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Nurses' personal perceptions of clinical work adaptation during COVID-19

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ABSTRACT

Background: The clinical work of nurses across the United States was profoundly impacted by the Coronavirus (COVID-19) pandemic. Nurses in both hospital and outpatient settings had to adapt quickly to the continuously changing healthcare environment.
Objective: To describe nurses' responses to open-ended questions of their clinical work adaption during the COVID-19 pandemic.
Methods: A descriptive, cross-sectional survey with four open-ended questions was completed by practicing HF nurses. Content analysis was used to analyze the written data.
Results: The 127 nurses who provided one to four narrative responses, 55.1% were clinical registered nurses and 44.9% were advance practice nurses. Four categories emerged: changing paths exemplifies work challenges, developing technical skills and resources, asking better questions while listening, and showing resilience through new paths to optimize work.
Conclusion: Understanding perceptions of nurses' adaptions to clinical work made during the pandemic provides insight into the challenges and opportunities for development in the future.

Introduction

Nurses play a pivotal role in educating, supporting and guiding patients and their caregivers to acquire, maintain and refine self-care knowledge and behaviors across hospital, clinic, and community settings.[1,2,3] During the COVID-19 pandemic, nurses' roles were severed, disrupted, or changed as they responded to the immediate shifting healthcare needs in their communities of care.[4] Their roles were changed due to environmental changes in the workplace and new processes, programs or innovative techniques used to interact with patients and meet their healthcare needs at a distance.[5,6]

In previous studies, authors evaluated the practice patterns of nurses caring for patients with heart failure (HF).[7,8] However, the ongoing COVID-19 crisis shifted healthcare maintenance for many chronic conditions. In a previously reported study by Prasun et al. (2022) authors assessed how a shift in healthcare maintenance influenced the practice patterns of nurses caring for adults with HF.[8] In that study, nurses perceived physical assessment to be more difficult when in-person care was replaced with telemedicine services.[8] In addition, practice patterns changed during COVID-19, specifically, nurses' felt less able to assess patient symptoms, optimize patients' HF management to prevent worsening of their condition, and support behaviors that maximized health.[7,8] Despite continuing to educate patients, nurses perceived that patient self-care was below pre-pandemic levels. Overall, 41% of nurses perceived the pandemic decreased their ability to follow national guidelines. However, they

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reported increased satisfaction with the care they provided their patients in spite of the barriers brought on by the pandemic.[8]

The purpose of this paper is to describe the narrative responses of nurses who participated in the national survey described above.[8] Furthermore, we aimed to better understand clinical nurses' responses to the COVID-19 pandemic regarding how they (a) adapted their practice patterns, (b) developed solutions, used resources, or overcame lack of resources, and (c) created opportunities to improve outcomes for patients with HF, their families, and caregivers. Open-ended questions were used to capture details of the perceptions and feelings of nurses and to provide contextual information on categories of information that emerged from the text.

Methods

Design

A descriptive, cross-sectional survey design was used and previously published.[8] In brief, for this research the 4 open-ended questions, that were part of the original 41-item survey, were analyzed utilizing the verbatim responses and personal stories from participants. In analysis, manifest coding of responses was completed by considering the words provided as evidence, rather than trying to interpret responses (latent coding). We used the recommendations of Elo and colleagues[9] to enhance the trustworthiness of our analysis. This research study was ruled minimal risk and exempt from further review by the Illinois State University Institutional Review Board (IRB-2020–247).

Setting and sample

Participants were registered nurses working in an ambulatory or hospital-based clinical role with direct patient contact and members of the American Association of Heart Failure Nurses (AAHFN). In addition, researchers employed snowball sampling and shared the survey with personal contacts who met inclusion criteria.

