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Losing the Art and Failing the Science of Nursing:

The Experiences of Nurses Working During the COVID-19 Pandemic

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Abstract

Purpose: RNs have served as the bedrock of the response to the COVID-19 pandemic, working under unprecedented and difficult conditions. In this study, we sought to understand the experiences of nurses working across a range of care settings in the United States during the first six months of the pandemic, and to learn more about barriers to and facilitators of their work.

Methods: This is a qualitative descriptive study. We recruited participants online through regional professional nursing membership listservs, program directors of occupational health nursing training programs, and social media. After completing a survey, potential participants were invited to complete an individual semistructured interview via the Zoom platform. From June through August 2020, we conducted 34 interviews. Content analysis was performed using ATLAS.ti software.

Results: The overarching theme—"Losing the art and failing the science of nursing"—underscored the barriers nurses faced in the early months of this pandemic. It reflected the deeply painful disruptions in the care nurses were accustomed to providing their patients. Themes that reflected barriers included disrupted nurse–patient connection, lack of personal protective equipment and fear of infection, lack of evidence-based guidance, and understaffing, all of which drastically altered the delivery of nursing care. Themes that reflected facilitators to nurses' work included camaraderie and strength and resourcefulness.

Conclusions: The study findings give important direction to nurse leaders, researchers, and organizations concerning potential areas of support that nurses need during and after this

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Findings from this qualitative study provide timely direction for nurse leaders and organizations.

pandemic. Future research should investigate the long-term impact of COVID-19 and similar public health crises on nurses, as well as interventions that could support the workforce after an extended crisis.

Keywords

coronavirus; COVID-19; nursing practice; pandemic; public health

In March 2020, the World Health Organization designated COVID-19, the disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), as a global pandemic.[1] The virus, which was first found in the United States in January 2020, spread rapidly that spring. The first wave of infections caused unprecedented shut-downs affecting all aspects of daily life, as businesses, schools, and entertainment venues shifted to remote work, classes, and events. But for nurses and other essential workers, working remotely from home wasn't an option. Patients infected with SARS-CoV-2 filled EDs, then ICUs and, in the hardest-hit areas, any available hospital bed. Nurses were soon being called out of retirement and from nonclinical practice settings to supplement staff nurses in caring for patients infected with this new, deadly, and highly contagious virus.

Compared to other recent epidemics and pandemics—which include the 2003 SARS epidemic caused by SARS-CoV-1, the 2009 H1N1 influenza pandemic, the Middle East respiratory syndrome (MERS) epidemic first reported in 2012, and the 2014 to 2016 West African Ebola virus disease epidemic[2]—the current pandemic differs in several ways. First, though the COVID-19 mortality rate is lower than that for SARS or MERS, SARS-CoV-2 has much higher transmissibility than the coronaviruses that cause SARS and MERS.[3] Thus, this virus has spread to a greater number of countries, resulting in higher numbers of cases and much longer periods of economic and social disruption. Second, the total number of deaths is much higher than were seen during previous pandemics. As of mid-February, COVID-19 had claimed over 900,000 lives in the United States and more than 5.7 million worldwide, and these numbers continue to rise.[4] Lastly, this pandemic has more starkly exposed significant racial, ethnic, and socioeconomic divisions in the United States,[5] with strikingly disparate rates of infection and death seen among minority populations.[6]

Nurses have topped the Gallup poll as the most honest and ethical professionals by a wide margin nearly every year since the survey began in 1999.[7] (The only exception occurred post-9/11, in 2001, when firefighters topped the poll.) Indeed, in the early months of the pandemic, nurses (and other health care workers) were hailed as heroes and cheered every evening from sidewalks and windows across the country. A recent analysis explored the construction of the "nurse as hero" rhetoric by the mass media, using media accounts from Canada, the United States, and the United Kingdom published between March 1 and August 1, 2020.[8] The findings challenged the hero narrative, showing that, in many cases, it masked the need to improve the perilous and inequitable conditions under which nurses work and circumvented systemic change. The outward displays of support from media sources, public officials, and individuals eventually waned, while the pandemic has raged on, with few periods of significant declines in the numbers of hospitalizations, confirmed cases, and deaths. Over the last year, and as many businesses and schools reopened, highly infectious

variants such as the Delta and Omicron variants have emerged, resulting in new surges or "waves" of infection.[9, 10] But vaccination rates remain uneven across the country.[10,11]

