maintaining nurses' health when they were able to respond to their teams' concrete needs (adjusted work schedules, effectively relaying team needs up the hierarchy to senior managers and providing appropriate support). The study by Melnyk et al. (2022) corroborated this.

In the present study, the special gestures made to nurses by their management during the first phase of the pandemic (free parking, childcare, massages, etc.) were very much appreciated by those who benefitted from them. These gestures were resources for some of our nurses, helping them to take care of their occupational well-being and facilitating their work—life balance. Our findings accord with a study showing that nurses who had worked in environments supportive of their well-being were three times to nine times more likely to have better mental and physical health,

no or less stress, no professional exhaustion, and a higher quality of life (Melnyk et al., 2022). Unfortunately, between the summer of 2020 and autumn 2021, these measures protective of health were discontinued, despite nurses' growing exposure to stressors and their decreasing health resources, as mentioned above. Even if some of our participants managed to maintain their health, others' health resources of all sorts became rarer and were no longer sufficient to protect them.

Strengths and limitations

The present study's main strength was that it interviewed nurses who had and had not been exposed to COVID-19 patients in different professional contexts across the first 18 months of the pandemic. Numerous studies have investigated the frontline nurses who were in direct contact with COVID-19 patients (Aggar et al., 2022; Akkuş et al., 2022; Crowe et al., 2022; Frenkel et al., 2022; Guttormson et al., 2022; Kelley et al., 2022; Van Steenkiste et al., 2022). The present study's originality was that it explored all nurses' lived experiences, whether they were in direct contact with COVID-19 patients or not. We revealed that exposure to stressors at that time increased for all nurses, whatever type of ward they worked on. However, despite French-speaking Switzerland's specific context and how the country's health system functioned at the time, our findings largely support those of other researchers around the world (Zipf et al., 2022).

Because the pandemic was still underway when we collected data, we were obliged to conduct our FGs remotely so as not to burden nurses further and to encourage their participation. Despite our worries, the participants appreciated this data collection method. Some were able to express themselves orally and anonymously with the camera off. Nurses were almost unanimous that the FGs had allowed them to take stock of what they had lived through. Nevertheless, the phenomenon of participants' reinterpretation of their experience, linked to the 18-month gap between the start of the first wave and the collection of qualitative data, must be considered.

It should be noted that despite the health crisis, Switzerland's population was only put under a partial lockdown, which allowed nurses to access resources unavailable to nurses in other countries. Precautions should be taken, therefore, before comparing our results with those of countries that applied strict lockdown measures. Nevertheless, our findings highlighted the importance of having collective self-care and relational activities available for maintaining nurses' health when circumstances require them. Despite the specificities of the context in French-speaking Switzerland and the functioning of the country's healthcare system during that time, our findings mainly supported those of other researchers around the world (Zipf et al., 2022).

There are some limitations to this study. The first relates to the fact that participants were recruited from a single region in Switzerland and only worked in hospitals. Therefore, we cannot rule out a recruitment bias, as the nurses who responded were not representative of all the nurses in this region. A second limitation was that the FGs were conducted remotely, which may have reduced the richness of the discussions. To limit this eventuality, one researcher created live concept maps visible to the participants, while another researcher facilitated the FG itself, and a third took notes on the sessions. Finally, a third limitation was the time lag between the start of the first wave and the FGs: a phenomenon of participants reinterpreting their experiences over time cannot be ruled out.

Conclusion

Eighteen months after the start of the COVID-19 pandemic in Switzerland, we conducted seven focus group discussions with 23 nurses who had had a diverse range of experiences of treating COVID-19 inpatients or not. Our findings revealed that all the nurses interviewed, whether in direct contact with those patients or not, had been ceaselessly and intensely exposed to stressors in their professional and private lives. This long-term exposure gradually affected nearly all of them, often with significant consequences on their psychological and physical health. They also noted that their occupational well-being had not been appropriately considered during this time and for different reasons, especially financial ones. To prevent this situation from happening again during a massive long-term pandemic, preserving nurses' health should become a priority for healthcare decision-makers. Despite their lived experiences, some nurses in our sample had not felt any adverse effects from their exposure to this extreme situation. It would thus be interesting to further explore what might explain this phenomenon.