Nurse perceptions of interest

Nurse perceptions of interest were derived from the following 4 open-ended (fill-in-the-blank) questions (a) pandemic-related changes in their ability to collect assessment data; (b) new skills used, learned, or refined; (c) reasons for changes in their ability to follow or apply clinical HF practice guidelines; and (d) other content they wanted to openly share about their patient care experiences during COVID-19. The other 37 survey items used multiple-choice, select-all-that-apply, and Likert-type response options. The research questions were developed collaboratively by 3 of the researchers (MP, JB, and KV). Some questions were derived from a previous survey that focused on practice patterns of nurses who cared for patients with HF.[7] Study investigators suggested revisions, and face validity was assessed. An iterative process of survey development continued until investigator agreement was achieved.

Data collection

The AAHFN sent the anonymous study survey to all organization members via electronic mail on behalf of the researchers, using Qualtrics. A research information sheet included a survey link, and survey completion was considered informed consent. In total, 6 requests, between September and December 2020, were sent to the target population. Qualtrics data were sent directly to the principal investigator's secure university server and required a password to access.

Table 1
Number of participants (N = 127) who answered each open-ended question.

Question	Number of Participants	% of Participants
Why has your ability to collect assessment data changed?	37	29.1%
What skills have you used, learned, or refined that have facilitated your ability to assess patients?	59	46.5%
To what do you attribute the increase or decrease in your ability to follow or apply clinical practice guidelines?	110	86.6%
If necessary, please provide comments about any of your responses to the previous questions.	126	99.2%

Data processing and analysis

Content analysis was used to analyze the written data we received. Content analysis allowed us to classify, tabulate and evaluate data.[10-12] This approach was a good fit for our data, given that data were anonymous responses to survey questions. We were not able to ask clarifying or probing questions or complete follow-up interviews. As previously stated, *manifest* content analysis was used, as our objective was to identify descriptive categories that arose from the data. We have used the term "category" instead of "theme" given that manifest content analysis generally reflects categories of information, while latent content analysis more precisely reflects themes.[11] Although analysis of latent content is possible with content analysis, analysis of this symbolic or non-obvious content requires a high level of abstraction and interpretation, [10, 11] which we did not feel was appropriate or possible given the nature of our survey data and study purpose.

After downloading responses from Qualtrics to Microsoft Word, the principal investigator read all comments several times and completed manual first-cycle descriptive coding[13] of responses, with a focus on the explicit statements of participants. Researchers met via videoconference to discuss the initial descriptive codes in more depth, triangulating their thoughts and generating a few more descriptive codes. Authors then took time to think about the codes and arrange them into more logical categories, using a process of "second-cycle coding".[13] Researchers met on multiple occasions via videoconference and communicated via email to arrange the codes into overarching categories and sub-categories. Verbatim participant statements were assigned to sub-categories using a Microsoft Word document. In developing the categories and drawing conclusions about the data, within-case and cross-case analyses were applied.[13] We reviewed each participant's individual responses to the four open-ended questions and analyzed those responses at the individual level but also focused on developing categories based on patterns across all participant data.

Results

A total of 171 participants completed the survey, and 127 answered at least one open-ended survey question. The sample (n = 127) spent a median of 12.5 (IQR 8.9) minutes completing the survey. The 4-open ended questions and the number of respondents to each question are reported in Table 1. Most participants identified as female (93.7%), with a mean age of 50.6 (*SD* 11.1) years. Over half (55.1%) of the participants were clinical registered nurses in caregiver roles, and 44.9% reported being advanced practice nurses. Participants reported spending a mean of 12.7 (*SD* 10.5) years in their current role and a mean of 15.4 (*SD* 9.8) years working with patients with HF. Just over half of the participants (55.1%) had national

certification credentials in HF. Geographically, participants were spread across the United States, with 29.1% located in the Midwest, 26.8% located in the Southeast, 23.6% located in the Northeast, 15.0% located in the West, and 5.5% located in the Southwest. More participants (76.2%) worked in an urban (population > 50,000) area, 22.2% reported working in an urbanized cluster (population 2500 to 50,000), and 1.6% reported working in a rural (population < 2500) area. A full summary of participant demographics is available in Table 2.

