JANANY

JOURNAL OF THE AMERICAN NURSES ASSOCIATION – NEW YORK

The official, peer-reviewed, international, scholarly journal of the American Nurses Association - New York (ANA-NY) dedicated to disseminating quality and rigorous research, evidenced-based and quality improvement initiatives, case studies and reviews or applications of research to improve nursing practice, education and health care policy.

WINTER 2022 | VOLUME 2 NUMBER 1 ISSN 2694-4502 (PRINT) | ISSN 2694-4510 (ONLINE)

TABLE OF CONTENTS

AMERICAN NURSES ASSOCIATION
NEW YORK

Guidelines for Manuscript Submissions

Membership Requirements

At least one author must be a member of the American Nurses Association – New York (ANA-NY), preferably the first or second author. If the authors are not ANA-NY members, we encourage one of the authors to become a member. An author can also be a member of one of the constituent organizations of the ANA. Non-ANA-NY members may submit manuscripts on a case-by-case basis. Please reach out to us at journal@anany.org. Manuscripts accepted for publication will not incur any publication or processing fees.

Style

Manuscripts should follow the Publication Manual of the American Psychological Association (7th ed.).

The new rules adopt a five heading formatting of the manuscript. Level 1 is centered, boldface, title case heading; Level 2 is left-aligned, boldface and title case heading; Level 3 is left-aligned, boldface italic and title case heading; Level 4 is indented, boldface and title case heading with a period; and, Level 5 is indented, boldface italic, and title case heading with a period. See example below.

Data Presentation (Level 1)

Description of Respondents Technique (Level 2)
By Age Identity (Level 3)
< 20 years old. (Level 4)
20-30 years old. (Level 4)
>30 years old. (Level 4)

By Education (Level 3)
For further guidance on all formatting details, please refer to the Purdue Online Writing Lab (OWL).

Language

All manuscripts must be in the English language and must meet the standards of a scientific publication.
Accepted Types of Manuscript

- Quantitative, qualitative, and mixed-method research
- Reviews [systematic, integrative or scoping]
- Evidence-based practice initiatives
- Case studies
- Quality improvement projects
- Commentaries on current issues and trends in nursing

Required Components of the Manuscript (use the electronic fillable form located under our Submission Page of our website (https://ananewyork.nursingnetwork.com/page/95232-submission)

A. Title Page (separate from the manuscript and completed via JotForm):

- Title of manuscript
- A listing of each author, including professional credentials, job titles, institutional affiliations (with full addresses)
- Declaration or the absence of any potential or actual conflict of interest (COI)
- Identification or the absence of some or all sources of funding
- Corresponding author's complete mailing address, email, and cell number (cell number will not be published)
- Acknowledgments (if applicable)
- Statement of Institutional Review Board/Ethical Approval

B. Abstract and Title Page (include the title of the manuscript only)

A STRUCTURED ABSTRACT must be included with all manuscript submissions. Each heading of the structured abstract should include 2-3 sentences. It must be brief, concise, and offer a clear articulation of each heading. The following sections are included in the structured abstract, or as applicable:

- Background: a short overview of what the article is about and its aims or goals
- Objective and/or Significance of the Study: Explain the hypothesis, research question, or relevance of the topic. What is its contribution to the knowledge base of nursing science?
- Methodology: Include the research site, study design, sampling, data gathering tools, and statistical tests used
- Results: Present a brief summary, analysis, and synthesis of the findings. Organize the summary in such a way that you are aligning the outcome with what you described in the Objective section of the abstract (loop back to the hypothesis or significance of the study or topic)
- Limitations (if any). Justify or explain the presence of limitation/s
- Conclusion and Recommendations – affirm the objective of your manuscript by highlighting your results and its applications to nursing. What are take away lessons from your research?
- Key Words: Provide 3-5 key words using MeSH Headings

C. Manuscript (This should only be the manuscript itself with the title on the top. No author identifiers or information that might give a hint as to who the author is. **All tables, figures and pictures should appear after the References in individual pages, in clear Word format, NOT in any picture format or statistical software. If picture files are submitted, it needs to be in high-resolution or we will not accept it.)**

Statistical Symbols and Equations

When using statistical symbols and equations, use the ITALIC face for statistical symbols; use BOLD to indicate vectors and matrices. When showing confidence interval, use xx% CI, and μ = xx.x, SD = xx.xx when referring to the mean and standard deviation notations.

Digital Object Identifier (doi)

The DOI is a unique identifier assigned to your manuscript that provides locator access. All references used in the manuscript MUST have a DOI. Look back at the current version of the articles used as references, since all older manuscripts now require DOIs.

Tables

All tables must be in Microsoft Word format (.doc not .xls or .pdf), can be editable or re-sized. Tables must be text-based and contain no images or graphics. It is not permissible to use tabs or auto-formats. All tables meet the standards of the Publication Manual of the American Psychological Association (7th ed.). Table font should be Times New Roman, 10-point, and single-spaced. Number all tables consecutively throughout the manuscript and must be placed at the end of the manuscript. Identify placeholders within the text where you wish them inserted, e.g., <Insert Table 3 here>.

Figures

Follow the Publication Manual of the American Psychological Association (7th ed.) on how to construct Figures. The following formats are permissible: .doc, .ppt or .pdf. The identification of Figures must be in chronologic and numeric order and should likewise be at the end of the manuscript. Identify placeholders within the text where you wish them inserted, e.g., <Insert Figure 1 here>.

Graphics

We encourage the use of graphics, including pictures, tables, and figures. All graphics are in high resolution, properly labeled and titled, and follow the Publication Manual of the American Psychological Association (7th ed.). It is the responsibility of the author to obtain written permission and/or pay the fees for copyrighted materials used in the manuscript. JANANY bears NO responsibility for graphics or pictures submitted for publication without the copyright owner's permission.

Conflict of Interest and Funding Source/s

Disclose any actual or potential conflict of interest in the Author Submission Form. These include financial, institutional, consultancy, and any other relationships that can result in bias. In addition, disclose any actual or potential conflict of interest involving any companies, facilities, organizations, and sponsors that could influence the preparation of the research and/or manuscript. Authors attest upon submission of the integrity of the data and the entire content of the manuscript. Authors bear full responsibility for their work, statements, and opinion, and do not reflect the opinion of the ANA-NY, JANANY, or the editorial staff and board.

Disclose the absence of any conflict of interest in the Author Submission Form. If there is a perceived or actual conflict of interest, please explain this extensively in the Author Submission Form. JANANY will review and determine whether it is appropriate for publication.

Identify and acknowledge any source/s of funding in the Author Submission Form.

Copyright

Upon publication of the manuscript, authors agree to the transfer of copyright to JANANY, except when the research is grant-funded. Author will receive an e-copy upon publication. For non-grant-funded work, their manuscript will be also be available on Medline and PubMed for public access.

Permissions

If any material in the manuscript is copyright protected, it is the responsibility of the author to obtain written authorization to publish this copyrighted information and to establish the JANANY authorship and ownership from the proprietor at the Author's expense. Authors are responsible to obtain permission for any copyrighted materials: figures, graphics, tables, forms, or charts from its original owner for reuse. Refer to the Publication Manual of the American Psychological Association (7th ed.) for guidelines on the use of material that has been previously published. Author will submit copy of written permission for the use of this material along with the manuscript in the Author Submission Form.

Peer Review

All manuscript submissions are subject to a double-blind peer review process. The authors and reviewers' identities will remain anonymous. The number of reviewers will vary, but will usually be a minimum of two.

Editing

All manuscripts accepted for publication will be subject to editing. JANANY reserves the right to edit all submissions to meet the editorial needs, requirements, style, and standards of the journal.

Ethical Guideline for Authors

The author submits a manuscript only to one journal at any one time. One cannot submit previously published papers. Use appropriate tests and measures for research data analysis and interpretation. JANANY has the right to request raw and actual data. All manuscripts submitted must be the original work of the author.

Author can acknowledge individuals who helped in the conduct of the research to a certain degree. All listed authors must have actively been involved and contributed in all the steps of the research process, from research conceptualization to the write-up of the final version of the manuscript.

** We appreciate the work that Purdue University Online Writing Laboratory (OWL) offers to the public and allowing anyone to be able to use their available services.*

Journal of the American Nurses Association - New York (JANANY)

Send inquiries to:
150 State St., 4 FL
Albany, NY 12207 USA
journal@anany.org

Is Nursing Primed for a Transformation Using Nursing Informatics Concepts and Tools? The Editor's Vantage Point

Edmund J. Y. Pajarillo, PhD, RN BC, CPHQ, NEA BC, ANEF
https://doi.org/10.47988/janany.582328.2.1

Nursing Informatics (NI) as a specialization in nursing can influence and potentiate change. Nurses have long been considered to be change agents. The knowledge and expertise that nurses gained from learning NI solidified the fact that we can be innovative, resourceful, creative, and visionaries. Are nurses poised for major transformations in the way we do nursing, using our understanding of NI concepts and strategies?

We look around us and note that much of what we see in nursing, and the world, seem to be percolating towards a particular trajectory. Even before COVID-19 hit us in Spring 2020, there had been prior signs that the world was evolving and ready for change. Racial tension became more pronounced, marked political divisions, constant tests of our democracy, workplace redesigns relative to changing system models, and rapid developments in technology affecting all facets of our lives. The need to change became more pronounced as we continue to be pounced by COVID-19 and its uncertainties.

We have seen many changes in nursing practice, such as the increased use of telehealth, personal health record sharing within and among healthcare providers whom we entrust our health to, and the use of FaceTime to check on hospitalized relatives and friends. There are also more care navigators communicating to patients by phone to avoid unnecessary hospital visits, the frequent use of Zoom and other teleconferencing applications to assist in managing our care, and the pervasive use of all types of social media in healthcare. Even the manner that nursing administration handles regular and emergency staff scheduling is shifting away from the way we used to plan work shifts. More and more healthcare organizations use the bidding process using a scheduling program, and supplemented by shared computer applications from organizations that specialize in per diem, temporary or travel nurses. Hospital and patient data inform nurse administrators on how day to day operations will be prioritized using their knowledge of big data and data analytics. Organizational programs and strategic initiatives are decided upon from processing and managing these same data.