Nurses reported having used a variety of resources that were protective of their health during this period. Some of them described how, little by little, as the pandemic's waves succeeded one another, the efficacy of those resources waned. The present study showed that nurses have a wide range of health resources. However, these resources, particularly interpersonal resources and those related to their work environment, need to be supported and developed further if nurses are to be able to provide safe, high-quality care over the long term while protecting and maintaining their own health and well-being.

Acknowledgments

The authors would like to thank all the nurses who participated in this study and their employers for allowing them the time to share their lived experiences. We also thank the Master of Nursing Sciences students who contributed to data collection during the research training period.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the Swiss National Science Foundation under [Grant 10001C_201137].

Author contributions

All the authors contributed equally to the study's design. AOB, CC, MA and COB were involved in the qualitative data collection. AOB, CC and MA analysed the data and contributed significantly to writing the manuscript. The manuscript was reviewed and edited prior to submission and all the authors agreed on the final version.

Notes on contributors

Annie Oulevey Bachmann, RN, PhD, is a full professor at La Source School of Nursing, HES-SO University of Applied Sciences and Arts Western Switzerland, Lausanne, Switzerland. Her research focuses on occupational health, students' and informal caregivers' health, and health resources in activities using mixed methods.

Christine Cohen, PhD candidate, is a Clinical Nurse Specialist and assistant professor at La Source School of Nursing. Her research focuses on enhancing nursing skills and partnerships with family caregivers.

Maryline Abt, PhD, is a Mental Health Nurse Specialist and lecturer at La Source School of Nursing. Her research uses qualitative approaches, mainly with older adults.

Ingrid Gilles, PhD, is a Psychologist and Research Fellow at Lausanne University Hospital (CHUV), Switzerland. She is a specialist in quantitative studies of employee well-being and satisfaction in healthcare institutions.

Philippe Delmas, RN, PhD, MBA, is a full professor at La Source School of Nursing. His research focuses on the health and quality of life of haemodialysis patients using mixed methods approaches.

Claudia Ortoleva Bucher, RN, PhD, is a full professor at La Source School of Nursing. Her research focus on various thematic such as ageing, the health and well-being of healthcare professionals, implementation science and healthcare technology.

ORCID

Annie Oulevey Bachmann http://orcid.org/0000-0001-9537-3587
Christine Cohen http://orcid.org/0000-0001-8681-0933
Maryline Abt http://orcid.org/0000-0002-8867-9518
Ingrid Gilles http://orcid.org/0000-0003-2051-4749
Philippe Delmas http://orcid.org/0000-0001-8169-470X
Claudia Ortoleva Bucher http://orcid.org/0000-0002-8411-4181

References

Aggar, C., Samios, C., Penman, O., Whiteing, N., Massey, D., Rafferty, R., Bowen, K., & Stephens, A. (2022). The impact of COVID-19 pandemic-related stress experienced by Australian nurses. *International Journal of Mental Health Nursing*, *31*(1), 91–103. https://doi.org/10.1111/inm.12938

Akkuş, Y., Karacan, Y., Güney, R., & Kurt, B. (2022). Experiences of nurses working with COVID-19 patients: A qualitative study. *Journal of Clinical Nursing*, *31*(9–10), 1243–1257. https://doi.org/10.1111/jocn.15979

Alameddine, M., Clinton, M., Bou-Karroum, K., Richa, N., & Doumit, M. A. A. (2021). Factors associated with the resilience of nurses during the COVID-19 pandemic. *Worldviews on Evidence-Based Nursing*, *18*(6), 320–331. https://doi.org/10.1111/wvn.12544

Alharbi, T. A. F., Alqurashi, A. A. B., Mahmud, I., Alharbi, R. J., Islam, S. M. S., Almustanyir, S., Maklad, A. E., AlSarraj, A., Mughaiss, L. N., Al-Tawfiq, J. A., Ahmed, A. A., Barry, M., Ghozy, S., Alabdan, L. I., Alif, S. M., Sultana, F., Salehin, M., Banik, B., Cross, W., & Rahman, M. A. (2023). COVID-19: Factors associated with the psychological distress, fear and resilient coping strategies among community members in Saudi Arabia. *Healthcare (Basel, Switzerland)*, *11*(8), 1184. https://doi.org/10.3390/healthcare11081184

Armstrong, S. J., Porter, J. E., Larkins, J.-A., & Mesagno, C. (2022). Burnout, stress and resilience of an Australian regional hospital during COVID-19: A longitudinal study. *BMC Health Services Research*, *22*(1), 1115. https://doi.org/10.1186/s12913-022-08409-0