Four interconnected categories of information emerged related to practice patterns of nurses: changing paths exemplifies work challenges, developing technical skills and resources, asking better questions and listening, and showing resilience through new paths to optimize work. Each of the categories of information were embedded within an overarching premise that the nurses' world had changed as a result of the COVID-19 pandemic. Within the responses we received, nurses illustrated challenges and adaptive practices that reflected their resilience in the face of change (see Fig. 1).

My world has changed

Nurses reported a sudden change in HF practices and in their roles as the pandemic began to unfold. *"During the shelter-in-place the clinic and hospital were eerily quiet. Patients were no-shows for their appointments or didn't answer the phone. Video calling would fail due to technical issues."* The abrupt halt to daily routine practice and the associated challenges to connect with patients was unsettling to nurses. In addition, nurses needed to address patients fears and their unwillingness to come into the office for evaluation. *". . .. patients are calling frequently. They are still very scared."*

Some nurses reported that hospital units and clinics were converted to accommodate the surge of patients with COVID-19, yet they continued to be concerned for patients with HF who were potentially reluctant to seek care. "*During the pandemic my HF unit turned 100% COVID."* "*We have also had to accommodate surge volumes of inpatients by becoming a primary medicine service."* The need to shift care responsibilities to accommodate adults with COVID, in addition to caring for patients with HF, was overwhelming. *"We are now having to practice general internal medicine management on top of managing HF, which feels overwhelming and unsafe*." Nurses reported a high volume of hospitalized COVID patients, surges in COVID admission and also, patients with HF who delayed seeking treatment and were admitted in a high acute illness state. *"Our hospital census is very high though from new diagnoses of HF since patient's stayed home and infarcted or became sick and did not seek care."* Changes in hospital-based practices and patient acuity were accompanied by nurse

Table 2
Participant Characteristics by Profession (n = 127)

	Profession	
	RN (n = 70)	APRN (n = 57)
Age in years, M (SD)	49.23 (11.6)	52.34 (10.2)
Years Working in Heart Failure, M (SD)	13.9 (9.7)	17.2 (9.7)
Years Working in Current Role, M (SD)	11.1 (10.7)	14.7 (9.9)
Participant Sex		
Female	65 (92.3)	54 (94.7)
Male	5 (7.1)	2 (3.5)
Prefer not to respond	0 (0.0)	1 (1.8)
Highest Level of Education, n (%)		
ADN	6 (8.6)	0 (0.0)
BSN	47 (67.1)	0 (0.0)
MSN/MS	15 (21.4)	45 (78.9)
DNP	0 (0.0)	11 (19.3)
PhD	0 (0.0)	1 (1.8)
Other	2 (2.9)	0 (0.0)
Certified in HF? Yes	31 (44.3)	39 (68.4)
Practice Setting, n (%)		
Hospital	41 (66.1)	17 (33.3)
Ambulatory care or medical office	21 (33.9)	36 (66.7)
Practice Setting Location, n (%)		
Urban (>50,000 people)	52 (75.4)	44 (77.2)
Suburban (2,500 to 50,000 people)	17 (24.6)	11 (19.3)
Rural (<2,500 people)	0 (0.0)	2 (3.5)
Geographic Region, n (%)		
Midwest	19 (27.1)	18 (31.6)
Northeast	18 (25.7)	12 (21.1)
Southeast	14 (20.0)	20 (35.1)
Southwest	4 (5.7)	3 (5.3)
West	15 (21.4)	4 (7.0)
Average Number HF Patients Per Week, n (%)		
0 to 5	9 (12.9)	2 (3.5)
6 to 10	15 (21.4)	13 (22.8)
11 to 20	14 (20.0)	18 (31.6)
21 to 30	8 (11.4)	8 (14.0)
31 to 40	5 (7.1)	5 (8.8)
41 to 50	5 (7.1)	6 (10.5)
51 or greater	14 (20.0)	5 (8.8)
Instituted New or Additional Telehealth Approaches to Care for HF Patients	42 (60.9)	52 (91.2)
Percentage of Patients that Contacted Respondent with Questions about COVID-19, M (SD)	32.4 (33.6)	37.3 (27.4)
Percentage of HF Patients Managed with Telehealth, M (SD)	47.4 (33.9)	44.1 (28.8)

Note. All questions were optional, and some respondents chose to skip one or more questions. No attempt was made to estimate the missing data, so above variables may not sum to n = 127.
APRN=advanced practice registered nurse, BSN=Bachelor of Science in Nursing, DNP=Doctorate in Nursing Practice, M = Mean, MS=Master of Science, MSN=Master of Science in Nursing, RN=registered nurse, SD = Standard Deviation.