Nursing education is also undergoing changes. In April 2021, the American Association of Colleges of Nursing (AACN) approved a new model of nursing education with gradual implementation over at least the next three years. The Essentials of nursing education were reviewed and revised, resulting in "10 domains and the expected competencies for each domain that represent professional nursing practice and reflect the diversity of practice settings" (AACN, 2021, p. 1). The new Essentials will transform how nurses are prepared in entry level to nursing (baccalaureate) and advanced practice (master's and Doctor of Nursing Practice) programs.

Informatics and Healthcare Technologies (Domain 8) are tools "used to provide safe, high quality care, gather data, form information to drive decision making, and support professionals as they expand knowledge and wisdom for practice" (AACN, 2021, p. 2). However, if one examines the other nine domains, each one needs some form of Informatics and Healthcare Technologies. When one speaks about System-Based Practice (Domain 7), nurses need to understand systems theory such as those that apply to either manual processes (e.g., patient care education) or those that are computerized (e.g., electronic medical records, barcode medication administration). Another example to illustrate the interrelationship of Informatics and Healthcare Technologies to other domains is Quality and Safety (Domain 5). Everything that nurses use and do to provide safe and quality care for their patients include significant knowledge of informatics concepts and tools. The same is true for the rest of the domains. In reality, the educational preparation of nurses is a mosaic of the interwoven domains which make them well-grounded in their knowledge, skills and attitude (KSA) relative to their nursing competence.

Being educationally-prepared in Informatics and Healthcare Technologies and other interrelated domains, strengthens the nurses' KSA and strategically positions them to be better change agents. Nurses possess vision, creativity, innovativeness, resourcefulness, flexibility, and adaptability. They can use these traits to: (1) analyze and identify new models, processes, technologies and programs that can enhance patient-centric care; (2) deliver safe, quality and evidence-based nursing practice; (3) educate patients and families on health promotion and healthy living strategies; (4) establish new nursing roles and avenues that optimize their education; and, (5) design equitable and targeted population health programs using data analysis outcomes.

Nurses are better positioned to identify what roles are best for them. By sheer numbers alone, nurses comprise a majority of professionals in most healthcare organizations. Coalitions within the nursing profession are important. There is synergy in the fusion of many ideas and perspectives. Nurses should be able to lead the transformation in our own profession. NI supports nurses, consumers, patients, and members of interprofessional teams; and, decision-making should be grounded on desired outcomes, according to the most recent changes in the definition of NI (Bickford, 2015, p. 130).

Nursing continues to go through many modifications and it will endure as it always has. But nursing professionals should drive these changes and remain in the forefront, rather than non-nurses determining what they think nursing should be. The understanding of the power of NI to lead and drive nurses to its desired trajectory is an important reality that nurses should all consider and embrace.

References

American Association of Colleges of Nursing. (2022). The essentials: Core competencies for professional nursing education. Executive summary. https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-Executive-Summary.pdf

Bickford, C. (2015). The specialty of Nursing Informatics: New scope and standards guide practice. *CIN: Computers, Informatics, Nursing, 33*(4), 129-131. https://doi.org/10.1097/CIN.0000000000000150

ORIGINAL RESEARCH

Academic and Practice Experiences of Nursing Students During the Initial Phase of the COVID-19 Pandemic

Carol Della Ratta[1*], Kathleen Gambino[1], Barbara Brathwaite[1], Annemarie Rosciano[1], & Virginia Coletti[1]

Stony Brook University, NY, USA[1]
***Corresponding Author** – Carol Della Ratta, Stony Brook University, Stony Brook, NY, USA.
Email: carol.della-ratta@stonybrook.edu
https://doi.org/10.47988/janany.44335864.2.1

Abstract

Aim: To explore undergraduate and graduate nursing students' academic and employment experiences as they faced the first surge of the COVID-19 pandemic in New York. **Background:** Little is known about the pandemic's impact on nursing students who were also providing patient care during the initial phase of the COVID-19 outbreak. Many faced dramatically altered learning environments while also meeting the challenges of professional practice. **Method:** An electronic survey with an open-ended question was distributed to a convenience sample of students enrolled in a large public university; 194 responded. Data were collected from April through October of 2020. A thematic analysis was used to analyze the responses of 194 students. **Results:** Five themes illuminating students' academic and practice experiences were revealed: battling the unknown, filling the void, education interrupted, experiencing moral distress, and taking an emotional toll. Severe mental anguish and emotional distress resulted from providing care during the pandemic. These perceptions may have long-term effects on professional role development, especially in novices and new graduates. **Conclusion:** Findings indicate a need for significant modifications in both academic and practice arenas. Faculty and clinical leaders must implement changes that will support student and staff preparedness during times of both normalcy and crisis.

Keywords: COVID-19, nurses, pandemic, academic

Funding: The authors did not receive funding from the public, commercial, or not-for-profit sectors.

Conflict of Interest: The authors declare no actual or potential conflict of interest.

Date Submitted: December 13, 2021 Date Accepted: January 5, 2022 Date Published Electronically: February 1, 2022

Academic and Practice Experiences of Nursing Students During the Initial Phase of the COVID-19 Pandemic

The first surge of the COVID-19 pandemic in New York during March 2020 presented unthinkable challenges for healthcare institutions. Nursing, in particular, faced previously unimagined barriers to professional practice and personal safety. Colleges and universities across the nation were also forced to implement limitations and restrictions. Due to the nature of their curricula, nursing students encountered dramatically altered learning environments. However, little is known about the pandemic's impact on these students, who were pursuing undergraduate and graduate degrees at that time, while also meeting the challenges of working or volunteering in healthcare.

Like other nursing schools across the United States, state and local 'stay at home' regulations prompted a school of nursing at one public New York state university to make important decisions regarding classroom learning, simulations, and clinical experiences. As a result, onsite classes transitioned to online platforms, and in-person simulations were canceled. Guidance from the American Association of Colleges of Nursing (2020) recommended limiting student exposure to patients with, or suspected of having COVID-19, along with numerous local outbreaks of the virus, led to a decision to cancel clinical experiences for all undergraduate students. However, pre-license students were called upon to assist non-COVID units within the university's associated academic medical center to free registered nurses (RNs) needed to provide care on COVID-19 units. Graduate students who were already RNs were permitted to continue completing their clinical hours, provided that their clinical sites remained available to them. Many students were also called upon to care for patients with COVID-19 at their places of employment. The purpose of this study was to explore undergraduate and graduate student nurses' experiences as they navigated school and practice during the first surge of the COVID-19 pandemic.

Literature Review

The experiences of frontline nurses during the first wave of the COVID-19 pandemic have been well-documented in the literature. Fear, anxiety, stress, exhaustion, and burnout were found to be universally identified (Almubark et al., 2020; Liu et al., 2020; Sheng et al., 2020; Tan et al., 2020; Zhang et al., 2020). Furthermore, nurses consistently report higher levels of psychological distress when compared to other healthcare professionals (Maiorano et al., 2020; Shechter et al., 2020; Zerbini et al., 2020). The qualitative study by Sheng et al. (2020) conducted at four hospitals in Wuhan City, China, identified three negative themes associated with nursing practice: exhaustion and fear of contracting the virus, perceived incompetence when treating patients with COVID-19, and feelings of unfairness when considering the distribution of responsibilities between physicians and nurses. Yet, despite these negative findings, a positive theme was also noted, that of unexpected professional benefits. These benefits included support the nurses received from the public, colleagues, and administrators; the improved social image of nursing; and their perceived self-growth and increased competency as the pandemic persisted. Likewise, the most critical findings of another qualitative study of first-line nurses in China were reflected in the negative subcategories of heavy workloads and pressure, fear and anxiety, feelings of helplessness and frustration, a lack of knowledge about the disease, and unfamiliarity with the environment (Tan et al., 2020). However, Tan et al. (2020) also identified improved professional responsibilities and the promotion of professional identity as positive outcomes of providing care during the pandemic. Zhang et al. (2020) found that nurses who cared for patients with COVID-19 progressed through three stages. An early stage, characterized by feelings of ambivalence, a middle stage of negative psychological feelings, when young nurses were noted to be particularly vulnerable, and a final stage of psychological adaption. However, it was universally reported that the positive effects of the pandemic did not occur spontaneously. Instead, they were the result of intensive education, communication, and the support of nursing administrators who implemented appropriate and insightful interventions. The findings of Zhang et al. (2020) regarding the vulnerability of young nurses led them to suggest that new and recent graduates may require additional attention and work-related support. Likewise, Tan et al. (2020) recommended that nurses with low seniority, assumedly new or younger nurses, or those new to their role, would require additional training and support. Sheng et al. (2020) also stressed the importance of education to improve decision-making and problem-solving skills. Given these suggestions, as well as the dearth of qualitative literature regarding the impact of the pandemic on nursing in the United States, and the need to prepare future practitioners who can provide adequate care, it is logical to wonder about the effects the first surge had on those who were pursuing undergraduate and graduate nursing degrees at that time. Undergraduate students would transition to professional practice with limited experience providing direct care to patients with COVID-19. Graduate students would assume new roles as nurse practitioners during the pandemic. Knowledge of their unique perceptions and experiences may provide insights that could lead to the development of more effective academic and clinical education programs. These programs could better prepare students to meet the demands and challenges of future global pandemics and healthcare crises.

Method

Design, Sample & Data Collection

Qualitative inquiry is an essential approach to understanding the rich and varied experiences of a phenomenon. Braun and Clarke's (2006) thematic analysis, informed by a constructivist lens, was conducted on responses to an open-ended question asking students to reflect upon their experiences, emotional responses, and striking memories during the pandemic. The open-ended question followed a quantitative survey in which students provided responses regarding their perceptions of their academic and practice experiences. These findings will be reported in a separate manuscript. Convenience sampling was used to recruit

students who worked or volunteered in healthcare settings during the pandemic. Inclusion criteria consisted of nursing students enrolled in the pre-license and licensed undergraduate program and graduate nursing students enrolled in the Adult-Gerontology Nurse Practitioner (AGNP) program at one New York State public university from March through October 2020. Sampling continued until participant accounts of their experiences became redundant. A total of 194 students contributed to the study. An electronic survey was used to collect responses to the open-ended question.