Benbenishty, J., Ashkenazy, S., Levdov Avital, I., Jakobson, L., Kolpak, O., & DeKeyser Ganz, F. (2022). Nurses' perceptions of social rejection, resilience and well-being during COVID-19: A national comparative study. *Journal of Clinical Nursing*, *31*(15–16), 2189–2197. https://doi.org/10.1111/jocn.16034

Burgess-Allen, J., & Owen-Smith, V. (2010). Using mind mapping techniques for rapid qualitative data analysis in public participation processes. *Health Expectations: An International Journal of Public Participation in Health Care and Health Policy*, *13*(4), 406–415. https://doi.org/10.1111/j.1369-7625.2010.00594.x

Chancellerie Fédérale. (2022, juin 22). *Rapport concernant l'évaluation de la gestion de crise de l'administration fédérale pendant la pandémie de COVID-19 (2e Phase/ août 2020—octobre 2021)*. https://www.newsd.admin.ch/newsd/message/attachments/72154.pdf

Cole, A., Ali, H., Ahmed, A., Hamasha, M., & Jordan, S. (2021). Identifying patterns of turnover intention among Alabama frontline nurses in hospital settings during the COVID-19 pandemic. *Journal of Multidisciplinary Healthcare*, *14*, 1783–1794. https://doi.org/10.2147/JMDH.S308397

Crowe, S., Howard, A. F., & Vanderspank, B. (2022). The mental health impact of the COVID-19 pandemic on Canadian critical care nurses. *Intensive and Critical Care Nursing*, *71*, 103241. https://doi.org/10.1016/j.iccn.2022.103241

De Kock, J. H., Latham, H. A., Leslie, S. J., Grindle, M., Munoz, S.-A., Ellis, L., Polson, R., & O'Malley, C. M. (2021). A rapid review of the impact of COVID-19 on the mental

health of healthcare workers: Implications for supporting psychological well-being. *BMC Public Health*, *21*(1), 104. https://doi.org/10.1186/s12889-020-10070-3

Finstad, G. L., Giorgi, G., Lulli, L. G., Pandolfi, C., Foti, G., León-Perez, J. M., Cantero-Sánchez, F. J., & Mucci, N. (2021). Resilience, coping strategies and posttraumatic growth in the workplace following COVID-19: A narrative review on the positive aspects of trauma. *International Journal of Environmental Research and Public Health*, *18*(18), 9453. https://doi.org/10.3390/ijerph18189453

Franck, E., Goossens, E., Haegdorens, F., Geuens, N., Portzky, M., Tytens, T., Dilles, T., Beeckman, K., Timmermans, O., Slootmans, S., Van Rompaey, B., & Van Bogaert, P. (2022). Role of resilience in healthcare workers' distress and somatization during the COVID-19 pandemic: A cross-sectional study across Flanders, Belgium. *Nursing Open*, *9*(2), 1181–1189. https://doi.org/10.1002/nop2.1159

Frenkel, M. O., Pollak, K. M., Schilling, O., Voigt, L., Fritzsching, B., Wrzus, C., Egger-Lampl, S., Merle, U., Weigand, M. A., Mohr, S., & Frey, R. (2022). Stressors faced by healthcare professionals and coping strategies during the early stage of the COVID-19 pandemic in Germany. *PLOS ONE*, *17*(1), e0261502. https://doi.org/10.1371/journal.pone.0261502

Guttormson, J. L., Calkins, K., McAndrew, N., Fitzgerald, J., Losurdo, H., & Loonsfoot, D. (2022). Critical care nurse burnout, moral distress, and mental health during the COVID-19 pandemic: A United States survey. *Heart and Lung*, *55*, 127–133. https://doi.org/10.1016/j.hrtlng.2022.04.015

Huerta-González, S., Selva-Medrano, D., López-Espuela, F., Caro-Alonso, P. Á., Novo, A., & Rodríguez-Martín, B. (2021). The psychological impact of COVID-19 on front line nurses: A synthesis of qualitative evidence. *International Journal of Environmental Research and Public Health*, *18*(24), 12975. https://doi.org/10.3390/ijerph182412975

Hwang, E. (2022). Factors affecting the quality of work life of nurses at tertiary general hospitals in the context of the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *19*(8), 4718. https://doi.org/10.3390/ijerph19084718