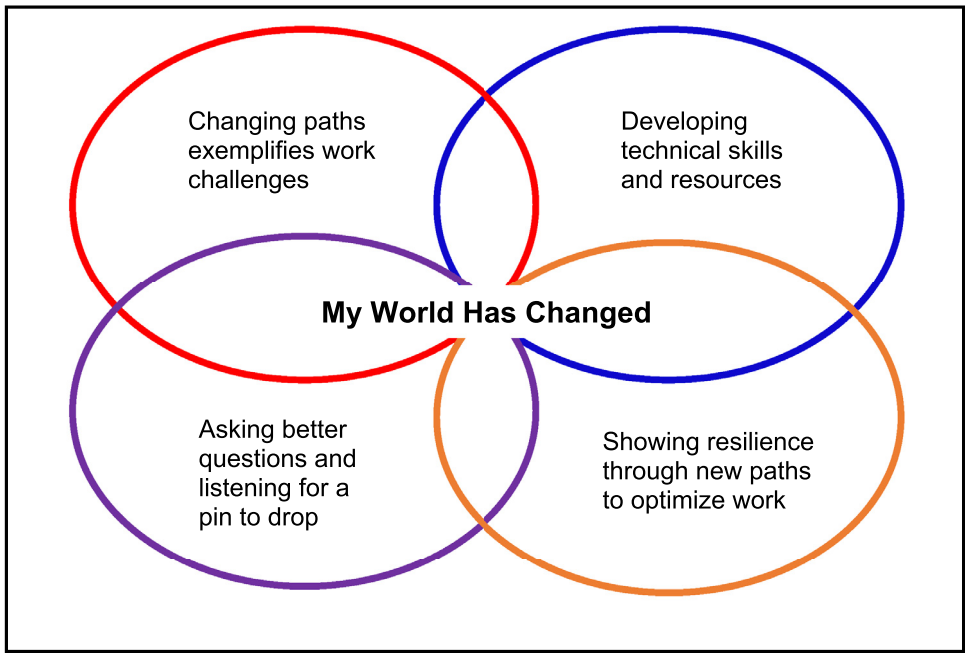

Fig. 1. My World has Changed Nurses' Perceptions.

uncertainty and frustration: "*less ability to assess responses to treatment*", "*patients are not calling in a timely manner*", "*less frequent follow-up*", and "*the shortage in supplies is frustrating and the staffing shortage along with the higher expectations in patient care has made doing my job less than enjoyable and more frustrating."* Paradoxically, nurses displayed resilience in that they showed flexibility to meet the evolving needs of patients: "*more in-depth history taking*" and "*a willingness for patients along with the family care team all being able to participate, has made a significant positive impact*".

Changing paths exemplifies work challenges

Nurse participants communicated that they felt challenged in their decision-making regarding patient care due to the increased volume of remote patient visits. Nurses working in outpatient/ambulatory care settings communicated that assessing the patient's status was challenging at times because they were unable to complete a physical assessment. Many patient visits were limited to telephone calls, which inhibited nurses from being able to physically see patients. One nurse stated, "*we never had the capacity for video visits*." Many times, patients had difficulty recognizing symptoms such as edema or shortness of breath, and without having the ability to physically see patients, nurses relied on what was being communicated to them. One nurse stated, "*I feel like I am giving poor care with virtual visits since I can't do a physical exam. I catch more fluid retention through exam than subjective findings*." Another nurse stated, "*Being unable to perform a physical exam on telemedicine visits has been very limiting as many patients have difficulty assessing their own swelling*."