Ethical Considerations

The university's institutional review board approved the study. Participants were recruited via email as listed in the university listserv; the email contained a link to the anonymous survey in Qualtrics. Information regarding anonymity was provided with assurance that faculty would not know if students completed the survey and that their decision of whether to participate would not impact their grades. Students were instructed not to disclose their employment/volunteer site or unit to further protect autonomy. Data were stored in a password-protected database.

Data Analysis

In the analysis of the data, researchers followed the thematic analysis process outlined by Braun and Clarke (2006). Thematic analysis is an iterative and reflective process appropriate for researchers working in teams with a large data set (Nowell et al., 2017). The research team consisted of five faculty, including two experienced qualitative researchers. Per Braun and Clark (2006), the six phases of analysis were reviewed during their first meeting (Table 1), followed by a discussion of thoughts regarding initial codes. Each researcher was instructed to systematically work through the entire data set, give equal attention to each item, and keep a reflexive journal during the entire analysis process. During regular meetings that took place throughout all phases of the data analysis process, researchers collated codes, engaged in dialogue, and shared notes on evolving themes or diagramming developments. Diagramming is important for understanding connections between themes (Nowell et al., 2017). The generation of initial codes allowed the researchers to simplify and focus on specific characteristics of the data. For example, because fear, unpreparedness, inability to provide adequate care, and guilt were apparent across both undergraduate and graduate responses early in the data analysis, a decision was made to analyze the data set as a whole. Codes of extracted data served as an organizing structure for the development of themes. Consensus on the themes was reached during the six months of analysis and dialogue. Shared documents for the creation of codes and themes served as an audit trail for the final themes.

Table 1

Braun and Clark's (2006) Six Phases of Thematic Analysis

Phase	Description
1. Become familiar with data	Considered a foundational phase, researchers read and re-read the data set to be familiar with all aspects noting initial ideas.
2. Generate initial codes	In a systematic fashion, researchers identify initial codes. Codes represent a feature of the data.
3. Search for themes	This phase consists of sorting codes into potential themes. Diagramming may help to uncover the relationship between codes (potential themes).
4. Review themes	This phase begins when a set of themes has been established. Refinement includes separating or collapsing themes.
5. Define and name themes	Iterative process moving back and forth between data extracts and themes to generate a clear theme name with accompanying narrative.
6. Produce the report	A final opportunity for analysis occurs when writing the scholarly report using vivid data extracts to capture the essence of the theme.

Rigor

Several strategies were implemented to ensure the trustworthiness of the study's findings. Credibility was enhanced by a five-researcher team who maintained a prolonged engagement with the raw data. Reflexive notes enriched the participants' written statements. Researchers moved individually and collectively between raw data, codes, and theme documents. To enhance dependability and confirmability, the team compared the code and theme documents with the raw data at weekly meetings, adding, revising, or deleting codes. Transferability was enhanced by the variation in participants' education levels, unit specialties, and the provision of thick descriptions, which are important for making applications to other situations.

Results

Participants included pre-licensure (37.1%) and post-licensure (30.4%) baccalaureate nursing students, as well as nurse practitioner students specializing in adult-gerontology (32.5%). Most were female (82.5%), between the ages of 21 to 30 (47.9%) or 31 to 40 (25.8%) years, unmarried (45.9%), and without children (65.5%). Race/ethnicity included White (63.4%), Asian (14.4%), Hispanic/Latinx (10.3%), Black/African American (7.2%), multi-racial (4.1%), and Native American (0.5%). Almost half (44.6%) reported experience working as RNs. Of those currently working as RNs, 23.7% reported 1 to 5 years of experience, most frequently in medical/surgical (29.9%) or critical care (19.1%) units (Table 2).

Table 2
Demographic Characteristics of Respondents (N=194)

	Category	n	%
1. Age	< 20	13	6.7
	21 to 30	93	47. 9
	31 to 40	50	25.8
	41 to 50	31	16.0
	51 to 60	6	3.1
	>30	1	0.5
2. Gender	Male	33	17.0
	Female	160	82.5
	Other	1	0.5
3. Race/ethnicity	Asian/Asian American	28	14.4
	Black/African American	14	7.2
	Hispanic/Latino	20	10.3
	Native American/ Indian	1	0.5
	White	123	63. 4
	Multi-racial/multi-ethnic	8	4.1
4. Marital Status	Single	89	45.9
	Married	72	37.1
	Widowed	1	0.5
	Separated	4	2.1
	In a domestic partnership or civil union	8	4.1
	Single, but cohabitating	20	10.3
5. Program Enrolled	Pre-license undergraduate program	72	37.1
	Post-licensure RN undergraduate program	59	30.4
	Adult-gerontology primary care nurse practitioner (AGNP) program	63	32.5
6. Employment Clinical Specialty	Medical/Surgical	58	29.9
	Critical Care	37	19.1
	OB/GYN/Neonatal	7	3.6
	Perioperative	6	3.1
	Psychiatric Mental Health	8	4.1
	Private Office/Private Practice	13	6.7
	Rehabilitation/ Long Term Care	7	3.6
	Geriatric Care	5	2.6
	Other	3	1.5
	No Specialty Area	50	25.8

An analysis of responses to the open-ended question revealed five themes illuminating students' academic and practice experiences while providing nursing care during the first COVID-19 surge: *Battling the unknown, filling the void, education interrupted, experiencing moral distress, and taking an emotional toll.*

Battling the Unknown

The theme *battling the unknown* portrays participants' experiences as they began encountering patients during the first COVID-19 surge. A sense of battle was the result of many factors. The increasing volume of patients, higher levels of acuity, and staggering death rates resulted in the inability to provide quality nursing care. Care was described as "unorganized," "chaotic," and ineffective in promoting patient survival. Statements such as "thrown into battle" and "fighting a war" were made. When resources were lacking, feelings of resentment towards hospital administration/leadership were noted. Many participants made statements regarding insufficient information, protocols, personnel, and/or personal protective equipment (PPE), adding to the sense of a battle. One related, "We were not prepared; we were not equipped with education or PPE...It is so unsettling to know as a nurse that I was basically thrown into battle without the necessary weapons." Another described the situation as "running into a burning building without the right equipment on."

Complicating the volume and severity of patient illness was fear related to the unknown aspects of how the virus was transmitted. One pre-license student, volunteering on a non-COVID unit during the time when PPE was in short supply, also shared a fear regarding safety:

> We [students] were not allowed to wear masks while the whole nursing staff wore masks during the beginning of the pandemic. That was ridiculous and really upsetting for me. Our lives matter just as much as theirs do, even if we weren't going into any isolation rooms, [it] doesn't mean we weren't going to be exposed or spread it to our family members.

The media portrayal of nurses as heroes also contributed to the experience as a battle or "fighting a war." Although the public considered them heroes, some participants viewed this negatively. Resentment was apparent as one participant related:

> I feel that the narrative being pushed of healthcare workers as 'heroes' is being used to paint a picture of healthcare workers as sacrificial lambs…None of us signed up to be used as pawns... The sudden recognition that we are getting from the public for our heroic work is only setting us up to be casualties of war.

Some expressed that while their battle was against the coronavirus and its unpredictable progression was difficult, it was also worthwhile. One participant recalled, "Most striking in my memory is…how battling the unknown started out as frightening and turned into being something worth facing head-on." Other participants indicated that the pandemic facilitated adaptability, collegiality, and a 'team' approach in providing care. Some related that support from co-workers, who were now considered "family," helped them get through their first few shifts. Other participants

said that the battle of caring for patients with COVID-19 became easier as time went on, "It gets easier the second time…[It] became so unnaturally natural to enter their rooms, you even forget about their status." Another participant reflected that they were more confident as time progressed, and there was less ambiguity.

Filling the Void

Filling the void presents descriptions of the expanded nursing role of providing care to patients in isolation. One aspect of this theme developed as participants described the exhaustive patient advocacy role of 'filling in' for family members who could not be present due to visitation restrictions. Participants described how their patients' isolation impacted them and how they attempted to provide comfort. One recalled: "The most striking memory I had is where one of my patients randomly asked me to pray for her because she was scared to die. It broke my heart but strengthened my faith."

Throughout the data, participants described the value of using technology to connect patients to their families during times of great sorrow:

> I remember phoning the wife every night at 8:30 pm and then again at 6:30 am, just so she could let him hear her voice. One morning, she said to me...' I have nothing else to say'…So I recommended she talk about some of their beautiful moments and memories. She said, 'Yes, ok! I can do that.' The most beautiful conversation ensued...I was holding his hand while she was speaking with him. That's all I could do.

Another aspect of *filling the void* was the altered nature of providing care. As a result of new guidelines developed to prevent the spread of infection, the time physicians and ancillary staff spent in patients' rooms was significantly reduced. Care that was previously distributed among healthcare team members was now provided almost exclusively by nurses. The isolation and responsibility impacted participants, "The first time spent alone with a confirmed COVID positive patient in the room, [I] donned my PPE, and just entering through the door, closing it behind me, being alone with him, totally alone, and scared." Another participant described a striking memory of caring for patients during this time as, "being quarantined with my patients for three days and nights."

Filling the void also portrays ways in which participants felt they were unable to meet their patient needs. Sometimes their inability was due to time constraints, "I wanted to spend more time with him and let him know he wasn't alone, but I had to care for other patients." Other participants described being inadequately prepared to provide care in an Intensive Care Unit (ICU), "Imagine a medical-surgical nurse caring for ICU patients with no training or knowledge." Some participants expressed frustration. A pre-license participant volunteering on a non-COVID unit described how students were not permitted to enter a patient's isolation room due to the shortage of PPE, "We helplessly stood outside and called for assistance." Another participant recounted an encounter in this way:

> Students were not allowed to enter isolation rooms. So, I had to watch a woman cry laying in her own feces and could only stand at the door to comfort her while waiting for a staff member to become available to help her. Meanwhile, I had the skills necessary to do it myself but couldn't because of the imposed rule.