ICN. (2021, janvier, 13). *The COVID-19 effect : World's nurses facing mass trauma, an immediate danger to the profession and future of our health systems*. International Council of Nurses. https://www.icn.ch/news/covid-19-effect-worlds-nurses-facing-mass-trauma-immediate-danger-profession-and-future-our#:~:text=ICN%27s%20data%20shows%20that%2C%20since,burnout%20in%20the%20nursing%20profession

Jo, S., Kurt, S., Bennett, J. A., Mayer, K., Pituch, K. A., Simpson, V., Skibiski, J., Takagi, E., Karaaslan, M. M., Ozluk, B., & Reifsnider, E. (2021). Nurses' resilience in the face of coronavirus (COVID-19): An international view. *Nursing & Health Sciences*, *23*(3), 646–657. https://doi.org/10.1111/nhs.12863

Jubin, J., Delmas, P., Gilles, I., Oulevey Bachmann, A., & Ortoleva Bucher, C. (2023). Factors protecting Swiss nurses' health during the COVID-19 pandemic: A longitudinal study. *BMC Nursing*, *22*(1), 306. https://doi.org/10.1186/s12912-023-01468-6

Jun, J., & Rosemberg, M.-A. S. (2022). I am a nurse, not a martyr: Qualitative investigation of nurses' experiences during onset of the coronavirus pandemic. *Policy, Politics & Nursing Practice*, *23*(1), 48–55. https://doi.org/10.1177/15271544211054435

Kalateh Sadati, A., Zarei, L., Shahabi, S., Heydari, S. T., Taheri, V., Jiriaei, R., Ebrahimzade, N., & Lankarani, K. B. (2021). Nursing experiences of COVID-19 outbreak in Iran: A qualitative study. *Nursing Open*, *8*(1), 72–79. https://doi.org/10.1002/nop2.604

Kelley, M. M., Zadvinskis, I. M., Miller, P. S., Monturo, C., Norful, A. A., O'Mathúna, D., Roberts, H., Smith, J., Tucker, S., Zellefrow, C., Chipps, E., & others. (2022). United States nurses' experiences during the COVID-19 pandemic: A grounded theory. *Journal of Clinical Nursing*, *31*(15–16), 2167–2180. https://doi.org/10.1111/jocn.16032

Labrague, L. J., De Los Santos, J. A. A., & Fronda, D. C. (2021). Perceived COVID-19-associated discrimination, mental health and professional-turnover intention among frontline clinical nurses: The mediating role of resilience. *International Journal of Mental Health Nursing*, *30*(6), 1674–1683. CINAHL Complete. https://doi.org/10.1111/inm.12920

Lee, H., & Choi, S. (2022). Factors affecting fatigue among nurses during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *19*(18), 11380. https://doi.org/10.3390/ijerph191811380

Lewis, A., Polatidis, B., Charitou, E., Karapatsia, A., Ahlmann Nielsen, A., Bjerrgaard Olesen, C., Apostolos Gargavanis, A., Halimah, S., Ioannis Tsianos, G., Polydorou, D., Holt, K., Cebic, M., & Vassiliadis, E. (2020). Backlog to surgery due to COVID-19 and considerations to address to catch-up safely. *Journal of Advanced Research in Medical Science & Technology*, *07*(3), 4–10. https://doi.org/10.24321/2394.6539.202010

Maqbali, M. A., Sinani, M. A., & Al-Lenjawi, B. (2021). Prevalence of stress, depression, anxiety and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of Psychosomatic Research*, *141*, 110343. https://doi.org/10.1016/j.jpsychores.2020.110343

Melnyk, B. M., Hsieh, A. P., Tan, A., Teall, A. M., Weberg, D., Jun, J., Gawlik, K., & Hoying, J. (2022). Associations among nurses' mental/physical health, lifestyle behaviors, shift length, and workplace wellness support during COVID-19: Important implications for health care systems. *Nursing Administration Quarterly*, *46*(1), 5. https://doi.org/10.1097/NAQ.0000000000000499

Merçay, C., Grünig, A., & Dolder, P. (2021). *Personnel de santé en Suisse – rapport national 2021 Effectifs, Besoins, offre et mesures pour assurer la relève*. (1–118). https://www.obsan.admin.ch/sites/default/files/2021-11/Obsan_03_2021_RAPPORT.pdf