Nurses also felt challenged in decision-making by a lack of objective data collected from patients. Many chronically ill patients with HF were unwilling or unable to travel to a lab facility to provide blood for laboratory work. Clinical and advanced practice nurses were less confident in making treatment decisions that had previously been based on objective data, even though they increased their request for and reliance on blood pressure, heart rate and weight measurements during distance visits and either refined or asked new questions via telehealth that they previously did not use. One nurse stated, "*The one thing that has been difficult is getting labs and diagnostics. Patients have been too scared to leave their home to get labs which are a vital link in competent patient care*." Other nurses stated, "*patients are not coming to clinic, using video visits does not allow for labs to be drawn and a good physical assessment to be done,"* and *"I refined questions and encouraged patients to be very descriptive of signs and symptoms"*. Despite issues in identifying patients' status due to lack of objective data, nurses identified that virtual visits accelerated their ability to understand patient education needs and individualize education delivery. For example, nurses found it easy to ask patients to show them their medication bottles or food in a cupboard or pantry. Visualization in patients' home environment allowed for real time education around medication management and adhering to a sodium-restricted HF diet.

Developing technical skills and resources

Nurses were inventive when they recognized that they could no longer rely on previous patterns of work. They learned how to complete assessments with limited data, use a video camera to assess jugular venous pressure, encourage patients with smartphones to use them during a virtual examination, use direct questions and other phone skills, and develop new systems that enhanced their ability to get the information they needed. One nurse stated, "*I created a cheat sheet to take notes during telehealth visits as it was harder to remember key points when not in the exam room*" and another stated, "*I encourage essential family members to be present during the visit and I utilize the postal service to deliver education if email is not established with patients."* Multiple nurses stated that they enhanced their ability to work with virtual platforms, use virtual skills and complete virtual visits with patients. One nurse stated that she gained "*IT [information technology] skills to walk patients through video visits*" and another stated, "*learning what we can by observation of patients*" reflected that rather than using hearing as a predominant "sense" to gain knowledge, visual cues were used during a virtual assessment. For many nurses, phone interviews with patients and family members took precedence over a head-to-toe assessment and distance follow-up visits with or without a video. Nurses made requests of patients to aid their ability to complete assessments. Nurses stated, "*I asked patients to obtain BP [blood pressure] equipment to monitor BP/HR [heart rate] so I can up-titrate medications*" and "*I ask patients to prepare for the appointment by having their blood pressure* log *and equipment and weight* log *and a scale close by in case needed*." Nurses also

ramped up patient education and, in some cases, seemed resigned with new processes: "*While not perfect, I can obtain a lot of info via telehealth video or audio, and experience helps.*" Issues with telehealth were also raised; for example, virtual visits were not an option in a rural patient population with limited access. Finally, comments were made related to using a limited assessment in clinical work, for example, "*video connection seems better than phone, but with symptomatic folks, it is difficult to get an accurate exam.*"

Asking better questions and listening for a pin to drop

Active listening and communication are common skills used in nursing and are essential for patient centered care. Several nurses commented on the heightened importance of listening to their patients. Not only the spoken word but also what patients were not saying. *"To listen to every word and what the silence means."* Nurses indicated their listening skills improved through being attentive, engaged, and present in the moment while listening for meaning. *"My listening skills have improved. I am focused not only to what patients are saying but the tone in which they are saying it." ". . . a better and more careful listener."* Nurses also identified talking not only with patients but also their family and or significant others provided insight and great understanding. *"Listening becomes extremely important when talking with a patient by phone; asking more questions and talking with family is very important also."*

Nurses identified the need to revise their questions to be more direct and seek clarity while being mindful of the patient's response not only what is said but how it is said." *I ask question differently, listen to how they sound over the phone as much as what they are saying."* The revised questions also facilitated educational opportunities. *"I'm asking better questions, being direct, increased focus on education."*