Education Interrupted

Education interrupted describes participants' experiences as the didactic and clinical components of their coursework were altered due to COVID-19 restrictions. While some noted that the transition from onsite classes to online coursework was not their preferred learning method, the greater impact of *education interrupted* pertained to the cancellation of planned clinical experiences or the transition to virtual clinical experiences. This was particularly true for the pre-license students. Statements of being "disappointed," "robbed," or "clinically unprepared" were made when referring to suspended clinical components. One participant related, "I am angry and feel that my knowledge suffered during this time, and I am nervous about the future… as I feel learning in person is where I thrive." Other participants summarized their concerns related to the lack of clinical experiences as "I feel clinically unprepared" and "Missing the last part of the semester was the hardest. I was hoping to improve my clinical skills during capstone, but that didn't happen."

The inability to provide care to patients with COVD-19 during the pandemic resulted in frustration for some senior pre-license students scheduled to graduate that spring. Although they were not permitted to provide care or interact with these patients during their final months of school, they would be expected to care for them immediately following graduation. Some participants expressed strong emotions regarding limitations imposed by the pandemic, "I was not able to get much clinical experience, as I live with high-risk people...I felt guilty that I wasn't volunteering, and I felt sad because of the isolation." However, students also related positive responses related to volunteer opportunities that occurred on non-COVID units within the university's associated medical center: "I feel as though the volunteer hours at the hospital were amazing."

Experiencing Moral Distress

Participants in this study experienced *moral distress* during the COVID-19 surge due to a perceived inability to provide adequate care or advocate for their patients and concerns over their own health. This led to internal conflicts, as represented in the data. Many participants shared that they experienced guilt and helplessness as they witnessed futile treatments that failed to interrupt the rapid, downward spiral of so many patients. Several described the directive not to code COVID-19 patients as a striking memory. One participant related a situation when an intensivist ended the resuscitation of a patient with COVID-19 in response to a new protocol developed to reduce healthcare workers' exposure to the virus, "The patient was a full code. It was mortifying, and I was disgusted with the situation." Another spoke of the shock of being unable to maintain patient dignity while providing care, "I had to take the monitor off the still-warm body of the recently deceased patient to use on the patient requiring emergency intubation." Distress was felt by employed participants who were transferred to assist on COVID-19 units, as they felt they lacked the required skills, "Feeling helpless because I could not help more…I was not cross-trained in floor nursing. I

felt like a fraud nurse." The desire to do more was also apparent in the responses of pre-license students volunteering on non-COVID units, "We all felt the guilt that, as students, we couldn't enter isolation rooms." Finally, many participants experienced guilt stemming from a constant fear of contracting the virus or bringing it home to their families. One participant responded that a striking memory was "My inability to stop caring about my welfare to help my patients."

Taking an Emotional Toll

The theme *taking an emotional toll* depicts the severe mental impact of providing nursing care during the COVID-19 surge. Participants described feeling emotionally and physically exhausted while sharing in family grieving during end-of-life care. One participant related, "Holding up the phone to my patient's ear so their families can say goodbye. Gut-wrenching." Another stated, "Tonight I FaceTimed with a distraught family as they hysterically cried while speaking to their dying mother, sister, wife." Still, another participant summarized the emotional toll as:

> The physical and mental demand is exhausting...advocating and providing mental and emotional comfort to patients are absolutely necessary components in nursing. Throughout the crisis periods of COVID-19, the need of emotional support for patients exponentially rose, and filling the void of the isolation between the patient and their families was one of the most exhausting tasks.

Witnessing enormous suffering and death led to strong emotions and/or nightmares; participants were prone to re-living patient suffering, replaying shifts in their minds, or having recurrent thoughts about how they responded to their families' fears, "Weeks later, I still cope with memories of FaceTiming patients' families." One participant summarized the severity of the disease by relating her observations during a three-day span on a COVID-19 unit:

> The most striking memory is a 72 hour stretch of watching four people die and five people being intubated. The nurses' responses of guilt, sadness, and hopelessness were extremely heartbreaking. One nurse fought to have a young 40-year-old woman intubated...Another nurse remained with an elderly patient with no known family, who was so critical she remained face down as her SaO2 declined.

Watching patients suffer without their relatives in attendance, conducting emotionally fraught video sessions with families, providing care to high numbers of critically ill patients, and the underlying fear of contracting the disease themselves added to the torment experienced. One participant related:

> Here we were literally fighting so hard to save people's lives while comforting families, keeping them hopeful and updated all at the same time. The emotions I felt in these last several months are like nothing I have ever felt before.

Another participant reflected on the experience, "It had been extremely difficult feeling so helpless and watching people of all ages die scared and alone." Regret was obvious in a situation described by a participant who assured a patient that they were going to be ok as "pre-intubation" medications were administered, only to have the individual expire four hours later.

Still, another participant enrolled in the RN completion program, related "[I] watched people suffering and could not help them. As a new nurse, I will never be able to forget this pandemic."

Discussion

Major findings from this study highlight significant alterations in the nursing role and its impact upon participants as they provided care as employees or volunteers at healthcare facilities throughout New York State during the first surge of COVID-19. Within battling the unknown, participants described providing care as a battle due to the volume and acuity levels of patients, the sky-rocketing death rate, the lack of PPE, and concern of contagion. These findings were consistent with a previous study conducted in New York in which nurses experienced acute stress, depression, and anxiety while providing care to patients with COVID-19 during the first surge (Shechter et al., 2020). Notably, the importance of support from co-workers and administrators, who were sometimes referred to as a second family, was identified by participants in the current study as invaluable during this catastrophic period.

Within the theme *filling the void*, it was apparent that the nurse advocacy role had greatly expanded for participants of this study. Advocacy, the cornerstone role of the nurse-patient relationship, now included serving as a liaison to digitally connect patients with families during a time of extreme crisis. This added role was fraught with sadness, led to long-lasting negative feelings, and was emotionally depleting. Participants were also required to fill in for other members of the healthcare team in response to new guidelines, leading to feelings of isolation. This contrasts findings from a study of ICU nurses who felt that the role of family liaison was very gratifying, but the need to fill in for other healthcare professionals was viewed as an increased workload (Fernández-Castillo et al., 2021).

Findings from the current study regarding the impact of canceled clinical experiences, especially for pre-license students, were echoed by (Ramos-Morcillo et al., 2020), who interviewed 32 undergraduate and graduate nursing students in Spain. Participants in that study worried that the interruption and decreased clinical hours would lessen their competency. Similarly, an online survey study of 772 undergraduate nursing students enrolled in five universities across the United States found that respondents were concerned that they would not be prepared to enter the workforce due to the lack of opportunity to practice hands-on skills (Michel et al., 2021). It is interesting to note that respondents from both studies, along with those from another qualitative study of third-year baccalaureate nursing students in the United States, revealed dissatisfaction with the shift to online education, which, most felt, was detrimental to their learning (Heilferty et al., 2021). Notably, although concerns regarding clinical learning were strongly expressed in the current study, the transition to online learning was not viewed negatively. This may be due to the school's commitment to a hybrid learning model implemented before the pandemic.

The internal conflicts that participants described were illustrated in the theme *experiencing moral distress*. Similar to another study conducted during the pandemic, the lack of PPE, the risk of transmission to ones' family members, and caring for patients without relatives or clergy present were factors that increased moral distress (Lake et al., 2021). In the current study, which included a large percentage of pre-license students and new graduate nurses, the overwhelming impact of the pandemic was apparent in *taking an emotional toll*. They described witnessing great human suffering and death. Nightmares, feelings of helplessness, and reliving experiences from their practice environments were especially disturbing. These findings were consistent with those of an earlier study on emotional responses, which found that frontline nurses experienced extreme psychological stress related to the practice environment (Huang et al., 2020). In a study by Roca et al. (2021), undergraduate nursing students reported feelings of overwhelming sadness as they observed patient suffering and death. They also recognized their lack of education and preparedness to cope with the critical patient situations associated with COVID-19. These were indeed formative events. According to Benner et al. (2010), formative events are situations in which the novice recognizes the far-reaching responsibility of a nurse and develops the ability to see the patient as a person. Formative events are essential for role formation, an internal process constituted by changes in identity and self-understanding that transform how novices understand and act during patient encounters (Benner et al., 2010). COVID-19 may have a severe and lasting impact on nurse role formation in these new nurses.

Limitations

The findings from a thematic analysis are contextual to the study participants and may not represent the population of interest adequately. Furthermore, because convenience sampling of students from one university was used, implications and conclusions from this study may have limited transferability. In addition, data were collected via an open-ended question within an electronic survey document, thus preventing researchers from using participant observations as an additional data collection method.

Implications

The study's findings have significant implications for education and practice. Nurse educators are advised to incorporate self-care programs, such as mindfulness, meditation, and stress management, into their curricula. They are also urged to provide ongoing support that may help mitigate the harmful effects of the pandemic (Marthiensen et al., 2019). Regular and guided reflection in various forms is warranted. In a recent integrative review by Walsh et al. (2020), the use of reflection as a learning tool to promote emotional strength and build resilience was supported. Without opportunities for regular debriefing, students may not express their feelings of fear, shame, and the internal conflict they experienced during chaotic times. As a supportive mentor, the nurse educator can assist the novice in reflecting on formative events, assisting them in recognizing and appreciating the wide-ranging responsibility of a nurse as they bear witness to great human suffering during these extraordinary times.

Educational platforms must also be revised to meet the emergent needs of the future. Because subsequent healthcare crises could necessitate a return to virtual learning, Fowler and Wholeben (2020) suggested that hybrid learning models be permanently incorporated in all nursing programs. The use of both face-to-face and virtual learning would smooth the transition to fully online education in the event of another catastrophe. Findings from the current study revealed that the transition to online didactic learning was smooth, most probably because all participants were enrolled in some hybrid nursing courses before the onset of the pandemic.