Early research conducted in China,[12-14] India,[15] Iran,[16] Italy,[17] and Singapore[18] during the first half of 2020 detailed the challenges that health care workers, especially nurses, were experiencing while caring for COVID-19 patients. High stress levels, fatigue, lack of personal protective equipment (PPE), and fear of being infected were documented as among the most frequent such challenges. Many of these investigations relied heavily on quantitative data from cross-sectional surveys,[12, 13, 15] which limits our grasp of the contextual elements influencing nurses' work experiences during the pandemic. Thus, we decided to use a qualitative approach.

Study purpose.

In this study, we sought to understand the experiences of nurses working in various health care settings across the United States during the first six months of the COVID-19 pandemic, and learn more about barriers to and facilitators of their work.

METHODS

Design.

This qualitative descriptive study represents part of a larger mixed-methods study. (Data analysis of the quantitative data is underway.) Institutional review board approval was obtained from the researchers' university prior to the start of the study.

Sample.

Several recruitment strategies were used. We emailed recruitment letters to nursing program directors at National Institute for Occupational Safety and Health–funded Education and Research Centers and to regional professional nursing organizations, which then sent the letters to member listservs. These centers and regional nursing organizations have locations across the country, allowing us to recruit a diverse geographical sample that reflected varying levels of COVID-19 infections and hospitalizations. We also recruited on the social media platforms Facebook, Instagram, LinkedIn, and Twitter using both the university's account and our personal accounts. The recruitment letter included a link to an online survey collecting demographic and other information. Before taking the survey, respondents were asked to provide informed consent for both the survey and, if selected for a subsequent interview, its audio recording.

Using purposive sampling techniques, specifically maximum variation sampling,[19] we selected a diverse sample of nurses with regard to age, race, ethnicity, geographic region, and number of years of nursing experience, and offered them the opportunity to participate in an interview. No participants were known to the researchers prior to study participation. Inclusion criteria included working in the United States as an RN and having six or more months of work experience. As an incentive, participants were entered into a random drawing for one of five $50 Amazon eGift cards.

Data collection.

Semistructured interviews were held with individual participants from June through August 2020, with one of four of us (AWS, LG, LAG, JZ) conducting each interview. All interviews were conducted and audio-recorded on Zoom, a web-based conferencing platform, and lasted between 30 and 60 minutes. The interview guide was based on domains from Heaney's conceptual frame-work for work, stress, and health, which describes how direct and indirect work stressors affect worker health.[20] The guide was modified from one developed for a previous study to reflect the pandemic context of this study.[21] Examples of some of the open-ended questions we asked include, "Tell me about your experience with COVID-19" and "What are some of the challenges that you are currently facing [in your job]?"

Data analysis.

Processing and analysis of interview data were completed using conventional content analysis.[22] The interviews were professionally transcribed and then analyzed using ATLAS.ti version 8 software, which is a powerful tool for the analysis of large bodies of textual data.

To process the data, three of us (AWS, LG, LAG) read through all the interview transcripts as well as postinterview notes and memos. Preliminary data analysis involved a line-by-line review that yielded clusters of data, which were then given short labels. Each interview was coded independently by one researcher; a second researcher then reviewed and confirmed the codes. Any discrepancies were resolved through consensus. Codes were then linked to interview sections and questions, resulting in coding categories. Lastly, we identified themes both within and across coding categories.

The research team met frequently during the analytic process to discuss coding and theme identification. To ensure rigor, we used Lincoln and Guba's criteria—credibility, transferability, dependability, and confirmability—as a guide.[23] An outside qualitative nursing workforce expert also reviewed and confirmed our findings.

Data saturation was reached after 34 interviews, as determined after reviewing postinterview notes and memos and finding no new codes, and by consensus of the research team.

RESULTS

Sample.