Miljeteig, I., Forthun, I., Hufthammer, K. O., Engelund, I. E., Schanche, E., Schaufel, M., & Onarheim, K. H. (2021). Priority-setting dilemmas, moral distress and support experienced by nurses and physicians in the early phase of the COVID-19 pandemic in Norway. *Nursing Ethics*, *28*(1), 66–81. https://doi.org/10.1177/0969733020981748

Mo, P. K. H., She, R., Yu, Y., Li, L., Yang, Q., Lin, J., Ye, X., Wu, S., Yang, Z., Guan, S., Zhang, J., Hu, H., Xie, L., & Lau, J. T. F. (2022). Resilience and intention of healthcare workers in China to receive a COVID-19 vaccination: The mediating role of life satisfaction and stigma. *Journal of Advanced Nursing*, *78*(8), 2327–2338. https://doi.org/10.1111/jan.15143

Mohammed, S., Peter, E., Killackey, T., & Maciver, J. (2021). The «nurse as hero» discourse in the COVID-19 pandemic: A poststructural discourse analysis. *International Journal of Nursing Studies*, *117*, 103887. https://doi.org/10.1016/j.ijnurstu.2021.103887

Neuman, B., & Fawcett, J. (2011). *The Neuman systems model, 5th ed*. Pearson.

Oliver, T. L., Shenkman, R., Diewald, L. K., Bernhardt, P. W., Chen, M.-H., Moore, C. H., & Kaufmann, P. G. (2022). A year in the life of U.S, frontline health care workers: Impact of COVID-19 on weight change, physical activity, lifestyle habits, and psychological factors. *Nutrients*, *14*(22), 4865. https://doi.org/10.3390/nu14224865

Paillé, P., & Mucchielli, A. (2008). *L'analyse qualitative en sciences humaines et sociales sciences*. Armand Colin.

Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsi, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, *88*, 901–907. https://doi.org/10.1016/j.bbi.2020.05.026

Pelz, C., Schmitt, A., & Meis, M. (2004). Knowledge mapping als Methode zur Auswertung und Ergebnispräsentation von Fokusgruppen in der markt-und evaluationsforschung. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, *5*(2). http://nbn-resolving.de/urn:nbn:de:0114-fqs0402351

Penachiotti, F. D. F., Yamaguchi, M. U., Mana, A., Sagy, S., & Grossi-Milani, R. (2023). Sense of coherence and social support as predictors of mental health during COVID-19 pandemic. *Revista Brasileira de Enfermagem*, *76*(suppl 1), e20220468. https://doi.org/10.1590/0034-7167-2022-0468

Poon, Y.-S. R., Lin, Y. P., Griffiths, P., Yong, K. K., Seah, B., & Liaw, S. Y. (2022). A global overview of healthcare workers' turnover intention amid COVID-19 pandemic: A systematic review with future directions. *Human Resources for Health*, *20*(1), 70. https://doi.org/10.1186/s12960-022-00764-7

Riguzzi, M., & Gashi, S. (2021). Lessons from the first wave of COVID-19: Work-related consequences, clinical knowledge, emotional distress, and safety-conscious behavior in healthcare workers in Switzerland. *Frontiers in Psychology*, *12*, 12. https://doi.org/10.3389/fpsyg.2021.628033

Rivas, N., López, M., Castro, M.-J., Luis-Vian, S., Fernández-Castro, M., Cao, M.-J., García, S., Velasco-Gonzalez, V., & Jiménez, J.-M. (2021). Analysis of burnout syndrome and resilience in nurses throughout the COVID-19 pandemic: A cross-sectional study. *International Journal of Environmental Research and Public Health*, *18*(19), 10470. https://doi.org/10.3390/ijerph181910470

Rohisha, I. K., Jissa, D., Jibin, M., & Binu, M. (2023). Stressors and coping strategies among frontline nurses during COVID-19 pandemic. *Journal of Education and Health Promotion*, *12*(1), 109. https://doi.org/10.4103/jehp.jehp_1365_21

Rony, M. K. K., Rahman, M. M., Saki, A., Parvin, R., & Alamgir, H. M. (2023). Coping strategies adopted by frontline nurses in dealing with COVID-19 patients in a developing country during the pandemic: A qualitative study. *Nursing Open*, *10*(6), 3646–3658. https://doi.org/10.1002/nop2.1614