Practice leaders must recognize that the overwhelming anxiety and strong emotional responses felt by nursing students during the pandemic may impact their transition to practice and their professional progression in ways that were not previously considered. The trauma experienced during the first surge may trigger psychological disruptions at various times as the pandemic continues, or as new pandemics and natural disasters arise. Nurse leaders are urged to watch for and identify staff who may need additional support. Without appropriate assistance, new graduate turnover, as well as overall nurse attrition, may dramatically increase.

Conclusion

Findings from the current study indicated that undergraduate and graduate nursing students experienced great upheaval in both their professional and academic lives during the pandemic. Professional practice was compared to *battling the unknown*, as participants provided care despite feeling physically, academically, and emotionally unprepared. They expressed a need to *fill the void* left by visitor restrictions. Participants facilitated final goodbyes with families, not wanting their patients to die alone. The pandemic *took an emotional toll* on all respondents. *Moral distress* and guilt were reported by unlicensed students who were not permitted to provide care to patients with COVID-19, as well as by RN undergraduate and graduate students who witnessed futile treatments and countless deaths in their practice environments. Additionally, as nursing students, respondents were frustrated by their *interrupted education*. The suspension of clinical experiences left many feeling unprepared and cheated. These findings shed light on students' lack of preparation. Academic and hospital-based educational programs must address the needs of these future practitioners, taking care to facilitate and support their transition to practice and professional role formation. These students, and those of the future, must be introduced to reflective and self-care practices, as well as trauma-informed exercises, which will assist the next generation of nursing professionals to thrive in times of both normalcy and crisis.

References

Almubark, R., Almalch, Y., BinDhim, N., Alemdaini, M., Almutairi, A., & Alqahtani, S. (2020). Monitoring burnout in the intensive care unit and emergency department during the Covid-19 pandemic: The Saudi Arabian experience.

Middle East Journal of Nursing, 14(2), 12-21. http://dx.doi.org/10.5742/MEJN2020.93790

American Association of Colleges of Nursing. (2020, March 20). *Considerations for COVID-19 preparedness and response in U.S. schools of nursing.* https://www.aacnnursing.org/News-Information/COVID-19/AACN-Recommendations

Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation.* Jossey-Bass.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Fernández-Castillo, R., González-Caro, M., Fernández-García, E., Porcel-Gálvez, A., & Garnacho-Montero, A. (2021). Intensive care nurses' experiences during the COVID-19 pandemic: A qualitative study. *British Association of Nursing in Critical Care, 26(5)*, 397-406. https://doi.org/10.1111/nicc.12589

Fowler, K., & Wholeben, M. (2020). COVID-19: Outcomes for trauma-impacted nurses and nursing students. *Nurse Education Today, 93*, 104525-104525. https://doi.org/10.1016/j.nedt.2020.104525

Heilferty, C. M., Phillips, L. J., & Mathios, R. (2021). Letters from the pandemic: Nursing student narratives of change, challenges and thriving at the outset of COVID-19. *Journal of Advanced Nursing, 77*(8), 3436-3445. https://doi.org/10.1111/jan.14862

Huang, L., Lei, W., Xu, F., Liu, H., & Yu, L. (2020). Emotional responses and coping strategies in nurses and nursing students during Covid-19 outbreak: A comparative study. *PLoS ONE, 17*(8),e0237303. https://doi.org/10.1371/journal.pone.0237303

Lake, E. T., Narva, A. M., Holland, S., Smith, J. G., Cramer, E., Rosenbaum, K. E. F., French, R., Clark, R.R.S., & Rogowski, J. A. (2021). Hospital nurses' moral distress and mental health during COVID-19. *Journal of Advanced Nursing,* https://dx.doi.org/10.1111%2Fjan.15013

Liu, Y.-E., Zhai, Z.-C., Han, Y.-H., Liu, Y.-L., Liu, F.-P., & Hu, D.-Y. (2020). Experiences of front-line nurses combating coronavirus disease-2019 in China: A qualitative analysis. *Public health nursing, 37*(5), 757-763. https://doi.org/10.1111/phn.12768

Maiorano, T., Vagni, M., Giostra, V., & Pajardi, D. (2020). COVID-19: Risk factors and protective role of resilience and coping strategies for emergency stress and secondary trauma in medical staff and emergency workers - An online-based inquiry. Sustainability, 12(21), 1-18. https://doi.org/10.3390/su12219004

Marthiensen, R., Sedgwick, M., & Crowder, R. (2019). Effects of a brief mindfulness intervention on after-degree nursing student stress. *Journal of Nursing Education, 58*(3), 165-168. https://doi.org/10.3928/01484834-20190221-07

Michel, A., Ryan, N., Mattheus, D., Knopf, A., Abuelezam, N. N., Stamp, K., Branson, S., Hekel, B. & Fontenot, H. N. (2021). Undergraduate nursing students' perceptions on nursing education during the 2020 COVID-19 pandemic: A national sample. *Nursing Outlook, 69*(5), 903-912. https://doi.org/10.1016/j.outlook.2021.05.004

Nowell,L.S.,Norris,J.M.,White,D.E.,&Moules,N.J.(2017).Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods, 16*(1), 1609406917733847. https://doi.org/10.1177%2F1609406917733847

Ramos-Morcillo, A. J., Leal-Costa, C., Moral-García, J. E., & Ruzafa-Martínez, M. (2020). Experiences of nursing students during the abrupt change from face-to-face to e-learning education during the first month of confinement due to COVID-19 in Spain. *International Journal of Environmental Research and Public Health, 17*(15). https://doi.org/10.3390/ijerph17155519

Roca, J., Canet-Vélez, O., Cemeli, T., Lavedán, A., Masot, O., & Botigué, T. (2021). Experiences, emotional responses, and coping skills of nursing students as auxiliary health workers during the peak COVID-19 pandemic: A qualitative study. *International Journal of Mental Health Nursing, 30*(5), 1080-1092. https://doi.org/10.1111/inm.12858

Shechter, A., Diaz, F., Moise, N., Anstey, D. E., Ye, S., Agarwal, S., Birk, J.L., Brodie, D., Cannone, D.E., Chang, B., Claassen, J., Cornelius, T., Derby, L., Dong, M., Givens, R.C., Hochman, B., Homma, S., Kronish, I.M., Lee, S.A.J., . . . Abdalla, M. (2020). Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. *General Hospital Psychiatry, 66,* 1-8. https://doi.org/10.1016/j.genhosppsych.2020.06.007

Sheng, Q., Zhang, X., Wang, X., & Cai, C. (2020). The influence of experiences of involvement in the COVID-19 rescue task on the professional identity among Chinese nurses: A qualitative study. *Journal of Nursing Management, 28*(7), 1662-1669. https://doi.org/10.1111/jonm.13122

Tan, R., Yu, T., Luo, K., Teng, F., Liu, Y., Luo, J., & Hu, D. (2020). Experiences of clinical first-line nurses treating patients with COVID-19: A qualitative study. *Journal of Nursing Management, 28*(6), 1381-1390. https://doi.org/10.1111/jonm.13095

Walsh, P., Owen, P. A., Mustafa, N., & Beech, R. (2020). Learning and teaching approaches promoting resilience in student nurses: An integrated review of the literature. *Nurse Education in Practice, 45*, 102748. https://doi.org/10.1016/j.nepr.2020.102748

Zerbini, G., Ebigbo, A., Reicherts, P., Kunz, M., & Messman, H. (2020). Psychosocial burden of healthcare professionals in times of COVID-19 - A survey conducted at the University Hospital Augsburg. *German Medical Science: GMS e-journal, 18*, Doc05-Doc05. https://doi.org/10.3205/000281

Zhang, Y., Wei, L., Li, H., Pan, Y., Wang, J., Li, Q., Wu, Q., & Wei, H. (2020). The psychological change process of frontline nurses caring for patients with COVID-19 during its Outbreak. *Issues in Mental Health Nursing, 41*(6), 525-530. https://doi.org/10.1080/01612840.2020.1752865

ORIGINAL RESEARCH

School Health Services for Children with Chronic Health Conditions in California Public Secondary Schools: Findings from the 2018 School Health Profiles Survey

Ellen McCabe[1*], Beth Jameson[2] & Shiela Strauss[1,3]

[1] Hunter College, Hunter-Bellevue School of Nursing, NY, USA
[2] Seton Hall University, College of Nursing, NJ, USA
[3] New York University, Rory Meyers College of Nursing New York, NY, USA
***Corresponding Author:** Ellen McCabe, Hunter College, New York, USA
Email: em3766@hunter.cuny.edu
https://doi.org/10.47988/janany.53644423.2.1

Abstract

Background: More than 20% of school districts in the United States do not have policies on identification and case management for students with chronic health conditions (CHCs), suggesting that these students' health needs may not be met during the school day. Prior research reports a gap in policy implementation and the actual provision or operationalization of the policy into action. **Significance:** While there is limited research on school health policies, little is known about the actual provision of the services that such policies indicate should be provided. Notably, the actual provision of health services in U.S. schools, particularly regarding CHC management and its association with school nurse employment, is underreported. **Methodology:** Using data from the 2018 School Health Profiles (SHP) Survey, health services including administering daily medication, providing stock rescue medication, providing case management, facilitating community partnering, and providing disease-specific education were examined in California public secondary schools together with school nurse employment. Complex sampling analysis and chi-square statistics were used to examine the statistical associations. **Results:** A significantly greater proportion of schools with a full- or part-time nurse compared with schools with no nurse provided: (1) daily medication administration (82.1% vs. 68.1%; p = .014); (2) case management services (75.8% vs. 62.0%; p = .031); (3) disease-specific education for parents and families (44.9% vs. 25.7%; p = .016); and (4) parent and student connection to health services in the community (83.7% vs. 72.2%; p = .035). **Conclusion:** Findings suggest that nationally representative data, such as SHP, contain important information for states to review regarding school health policies and provision of services. Further research needs to expand these findings to better understand school health policy and practice and its alignment with state and federal laws to support all children, especially those with CHCs.

Keywords: child, school health services, school nursing, health policy, chronic diseases

Funding: This research did not receive any support, financially or in kind.