The participants included 34 nurses from 18 states, working across a range of urban, suburban, and rural settings. (It's worth noting that nearly twice as many nurses consented to an interview but were unable to participate because of scheduling and work demands.) The mean age was 43 years; 91% identified as female; and 82% as White, with the remaining 18% primarily identifying as Native Hawaiian or Asian. Three percent of the sample identified as Latinx or Hispanic. Compared with nurses participating in the 2018 National Sample Survey of Registered Nurses, our sample was slightly less racially and ethnically diverse, and slightly younger.[24,25] The majority of participants (79%) worked on a

hospital inpatient unit; the remaining participants (21%) worked in other settings that ranged from occupational health to a dialysis center. Among all participants, 26% worked on a general or specialty unit other than ICU or step-down; another 21% worked in an ICU or step-down unit. For more details on participant characteristics, see Table 1.

Themes: barriers.

The overarching emergent theme—"Losing the art and failing the science of nursing"—encompasses several barriers that nurses experienced during the first six months of the COVID-19 pandemic. It reflects the dual nature of professional nursing (the art of the nurse–patient relationship, the science of evidence-based practice) and how the COVID-19 pandemic has disrupted the fulfillment of nursing work. As one participant working on a general or specialty unit stated, "That's been the biggest challenge for me . . . still taking care of the patients like we always have."

Specific barriers that emerged are centered on disrupted nurse–patient connection, lack of PPE and fear of infection, lack of evidence-based guidance, and understaffing.

Disrupted nurse–patient connection.—Many participants described a deep sense of loss stemming from their inability to develop strong connections with patients within the constraints imposed by the pandemic. Under more normal circumstances, nurses work in close human proximity to their patients, commonly for shifts of 12 hours or longer.[26] A nurse's physical presence at the bedside facilitates frequent touch and emotional assessment of the patient. It allows the nurse to attend to the patient and family's most pressing concerns, whether this means providing physical comfort care (such as brushing teeth, repositioning), offering therapeutic communication (such as explaining a procedure, asking the patient what they'd like to talk about), or helping a patient through the dying process. For a host of reasons, from pandemic-associated visitor restrictions and PPE shortages to fears about contracting COVID-19 themselves, many participants reported feeling stymied by their inability to be at their patients' bedsides. One participant working as a float nurse described this frustration:

> All of my instincts say I want to sit with this person and hold their hand and really give them high quality care, but the other nurse was like, "Hey, we got to go. We've been in here too long."

Lack of PPE and fear of infection.—Another nurse working in the ICU described worrying about PPE shortages and viral spread among both the nurses themselves and their patients: "It's been a really stressful situation for us because we can't protect ourselves and then we don't know if we are also exposing other really sick patients as well." The fear of infection was also evident when the nurses spoke of their own loved ones. As one participant working in a hospital step-down unit reported, "People were afraid that they were gonna become positive—including myself—and worried about taking it home to families and friends." All of these factors reduced nurses' ability to engage and connect at the bedside—aspects of the art of nursing.

Lack of evidence-based guidance.—Many participants reflected on the difficulties imposed by the ever-changing clinical protocols regarding COVID-19 disease management. Particularly during the first months of the pandemic, there was little evidence on which to base such management. As one nurse working in the operating room remarked, “We’re learning as we go.” Participants spoke of frustration and of “failing” their patients in being unable to provide care that would ease suffering and prevent death. One hospital nurse educator stated, “Lots of hurt and pain, you know, we saw a lot of deaths in the beginning. People were not recovering. We just didn’t have the right treatment plan.”

This lack of evidence-based clinical guidance—the science that informs nursing—hampered nurses’ ability to provide care to patients and families. The exorbitant numbers of patients who died (far more than any staff or ICU nurse had ever experienced) combined with how they died (often alone, in apparent distress, and without being able to say goodbye to loved ones) deeply affected our participants. As one nurse working on a general hospital unit said,

> I think out of all of the ones that were on our 18-bed unit, it was just a recycle. Everyone, they come in and a few days later, they die. They come in and a few days later they die.

The aforementioned hospital nurse educator, who also floated to a trauma unit, further stated,

> [We were] working really hard to keep patients alive. I felt like that’s all we were doing. There was no hope for weaning, there was no hope for being discharged. It was just, “Can I keep them alive during my shift?” and most of them died.