Salari, N., Khazaie, H., Hosseinian-Far, A., Ghasemi, H., Mohammadi, M., Shohaimi, S., Daneshkhah, A., Khaledi-Paveh, B., & Hosseinian-Far, M. (2020). The prevalence of sleep disturbances among physicians and nurses facing the COVID-19 patients: A systematic review and meta-analysis. *Globalization and Health*, *16*(1), 92. https://doi.org/10.1186/s12992-020-00620-0

Sampaio, F., Sequeira, C., & Teixeira, L. (2020). Nurses' mental health during the covid-19 outbreak: A cross-sectional study. *Journal of Occupational and Environmental Medicine*, *62*(10), 783. https://doi.org/10.1097/JOM.0000000000001987

Scortegagna, S. A., Lima, E. S., de Pasian, S. R., & Amparo, D. M. (2021). Mental health in health professionals facing covid-19: A systematic review. *Psicologia - Teoria E Prática*, *23*(1). https://doi.org/10.5935/1980-6906/ePTPC1913976

Sehularo, L. A., Molato, B. J., Mokgaola, I. O., & Gause, G. (2021). Coping strategies used by nurses during the COVID-19 pandemic: A narrative literature review. *Health SA Gesondheid*, *26*, 26. https://doi.org/10.4102/hsag.v26i0.1652

Serrão, C., Duarte, I., Castro, L., & Teixeira, A. (2021). Burnout and depression in Portuguese healthcare workers during the COVID-19 pandemic—the mediating role of psychological resilience. *International Journal of Environmental Research and Public Health*, *18*(2), 636. https://doi.org/10.3390/ijerph18020636

Sierakowska, M., & Doroszkiewicz, H. (2022). Stress coping strategies used by nurses during the COVID-19 pandemic. *PeerJ*, *10*, e13288. https://doi.org/10.7717/peerj.13288

Thompson Munn, L., Liu, T.-L., Swick, M., Rose, R., Broyhill, B., New, L., & Gibbs, M. (2021). Original research: Well-being and resilience among health care workers during the COVID-19 pandemic: A cross-sectional study. *AJN, American Journal of Nursing*, *121*(8), 24–34. CINAHL Complete. https://doi.org/10.1097/01.naj.0000767352.47699.0c

Vail, E. F. (1999). Knowledge mapping: Getting started with knowledge management. *Information Systems Management*, *16*(4), 16–23. https://doi.org/10.1201/1078/43189.16.4.19990901/31199.3

Van Steenkiste, E., Schoofs, J., Gilis, S., & Messiaen, P. (2022). Mental health impact of COVID-19 in frontline healthcare workers in a Belgian tertiary care hospital: A prospective longitudinal study. *Acta Clinica Belgica*, *77*(3), 533–540. https://doi.org/10.1080/17843286.2021.1903660

Varghese, A., George, G., Kondaguli, S. V., Naser, A. Y., Khakha, D. C., & Chatterji, R. (2021). Decline in the mental health of nurses across the globe during COVID-19: A systematic review and meta-analysis. *Journal of Global Health*, *11*, 05009. https://doi.org/10.7189/jogh.11.05009

Wirth, B., Stucki, M., Jörg, R., Thommen, C., Pahud, O., & Höglinger, M. (2022). *Les hôpitaux suisses Durant la pandémie de COVID-19. Impact de la pandémie sur le nombre de traitements stationnaires (no. Obsan bulletin 04/2022)*. https://www.obsan.admin.ch/sites/default/files/2022-09/Obsan_BULLETIN_2022_04_f_0.pdf

World Health Organization. (2020). *State of the world's nursing 2020 : Investing in education, jobs and leadership*. https://apps.who.int/iris/handle/10665/331677

World Health Organization. (2022, janvier, 25). *COVID-19 weekly epidemiological. Update [enligne]*. WHO. https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19—25-january-2022

Yıldırım, N., Aydoğan, A., & Bulut, M. (2021). A qualitative study on the experiences of the first nurses assigned to COVID-19 units in Turkey. *Journal of Nursing Management*, *29*(6), 1366–1374. https://doi.org/10.1111/jonm.13291

Zipf, A. L., Polifroni, E. C., & Beck, C. T. (2022). The experience of the nurse during the COVID-19 pandemic: A global meta-synthesis in the year of the nurse. *Journal of Nursing Scholarship*, *54*(1), 92–103. https://doi.org/10.1111/jnu.12706