Conflict of Interest: The authors declare no potential or actual conflict of interest (COI).

Acknowledgment: This research was determined exempt by the IRB office at Hunter College.

Date Submitted: November 8, 2021 Date Accepted: November 28, 2021 Date Published Electronically: February 1, 2022

School Health Services for Children with Chronic Health Conditions in California Public Secondary Schools: Findings from the 2018 School Health Profiles Survey

Introduction

Approximately 25% of all school-aged youth have a chronic health condition (CHC), generally described as one that reduces performance in activities, requires daily medication, includes regular medical intervention, and/or involves nursing and medical care (Bernell & Howard, 2016; Centers for Disease Control and Prevention [CDC], 2019a; Noonan et al., 2020). The presence of health policies concerning CHCs supports a well-defined structure of protection, well-being, and safety for these children and promotes a school atmosphere of nondiscrimination, inclusivity, and equitability in education (Russell et al., 2016; Day et al., 2019).

Of concern is that in 2016, more than 20% of the school districts in the United States did not have policies on identification, instruction, tracking, and/or case management of students with CHCs and disabilities (McCabe et al., 2020). This suggests that students' CHC needs may not be met at school. In addition, when comparing U.S. school districts' CHC policies by region of the U.S. (Northeast, South, Midwest, and West), districts in the Northeast Region had the greatest proportion of such CHC policies, and Western districts reported the least (McCabe et al., 2020). This finding is consistent with additional research that reports that the Western Region of the U.S. has a lower proportion of school health policies than other regions of the country (Demissie & Brener, 2017; Jones et al., 2019; McCabe et al., 2021; Tiu et al., 2019).

Importantly, youth with CHCs often require assistance managing their conditions while in school (CDC, 2019a; Leroy et al., 2017). This assistance is often given by school nurses (CDC, 2016, p. 13) who provide routine and urgent care, care coordination, and case management interventions to keep youth with CHCs safe and healthy (Best et al., 2018; 2020; Lineberry & Ickes, 2015; McCabe et al., 2019; McClanahan & Weismuller, 2015). Thus, because school nurses work in partnership with students, families, school staff, and health care providers to support students' health and academic accomplishments (Leroy et al., 2017), employment policies concerning school nurses are especially relevant for youth with CHCs. Prior research has, in fact, examined national U.S. school district data exploring the association between CHC policies and school nurses' employment policies (McCabe et al., 2020). In U.S. school districts with a full- or part-time school nurse employment policy (52.3% of U.S. school districts in 2016), a significantly greater proportion of districts also had policies on identification, instruction, tracking, and case management of students with CHCs and disabilities (McCabe et al., 2020).

Knowledge about school health services policies is important; however, it is vital to examine the *actual provision* of school health services beyond just the provision of policies (Jameson et al., 2020). Therefore, the purpose of this study was to examine the provision of health services in U.S. schools, primarily for students with CHCs. As the Western Region of the U.S. reports fewer school nurse employment and CHC management policies than other U.S. regions, and because there are variations in the provision of services within and across states (Chriqui et al., 2019; Knauer et al., 2015), this study focused on the state of California, the largest state in the Western Region of the U.S. We, therefore, examined the extent to which public secondary schools in California employed full- or part-time registered nurses. We note that despite the importance of school nurses in supporting youth with CHCs, we are unaware of published research that systematically examined school nurse employment related to the provision of health services for these youth. Thus, we aimed to compare the provision of health services, primarily for youth with CHCs, among schools that employ a full- or part-time nurse with those that do not. Analyses were conducted using data collected from California public secondary schools, (i.e., schools with one or more of grades 6 through 12), in the 2018 School Health Profiles dataset. We hypothesized that California public secondary schools that employ either a full- or part-time nurse would be more likely to provide health services, particularly those related to CHC management.

Material and methods

The School Health Profiles

Analyses for this study used data from the School Health Profiles (SHP) 2018 School Principal Questionnaire. SHP consists of various surveys measuring school health policies and practices in states, large urban school districts, and territories. These school policies and practices include school health and physical education, bullying and sexual harassment, tobacco use and prevention, nutrition, school-based health services, family and community engagement, and school health coordination (CDC, 2019b). Since 1996, SHP has been conducted biennially by the Centers for Disease Control and Prevention (CDC) with local education and health agencies "to measure progress in the implementation of school policies and practices to help improve the health of school-aged youth" (CDC, 2019b, p. 1).

SHP surveys a sample of secondary schools. In 2018, 43 states, 21 large urban school districts, and 2 territories obtained data from their jurisdictions (CDC, 2019b). Separate surveys from the principal and lead health education teacher at each sampled school were collected via a self-administered paper and pencil or web-based questionnaire. The survey questions differ for the two groups of professionals. This study analyzed data from the principal survey as questions regarding nurse employment and provision of the selected health services were not asked in the lead health educator survey. Survey participation was confidential and voluntary. If at least 70% of the principals and lead health education teachers in the sample completed the questionnaire in participating states, school districts, and territories, the data could be weighted to represent the population (CDC, 2019b). This study will analyze weighted survey data from the California 2018 School Principal Questionnaire.

Sampling, data collection, questionnaire, and response rates

SHP 2018 utilized a random, systematic, probability sampling approach to sample schools that serve students in secondary schools in each jurisdiction. Data from SHP 2018, collected at the school level only, were used in this study's analysis. Therefore, our unit of analysis was the school.

Our analytic focus was on school practices involving health services and family and community involvement. Information about questionnaire development and a print version of its final copy are available online (CDC, 2019a). A total of 373 of 504 (74%) sampled California public secondary schools responded to the school principal questionnaire. The publicly available data were considered exempt from review by the Institutional Review Board at Hunter College.

Study Measures

Our analyses included survey responses ("yes" or "no") from the 2018 California School Principal Questionnaire to two queries: *Is there a full-time registered nurse who provides health services to students at your school?* and *Is there a part-time registered nurse who provides health services to students at your school?* Using responses to these two questions, we created a dichotomous variable that reflected whether or not the school had a full- or part-time nurse. Additionally, to be included in our analyses, school principal respondents must have answered "yes" or "no" to the school's provision of five selected health services regarding CHC management included in SHP 2018. See Table 1 for a description of these services.

Statistical Methods

Analyses used the complex samples module in IBM SPSS 27 with sampling with replacement to account for the complex sampling strategy in SHP 2018. Incorporating the stratification and weighting of schools that the 2018 SHP provided, the software enabled obtaining correct confidence intervals and standard errors, valid point estimates, and testing of hypotheses (West et al., 2018). It also enabled the extrapolation of findings to all public secondary schools in California. Descriptive statistics were computed for individual variables. Chi-square statistics were then examined to determine statistical associations between full- or part-time nurses' employment and provision of CHC services. Statistical significance was set at $p < .05$.

Table 1

Association Between Nurse Employment and Provision of Health Services in California Public Secondary Schools

Services	Total (%)	Has a full or part-time nurse (%)	Has neither a full nor part-time nurse (%)	p-value
Provides daily medication administration for students with CHCs (e.g., asthma, diabetes)	80.3	82.1	68.1	.014*
Provides stock rescue or "as needed' medication for any student experiencing a health emergency (e.g., asthma episode, severe allergic reaction)	71.1	72.8	60.0	.053
Provides case management for students with CHCs (e.g., asthma, diabetes)	74.0	75.8	62.0	.031*
Links parents and families to health services and programs in the community	82.2	83.7	72.2	.035*
Provides disease-specific education for parents and families of students with CHCs (e.g., asthma, diabetes)	42.4	44.9	25.7	.016*

Note. The data were analyzed using Pearson's chi-square test for complex samples.
* $p < .05$.

Results

A total of 373 California public secondary schools responded to the 2018 school principal survey. Of these, 354 (94.9%) responded to whether they had a full- or part-time nurse and whether the school provided five selected health services to students or families. These 354 schools constitute the study sample. Results were extrapolated to the population of public secondary schools in California using complex samples software.

Of all the schools, 86.8% reported having a full- or part-time nurse, and 13.2% reported having neither a full- nor part-time nurse. As can be seen in Table 1, 42.4% of schools reported that they provided disease-specific education for parents and families of students with CHCs such as asthma and diabetes. Most schools reported that they stocked rescue or "as needed" medication for any student experiencing a health emergency (71.1%) and provided case management for students with CHCs (74.0%). Most schools also reported that they provided daily medication administration for students with CHCs (80.3%), and linked parents and families to health services and programs in the community (82.2%).

Regarding students with CHCs such as asthma and diabetes, as can be seen in Table 1, a significantly larger proportion of schools with a full- or part-time nurse than those with neither a full- nor part-time nurse (1) provided daily medication administration (82.1% vs. 68.1%; p = .014); (2) provided case management services (75.8% vs. 62.0%; p = .031); and (3) provided disease-specific education for parents and families (44.9% vs. 25.7%; p = .016). Additionally, a significantly larger proportion of schools with a full- or part-time nurse linked parents and students with health services and programs in the community than schools with neither a full- nor a part-time nurse (83.7% vs. 72.2%; p = .035).

Discussion

To our knowledge, this is the first study to systematically examine the employment of school nurses, provision of health services for children with CHCs, and the relationships between the two in California public secondary schools. The current study results indicate that 86.8% of public secondary schools in California, the largest state in the Western Region of the U.S., report employing a full- or part-time nurse, and 13.2% do not. Previous research is consistent with this finding. Willgerodt and colleagues (2018) reported that 16.1% of schools in the Western Region of the U.S. employed neither a full nor part-time nurse. While the proportion of public secondary schools in California that report employing a full or part-time nurse may appear encouraging, prior research has indicated that only a small proportion of these schools (22.4% of California public secondary schools) employed a *full-time* registered school nurse (CDC, 2019b, p. 176). Additionally, in 2018-19, Kids Data (2019) reported that there were 2,566 full-time equivalent school nurses in California translating to approximately one nurse for every 2,400 students. The combination of a small proportion of full-time nurses together with the small number of nurses relative to the number of students emphasizes the reason for concern regarding school nurse employment in California schools. School-level health service data, including the employment of nurses, are important to examine, particularly in California, a state located in a region with limited school nurse employment policies (McCabe et al., 2020).