The high death rates seen with COVID-19 had a profound impact on both early-career and experienced nurses. As one experienced nurse administrator said,

> As a nurse, you want to come in. I mean everyone signs up to be a nurse to take care of people, but the death ratio was so high that—regardless of what we were doing—people were still dying and that was very impactful to how real it was and that—I don’t want to say it didn’t matter what we did—that was part of the scariness too.

An experienced float nurse said,

> They’re not the first patients that died on me. I’ve had other patients die, but this is different. This isn’t like the 80-year-old with stage IV cancer. This is not the person who has a serious cardiac issue and their [ejection fraction] is 20% and they’re on crazy oxygen and they’re on oxygen at home. This is not these people. These are people that, for the most part, don’t have any really serious medical issues and maybe they’re diabetic or maybe they have a heart condition, but they’re not that sick.

And an early-career behavioral health nurse who was redeployed to inpatient COVID-19 units commented,

> It was probably the worst experience I’ve ever had as a nurse, and I feel bad because I know a lot of nurses came on that graduated in December and I felt so

> bad for them because it's not what nursing should be. It's not how nursing really is, just struggling to keep these people alive.

Understaffing.—Another significant barrier that impeded care delivery was understaffing. As one float nurse said, "We weren't given any extra staff to make it easier to be able to take care of these patients [whose care] required more time for gowning and gloving and [other] things." The majority of the study participants weren't trained in critical care or intensive care, yet many were reassigned to makeshift ICUs or units converted into COVID-19–specific units.

Even participants with critical care or intensive care experience remarked that they weren't prepared for the demands of patients with COVID-19. As one nurse described,

> I was redeployed back to the [surgical] ICU that I started working in . . . and after just one shift, I got redeployed to the COVID ICU, which was terrifying because I felt like I wasn't part of the initial training and education and [efforts] to prep the nurses for what we were going to see.

This participant went on to note, "There was probably a group of about 25 of us that were redeployed to the ICU with ICU experience, and we all felt unprepared and ill equipped to properly take care of the patients initially."

Participants who worked in designated hot spots (including New York, New Jersey, the San Francisco Bay Area, and Louisiana) during the first wave of the pandemic spoke about their organization's attempts to fill staff shortages with out-of-state travel and local agency nurses. One ED nurse offered this perspective: "I think it had to get to the point of potentially losing nurses to start bringing people in." The combination of understaffing and the limited numbers of nurses with adequate critical care experience was taxing for both the staff nurses and the travel and agency nurses. One nurse who worked in the operating room said, "I mean we were all really frightened. You're working with people you don't know. They don't know me."

Furthermore, participants were troubled by the impact of understaffing on the quality of nursing care. Several expressed feeling guilt, anxiety, and a sense of loss when they were unable to provide the level of care they'd been able to provide before the pandemic. One ICU nurse said,

> There's been an increase in patient safety adverse events based on these staffing changes, increase[s] in self-extubations [by] our patients, a whole bunch of issues based on the fact that we are seeing staffing based on numbers rather than acuity that we didn't see before the pandemic.

Themes: facilitators.

Two themes emerged that reflect the facilitators that nurses experienced. These centered on camaraderie and strength and resourcefulness. Despite the intensely painful experiences participants reported, there were also positive experiences that served as facilitators to their

ability to practice and their growth at work. These facilitators were often related either to the larger organization where they worked or to the nursing profession.

Camaraderie.—The first facilitator that emerged was camaraderie. Across interviews, it was evident that participants felt a strong sense of camaraderie with their fellow nurses, which was infused with pride at maintaining nursing's critical role at the bedside. As an ICU nurse said, "If there's one thing I learned from this, I know that our group of people really showed up."

The support that participants drew from their colleagues seemed to bolster their efforts both at work and on their days off. In the work setting, as one participant who worked in occupational health reported,

> There's that social–emotional connection . . . just that acknowledgment that this work is really hard right now and I think everybody really does show up for each other and is as supportive as can be.

Another participant who worked in an outpatient setting stated,

> Helping out each other and being there for your other teammates was really important . . . I don't think I would have survived if I didn't have that.