Showing resilience through new paths to optimize work

Several nurses described difficult trade-offs between a shortage of resources and maintaining a high level of care. One nurse attributed their team's successful patient management to optimizing medications known to improve symptoms: *"Tough situation but we make the best of it, luckily, we have been able to keep most of our patients out of the hospital with adjusting diuretics and meds."* Nurses expanded and revised their resource pool by using caregivers that were not part of the previous care team to facilitate patient assessment: "*. . .Incorporating home health and nursing home staff for assessments.*" Several nurses reported virtual visits facilitated innovation and creativity to help resolve ongoing concerns with medication and dietary adherence: *"Virtual and phone visits do require a whole new set up of interview skills since you are unable to use your physical assessment as clues to underlying issues.* The opportunities for care providers to enter the patient's home virtually during scheduled appointments enhanced insight and promoted focused education. Ultimately resilience was based on multiple factors that included a team approach, expansion of resources and new ways of working.

Discussion

Heart failure nurses who worked during the COVID-19 pandemic to provide patient care were faced with immense and abrupt changes in what was considered routine practice. The world had changed, and healthcare as it was known also altered. As described in the above accounts, the practice and roles of nurses specializing in HF clinical management were transformed as well. Four categories emerged from the data: changing paths exemplifies work challenges, developing technical skills and resources, asking better questions while listening for a pin to drop and showing resilience through new paths to optimize work. Nurses reported immense challenges in all categories similar to other studies, yet shifted, improvised, and created strategies to provide care to their patients with HF while faced with uncertainty, knowing things would never be the same.[14, 15]

The shift from in-person to remote telemedicine visits was challenging. Nurses expressed frustration with technical skills, and the inability to obtain objective assessment data. However, many nurses indicated their technical and communication skills improved and identified opportunities to enhance patient education. Technology has been available to facilitate remote monitoring of patients with HF for some time, yet it was not until the pandemic when providers became more fully engaged in virtual visits out of necessity.[16] Virtual visits can be beneficial, easing the burden on patients to travel to appointments while incorporating interdisciplinary team members to provide guidance, monitoring and to facilitate, symptom management, medication adherence, and lifestyle modifications.[17,18,19] This study identified nurses' concerns and the need for skill development in utilizing virtual platforms and remote monitoring similar to others.[16, 19]

Resilience in front line healthcare workers has been examined by other investigators.[20, 21] Authors found that resilience was important in coping and maintaining mental health. In evidence gathered prior to the pandemic, authors indicated that resilience was an adaptive factor for nurses during difficult situations, even transforming challenges into positive experiences and professional growth.[22, 23] In this study, the responses from nurses specializing in HF management echoed similar findings in adapting and seeking solutions to meet patient needs. Similarly, nurses in this study expressed concern over the quality of care delivered, limited resources, difficulty making decisions and changing job roles, as found in another report.[21] Ultimately, nurses' responses indicated that resilience was associated with problem solving, positive health outcomes, and establishing new and expanding current support systems.[21, 23]

Limitations

This analysis of open-ended questions was part of a larger quantitative survey on nurses' self-report of perceptions of HF practice patterns. Respondents to the survey were members of the American Association of Heart Failure Nurses professional organization, and many of them held certification as having strong basic HF knowledge. Their responses to questions could have been different than responses by nurses who were not members of a professional organization and/or not certified in HF management. The overall survey response rate was low, based on the number of organization members; however, the response to the open-ended questions was higher than anticipated and involved all sections of the United States. All narrative data were combined regardless of work setting or role. Additionally, some comments were very detailed. We were unable to ask respondents to check our interpretation of their statements since the survey was anonymous; thus, findings need to be interpreted with caution, and future research is needed.

Conclusion

The world of healthcare changed with the pandemic and will never return to where it was before. This study provides insight into nurses' perceptions of key patient management areas. Administrators, quality leaders, educators and clinical experts must seek to address clinical issues that emerged during COVID-19 and are still present despite waning of the surge to ensure nurses are equipped with the necessary skills to provide HF care today and in the future and receive the right type and amount of support to foster resilience. New research is needed to better understand the current environment of nursing care of patients with HF. Further, innovations are needed to enhance adaptation to the changing world of nurses who manage HF to promote having the right data, at the right time and used in the right way to optimize patient care and ultimately improve the lives of patients served.

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none

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