Variation in school nurse employment practices may be related to a lack of strategic guidance and resources, which may arise when there are no specific guidelines, practice procedures, or resources (both human and financial). In that case, organizations are left to design policies and procedures independently (Grier & Schaller, 2020; Merlo et al., 2018; Srivastav et al., 2020). The state of California Education Code 49426 Employment of Medical Personnel (1976) has written statutes on credentialing of school nurses and describes the intent of the state legislature to "provide positively" for the health services. Further, the California state legislature indicates that there are "responsibilities" that school nurses may perform in schools, but only "if authorized" by the local governing board. Thus, the language in the statute provides no strategic guidance and stops short of indicating that a school nurse is necessary.

School nurses are acknowledged school health leaders and advocate for health policy with the skills and knowledge to improve student health and academic outcomes (Best et al., 2021; Maughan et al., 2018; Yoder, 2020). However, the school setting is devoted to education. This can pose challenges with school health policy development and implementation of policies into practice, especially as the U.S. Department of Education (2015) describes principals as the "centerpiece" of state policy implementation. Principals are education leaders, and as such, their focus is primarily on academic responsibilities rather than health services. For example, in a study examining principal and teacher knowledge of health policies related to sun safety practices in California schools, only 32.5% of principals and 11.9% of teachers were aware that their school district had a policy on sun protection (Buller et al., 2018). The authors suggest that principals and teachers may be more likely to understand and learn about health policies when it involves their classroom procedures, responsibilities, and curricula. Therefore, it is possible that some health services policies are in place at the state and school level but not implemented, especially if they involve those not typically addressed by principals or teachers.

Consistent with our hypothesis, study results demonstrate that having a full-or part-time nurse employed in a public secondary school in California was positively and statistically significantly associated with the provision of health services, including daily medication administration, case management and education of students with CHCs, as well as linking students and families to health services in the community. Differences between schools that had a full- or part-time nurse and those that did not regarding the provision of stock medication and as-needed medication were close to statistically significant (p =.053), suggesting that these differences should also be considered in practice and future research.

Regarding the provision of school health services, our research indicates, for example, that 80.3% of schools with a full or part-time nurse in California provide daily medication administration for students with CHCs (e.g., asthma, diabetes), with a lower proportion of public secondary schools (68.1%) reporting that they offer this health service but do not employ either a full or part-time nurse. This finding suggests that a sizable proportion of students with CHCs in California public secondary schools

with no nurse may not have their health needs met by a licensed health professional regarding receipt of necessary medication. The components involved with medication administration at school include medication orders, documentation regarding administration, appropriate storage and disposal of medication, and proper labeling, suggesting the importance of the involvement of a health professional. In fact, the National Association of School Nurses (NASN) posits that "a registered professional school nurse be responsible for medication administration in the school setting, leading the development of written medication administration policies and procedures that focus on safe and efficient medication administration at school" (NASN, 2017, para. 1). If a school does not have a nurse on-site, we therefore, encourage stakeholders to inquire about who administers insulin to a newly diagnosed student with type 1 diabetes, albuterol to a child with asthma, or Focalin (dexmethylphenidate) to a child with attention deficit hyperactivity disorder.

While our research focused on potential differences in school nurse employment practices and its relationship to the provision of health services in the largest state in the Western Region of the U.S., we recognize that there may be other explanations for these differences. Previous research has suggested that variation in school health policies and practices may be associated with demographics and socioeconomic factors such as poverty, school community locale (e.g., urban, rural, suburban), and school type (elementary, middle, high school) (Emley et al., 2020; McCabe et al., 2020; Searing & Guenette, 2016; Tiu et al., 2019). Cygan et al. (2020) identified school district support and leadership as essential for school health policy implementation. As the health leaders in schools, school nurses are therefore essential in implementing health policies. Leeman et al. (2018) observed that well-designed tools for implementing and applying evidence-based interventions were integral to supporting school health practices. Importantly, all stakeholders and partners must also be involved in both policy implementation and sustainability (McDonnell & Weatherford, 2016; McIsaac et al., 2019).

This study demonstrates that the employment of a school nurse is vital in the provision of health and wellness services for school children. The data also suggest that school nurses may be policy implementation leaders, as schools that employ a full or part-time nurse were statistically significantly more likely to provide these school health services.

Limitations

This research study has a few limitations. First, although the SHP surveys are completed by school principals and lead health education teachers in each sampled school, this study only analyzed data from the principal survey. Questions regarding nurse employment and provision of the selected health services were not asked in the lead health educator survey. Second, because the SHP data were self-reported, principals' responses may have been inflated due to social desirability or sometimes underreport services of which they are unaware. Additionally, SHP data are collected from U.S. public secondary schools and do not represent nonpublic schools. Furthermore, SHP data combine those from middle and high schools, and further research should distinguish between the two. Lastly, generalizability is limited as this research study only examined one state, California. However, California is the most populous state in the U. S. and has great diversity in having both many urban and rural locations.

Implications for School Health Services

There are several implications from this study for school health service providers in California to consider. For example, the COVID-19 pandemic publicly highlighted the insufficient number of school nurses in California, with many schools reporting that they had either no nurse or had only a part-time nurse who shared time with other schools (Lambert, 2021). The lack of a qualified professional nurse was challenging as schools struggled to meet the recommended health and safety requirements to reopen safely. The school nurse, with expertise in population health, is the qualified professional to advise and lead schools in screening procedures for students and staff related to COVID-19 symptoms, contact tracing, and assessments regarding quarantine and isolation. The classroom teacher or school administrator, with educational preparation versus medical or nursing training, should not be the school professional to assess a cough or sore throat. Unfortunately, it took a pandemic to bring the issue of school health services, nurse employment, and safe staffing to the broader public.

Before and during COVID-19, school nurses were additionally responsible for acute and chronic management of school health issues, coordination of health screenings, and review of annual physical examinations and immunization records. These were all intended to improve the well-being of children and youth. While COVID-19 may have highlighted a school nursing shortage, the California School Nurses Organization and school administrators report that the lack of school nurses is not a new problem (Lambert, 2021). They report that school nursing positions are hard to fill for multiple reasons, including lower wages than those offered by the private sector and the need for school nurses to take additional classes to become credentialed (Lambert, 2021). In addition, California is one of 10 states that do not have a State School Nurse Consultant to monitor federal and state health policies and promote practice implementation in district schools. Some believe that such a person would help California schools operate safely while supporting the school nurse and developing and promoting quality standards for nurses to be liaisons between school health programs, state boards, and legislators (Lambert, 2021).

In consideration of the demands of COVID-19 as well as those of the next public health crisis and acute and chronic condition management, we urge stakeholders in California to complete a health needs assessment of their school communities as soon as possible. School districts should consider staffing and funding for the employment of school nurses to increase the number of health services, particularly for students with CHCs. Consideration ought to be given to the utilization of external funding when budget constraints present challenges to school health policy implementation, especially when a school nurse's salary may compete with other school funding priorities. Strong consideration should also be given to the creation and development of a school health leadership team that are influential in health practices change, offer education to school staff and the school community,

and conducts evaluations and feedback of school health services. In addition, strong school-community partnerships should be developed to strengthen school health policies, implement those policies, and explore support through financial and human resources. We also urge not only California, but all states to consider sustainability regarding the costs and benefits of school health services policies and practices. Finally, all states should review and utilize nationally representative data, such as SHP, to understand what policies and programs exist in their states and consider how to facilitate their implementation into practice.

Conclusions

Transparency for all stakeholders involved in school health services should not only center around medication administration at school but must address all health services intended to improve the well-being of youth. This includes the development of policies and procedures that address state and federal laws, state nurse practice acts, and evidence-based information. Further studies need to consider the complexity of factors associated with school health policy implementation and include the school nurse as a policy actor in that research.

References

Bernell, S., & Howard, S. W. (2016). Use your words carefully: What is a chronic disease? *Frontiers in Public Health, 4*(159), 1-3. https://doi.org/10.3389/fpubh.2016.00159

Best, N. C., Nichols, A. O., Waller, A. E., Zomorodi, M., Pierre-Louis, B., Oppewal, S., & Travers, D. (2021). Impact of school nurse ratios and health services on selected student health and education outcomes: North Carolina, 2011-2016. *The Journal of School Health, 91*(6), 473-481. https://doi.org/10.1111/josh.13025

Best, N. C., Nichols, A. O., Oppewal, S., Pierre-Louis, B., Waller, A. E., Zomorodi, M., & Travers, D. (2020). An appraisal of school nurse health services and programs in North Carolina public schools, 2006–2016. *The Journal of School Nursing, 37*(3), 146-156. https://doi.org/10.1177/1059840519899439

Best, N. C., Oppewal, S., & Travers, D. (2018). Exploring school nurse interventions and health and education outcomes: An integrative review. *The Journal of School Nursing, 34*(1), 14-27. https://doi.org/10.1177/1059840517745359

Buller, D. B., Reynolds, K. D., Berteletti, J., Massie, K., Ashley, J., Buller, M. K., & Meenan, R. T. (2018). Accuracy of principal and teacher knowledge of school district policies on sun protection in California elementary schools. *Preventing Chronic Disease, 15*, 1-10. https://doi.org/10.5888/pcd15.170342

Centers for Disease Control and Prevention. (2016). *Results from the school health policies and practices study 2016.* https://www.cdc.gov/healthyyouth/data/shpps/pdf/shpps-results_2016.pdf

Centers for Disease Control and Prevention. (2019a). *Adolescent and school health. School health profiles.* https://www.cdc.gov/healthyyouth/data/profiles/index.htm

Centers for Disease Control and Prevention. (2019b). *School Health Profiles 2018: Characteristics of health programs among secondary schools.* https://www.cdc.gov/healthyyouth/data/profiles/pdf/2018/CDC-Profiles-2018.pdf