Participants also spoke of how colleagues' support helped them through changes in their personal lives stemming from the pandemic, such as having to relocate or interacting with peers outside the workplace. One seasoned participant working in an ICU in New York City described what it was like to live in a dorm, away from her husband and young children:

> The whole time was crazy because it seems just like a blur. I mean the best thing about going to work was [that] I was with my colleagues and there was some sort of sense of camaraderie. That was an amazing, an immensely strong feeling that . . . at the time was everything, because most of us were living separated from our families.

A nurse midwife reported seeking peer support outside of work, saying,

> I've tried to have—intentionally have—some friends who [work in health care]; we're all in the same boat because we're all nurses or all health care workers and we've discovered virtual happy hour where we just all get on a Zoom call to socialize and just to try to be available to each other.

Several participants felt that only other nurses could understand what it was like to work during this type of crisis and how healing their connections to one another could be. As one hospital float nurse explained,

> We were all going through it and while we were maybe experiencing it a little differently, we were all sharing this experience and it's not like something you could go home and talk to your husband or your wife or your girlfriend or your friends and say, "Oh, well, this is how I feel" because they have no idea. They didn't have to watch this 26-year-old get intubated and die.

Strength and resourcefulness.—The second facilitator that emerged can be summed up as strength and resourcefulness. There was a shared sense of accomplishment in the face of immense challenges that reflected the participants' ability to adapt and innovate in doing their jobs. An early-career float nurse reflected on her professional growth, saying,

> I honestly think it's made me a better nurse. I feel like a stronger nurse just because I've seen how bad it could be and I feel . . . much more confident speaking to patients. . . . I've been a nurse almost two years now. So, before I was timid and I knew things, but I wasn't sure if I actually knew them.

Another experienced participant who worked as a nurse educator, referring to both home and work life, commented,

> Like I said, I'm stronger than I thought I was. That you're able to rethink workarounds and find different ways to do things and different ways to conserve your PPE, different ways to get to my office . . . just resourcefulness, I guess, and the ingenuity of trying to come up with all the different ways to do things.

On a larger scale, an ICU nurse, who had been describing nurses' strength and their agility in rapidly transforming general units into COVID-19–specific ICUs, said, "I felt like for the first time, people really noticed what nurses were doing."

DISCUSSION

Overall, our results reflect both barriers and facilitators to practicing nursing during the pandemic. The overarching theme highlights the pandemic's disruptions to both the art and the science of nursing—the profession's dual foundational components. As the well-known nursing theorist Peplau noted, the view that nursing is an art and a science has been reflected in both nursing practice and nurse licensure laws since at least the early 20th century.[27] As Peplau explained, the art of nursing "singularly involves the nurse and other persons [patients] always in an interpersonal situation" and often extending to the patient's family as well. It develops in real time and is unique to each nurse. The science of nursing generally follows the standard scientific investigative approach. In nursing, this process encompasses assessing, diagnosing problems, explaining phenomena, planning and implementing interventions, and evaluating care outcomes at the levels of the individual and populations.

At the onset of the current pandemic, profound and abrupt changes in how health care professionals practiced had significant impact on the nurse participants in our study. Yet although our participants described many adverse and distressing effects of these changes, they also reflected on positive experiences. They found meaning and strength in their professional camaraderie and in how they continued to "show up." Through this collective cohesion, they found support for one another and for their patients. By continuing to be a bedside presence, albeit in a different way than before the pandemic, the participants reported feeling an inner strength that many had been unaware they possessed.

Within the emerging literature on the effects of the pandemic,[28, 29] our study is among the first qualitative studies conducted with a U.S.-based sample. In one mixed-methods

U.S. study, the qualitative portion included free text responses from 21 nurses early in the pandemic.[28] One of the overarching themes in that study—"What's the protocol today? And where, oh where, is the research?"—reflected nurses' frustration with the lack of research on COVID-19 disease management from an evidence-based perspective. This was similar to our participants' frustration with the ever-changing clinical protocols for COVID-19 patients.

Regarding recent qualitative studies conducted among nurses working outside the United States,[14, 16, 17, 30] our findings showed similarities to and differences from the positive and negative themes identified in those studies. For example, in a qualitative phenomenological study among nurses working in Wuhan, China, during the earliest months of the pandemic, two main thematic categories emerged, representing the positive and negative outcomes the nurses reported.[14] Similarly, our study found that U.S. nurses described both multiple barriers and some facilitators to nursing practice during the pandemic.

Our findings also differed in some ways. For example, in a phenomenological study of 17 Turkish nurses, nurses reported strong perceptions of organizational injustice: they felt anger about not being visible to colleagues, a lack of support from management, and unfair processes in how they were assigned to work with COVID-19 patients.[30] Our findings did not reflect the same perceived levels of anger or of overall injustice. And while our results showed some similarities with those from the aforementioned mixed-methods U.S. study,[28] we did not find the same focus on PPE reuse and lack of COVID-19 testing it reported. This might be attributed to the timing of data collection, as we collected data later in the pandemic.

Practice implications.

It's paramount that we gain a better understanding of what kinds of support could be offered to nurses, now and in the near term, to foster positive coping during this extended public health crisis. The reflections of the nurses in our study suggest that peer support groups and nurse-led interventions can be invaluable. Participants described setting up their own Zoom-based support sessions at the onset of the pandemic and finding them helpful. Since then, health care workers' use of more formalized mental health resources, such as expert-supported apps like Happify and counseling or psychotherapy, has been increasing.[31] As the pandemic continues, our findings suggest the need for employers to offer nurses workplace screenings for anxiety, depression, insomnia, posttraumatic stress disorder, or a combination of these—and we recommend that such screenings be offered to all nurses, not just those caring directly for patients with COVID-19. The occupational health consequences of this pandemic for nurses will likely be prolonged and will require deliberate long-term surveillance from nurse managers and hospital administrators. Accordingly, for nurses whose screening scores are of concern, paid time off or other alternative scheduling practices should be used to allow them to obtain the care they need. Lastly, administrative support to ensure adequate staffing, efficient supply chains, and sufficient stockpiles of PPE and other resources is essential. These types of disaster preparedness activities have often been overlooked by organizations, resulting in increased stress, fear, and illness among health care workers, as our participants reported and as the literature reflects.

Limitations.

The primary limitations of this study pertain to its design and timing and affect the generalizability of the findings. The pandemic-related restrictions at our university limited the sampling strategy and data collection methods, which had to be conducted remotely. And because the interviews were conducted during the first six months of the pandemic, the findings reflect participants' views only for that time period. There is also potential for research bias in the results, as not all researchers were actively working in clinical settings at the time of the interviews; and although the team was interprofessional, all of us are employed at the same university.

CONCLUSIONS

The findings of this study contribute to the literature documenting the experiences, both challenging and rewarding, of U.S. nurses working during the COVID-19 pandemic. Their firsthand accounts, collected during a particular segment of time, provide documentary evidence of the perspectives of mostly frontline nurses dealing with a grave public health crisis, and show that nurses have experienced both individual and collective trauma. The interviews are historically important in that they preserve the voices, emotions, bedside care experiences, and COVID-19–related uncertainties of both frontline nurses and nurse managers.

Our findings give important direction to nurse leaders, researchers, and organizations concerning potential areas of support that nurses need—both as COVID-19 continues and afterward—and strategies to mitigate the challenges for nurses in subsequent pandemics. Further research, in particular longitudinal studies designed to consider the long-term impact of COVID-19 on nurses' psychosocial health and work outcomes, is warranted. ▼

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Table 1.

Participant Characteristics (N = 34)

Characteristics	n (%)
Age in years (mean, SD)	43 (13)
Gender	
Female	31 (91)
Male	3 (9)
Ethnicity	
Latinx or Hispanic	1 (3)
Race	
White	28 (82)
Native Hawaiian	2 (6)
African American/Black	1 (3)
Asian	2 (6)
Other/Mixed race	1 (3)
Work setting	
Hospital (inpatient)	27 (79)
Hospital (outpatient)	3 (9)
Ambulatory care (nonhospital)	3 (9)
Other	1 (3)
Unit type	
General or specialty	9 (26)
ICU/ICU step-down	7 (21)
Outpatient/ambulatory care	5 (15)
ED	4 (12)
Operating room	1 (3)
No specific area/float pool	4 (12)
Other/nonclinical	4 (12)

Note: Some percentages may not sum to 100% because of rounding.