Chriqui, J., Stuart-Cassel, V., Temkin, D., Piekarz-Porter, E., Lao, K., Steed, H., Harper, K., Leider, J., & Gabriel, A. (2019). *Using policy to create healthy schools: Resources to support policymakers and advocates.* https://www.childtrends.org/publications/using-policy-to-create-healthy-schools

Cygan, H., Tribbia, C., & Tully, J. (2020). School health policy implementation: Facilitators and challenges. *The Journal of School Nursing, 36*(5), 330-338. https://doi.org/10.1177/1059840519846089\

Day, J. K., Ioverno, S., & Russell, S. T. (2019). Safe and supportive schools for LGBT youth: Addressing educational inequities through inclusive policies and practices. *Journal of School Psychology, 74*, 29-43. https://doi.org/10.1016/j.jsp.2019.05.007

Demissie, Z., & Brener, N. (2017). Demographic differences in district-level policies related to school mental health and social services - United States, 2012. *Journal of School Health, 87*(4), 227-235. https://doi.org/10.1111/josh.12489

Emley, E., Dial, L., Koerten, H., & Musher-Eizenman, D. (2020). Variation in school district nutrition policies and practices: Community context matters. *American Journal of Health Education, 51*(5), 289–298. https://doi.org/10.1080/19325037.2020.1795753

Employment of Medical Personnel [49422 - 49429] CA. Stat. § Article 2 enacted by Stats. 1976, Ch. 1010 (1976). https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=4. &title=2.&part=27.&chapter=9.&article=2

Grier, S. A., & Schaller, T. K. (2020). Operating in a constricted space: Policy actor perceptions of targeting to address U.S. health disparities. *Journal of Public Policy & Marketing, 39*(1), 31-47. https://doi.org/10.1177/0743915619838282

Jameson, B. E., Anderson, L. S., & Endsley, P. (2020). Identification of workload measurement indicators for school nursing practice. *The Journal of School Nursing*, Advance online publication. https://doi.org/10.1177/1059840520946833

Jones, S. E., Foster, S., & Berens, A. S. (2019). Radon testing status in schools by radon zone and school location and demographic characteristics: United States, 2014. *The Journal of School Nursing, 35*(6), 442. https://doi.org/10.1177/1059840518785441

Kids Data. (2019). Number of pupil support service personnel, by type of personnel. https://bit.ly/3oIPP3M

Knauer, H., Baker, D. L., Hebbeler, K., & Davis-Alldritt, L. (2015). The mismatch between children's health needs and school resources. *The Journal of School Nursing, 31*(5), 326-333. https://doi.org/10.1177/1059840515579083

Lambert, D. (2021, March 5). Nurse shortage could make reopening school campuses more difficult. Lake County Record-Bee. https://www.record-bee.com/2021/03/05/nurse-shortage-could-make-reopening-school-campuses-more-difficult/

Leeman, J., Wiecha, J. L., Vu, M., Blitstein, J. L., Allgood, S., Lee, S., & Merlo, C. (2018). School health implementation tools: A mixed methods evaluation of factors influencing their use. *Implementation Science, 13*(1), 1-13. https://doi.org/10.1186/s13012-018-0738-5

Leroy, Z. C., Wallin, R., & Lee, S. (2017). The role of school health services in addressing the needs of students with chronic health conditions: A systematic review. *The Journal of School Nursing, 33*(1), 64-72. https://doi.org/10.1177/1059840516678909

Lineberry, M. J., & Ickes, M. J. (2015). The role and impact of nurses in American elementary schools: A systematic review of the research. *Journal of School Nursing, 31*(1), 22-33. https://doi.org/10.1177/1059840514540940

Maughan, E. D., Cowell, J., Engelke, M. K., McCarthy, A. M., Bergren, M. D., Murphy, M. K., Barry, C., Krause-Parello, C. A., Luthy, K. B., Kintner, E. K., & Vessey, J. A. (2018). The vital role of school nurses in ensuring the health of our nation's youth. *Nursing Outlook, 66*, 94-96. https://doi.org/10.1016/j.outlook.2017.11.002

McCabe, E. M., Jameson, B. E., & Strauss, S. M. (2020). School nurses matter: Relationship between school nurse employment policies and chronic health condition policies in U.S. school districts. *The Journal of School Nursing* 1059840520973413. https://doi.org/10.1177/1059840520973413

McCabe, E. M., Kaskoun, J. R., & Strauss, S. M. (2021). School nurses as vital members of 504 and individualized educational program teams: Do district-level policies make a difference in school nurses' involvement? *Policy, Politics & Nursing Practice*, 15271544211011959. https://doi.org/10.1177/15271544211011959

McCabe, E. M., McDonald, C., Connolly, C., & Lipman, T. H. (2019). A review of school nurses' self-efficacy in asthma care. *The Journal of School Nursing, 35*(1), 15-26. https://doi.org/10.1177/1059840518808886

McClanahan, R., & Weismuller, P. C. (2015). School nurses and care coordination for children with complex needs: An integrative review. *The Journal of School Nursing, 31*(1), 34-43. https://doi.org/10.1177/1059840514550484

McDonnell, L. M., & Weatherford, M. S. (2016). Recognizing the political in implementation research. *Educational Researcher, 45*(4), 233-242. https://doi.org/10.3102/0013189X16649945

McIsaac, J. D., Spencer, R., Chiasson, K., Kontak, J., & Kirk, S. F. L. (2019). Factors influencing the implementation of nutrition policies in schools: A scoping review. *Health Education & Behavior, 46*(2), 224-250. https://doi.org/doi.org/10.1177/10901981187968

Merlo, C. L., Michael, S., Brener, N. D., & Blanck, H. (2018). State-level guidance and district-level policies and practices for food marketing in US school districts. *Preventing Chronic Disease, 15*(6). https://doi.org/10.5888/pcd15.170352

National Association of School Nurses. (2017). *Medication administration in schools* (Position Statement). https://www.nasn.org/advocacy/professional-practice-documents/position-statements/ps-medication

Noonan, K., Reichman, N. E., Corman, H., & Jiménez, M. E. (2020). School and community involvement of adolescents with chronic health conditions. *Journal of Adolescent Health, 67*(4), 1-8. https://doi.org/10.1016/j.jadohealth.2020.02.028

Russell, S. T., Day, J. K., Ioverno, S., & Toomey, R. B. (2016). Are school policies focused on sexual orientation and gender identity associated with less bullying? Teachers' perspectives. *Journal of School Psychology, 54*, 29-38. https://doi.org/10.1016/j.jsp.2015.10.005

Searing, L. M., & Guenette, M. (2016). Characteristics of Illinois school districts that employ school nurses. *The Journal of School Nursing, 32*(4), 273-280. https://doi.org/10.1177/1059840515608921

Srivastav, A., Spencer, M., Thrasher, J. F., Strompolis, M., Crouch, E., & Davis, R. E. (2020). Addressing health and well-being through state policy: Understanding barriers and opportunities for policy-making to prevent Adverse Childhood Experiences (ACEs) in South Carolina. *American Journal of Health Promotion, 34*(2), 189-197. https://doi.org/10.1177/0890117119878068

Tiu, G. F., Leroy, Z. C., Lee, S. M., Maughan, E. D., & Brener, N. D. (2019). Characteristics associated with school health services for the management of chronic health conditions. *The Journal of School Nursing*. Advance online publication. https://doi.org/10.1177/1059840519884626

U.S. Department of Education. (2015). Principals: The centerpiece of state policy implementation. https://www2.ed.gov/about/inits/ed/implementation-support-unit/tech-assist/princcentrpiofstatepolicyimp.pdf

West, B. T., Sakshaug, J. W., & Aurelien, G. A. S. (2018). Accounting for complex sampling in survey estimation: A review of current software tools. *Journal of Official Statistics, 34*(3), 721-752. https://doi.org/10.2478/jos-2018-0034

Willgerodt, M. A., Brock, D. M., & Maughan, E. D. (2018). Public school nursing practice in the United States. *The Journal of School Nursing, 34*(3), 232-244. https://doi.org/10.1177/1059840517752456

Yoder, C. M. (2020). School nurses and student academic outcomes: An integrative review. *The Journal of School Nursing, 36*(1), 49-60. https://doi.org/10.1177/1059840518824397

ORIGINAL RESEARCH

Challenges to Educating Nurses about Evidence-Based Nursing Practice in NY State: A Delphi Study

Darlene Del Prato[1*], Jennifer Klimek-Yingling[2], Priscilla Worral[3], Rona Levin[4], Deborah Elliott[5], Victoria Record[6]

[1]SUNY Polytechnic Institute, Utica, NY, USA
[2]Utica College, Utica, NY, USA
[3]SUNY Upstate Medical University (retired), Syracuse, NY, USA
[4]Felician College, Lodi, NY, USA
[5]Foundation of NYS Nurses, Inc. Guilderland, NY, USA
[6]Rochester Regional Health, Rochester, NY, USA
***Corresponding Author:** Darlene Del Prato, SUNY Polytechnic Institute, Utica, NY, USA Email: delprad@sunypoly.edu
https://doi.org/10.47988/janany.58235864.2.1

Abstract

Background: Nurses play a critical role in delivering evidence-based practice (EBP) that prevents adverse events and fosters quality patient outcomes. Nurses' ability to engage in EBP after graduation is shaped by their nursing education. The purpose of this study was to examine nurse leaders' perspectives regarding academic barriers to educating nurses about EBP and its implementation in practice in New York State. ***Methodology:*** Using a modified Delphi technique, a purposive sample of nurse leaders in clinical, faculty, and administrative roles that included responsibility for EBP completed two online survey rounds. First Round qualitative data were categorized via content analysis. In the second Round, respondents ranked categories gleaned from Round I. This paper reports the second phase of a larger study about EBP. ***Results:*** Respondents identified a lack of faculty expertise as an educational barrier to EBP for undergraduate and graduate students. Additional barriers for undergraduates were lack of experience/context and lack of role models. At the graduate level, additional barriers were lack of time and lack of exposure/experience/ practice. Subgroup differences in ranking highlight the need to consider demographic variation in identification of barriers. ***Conclusion and Recommendations:*** Faculty have an important responsibility to create and update nursing curricula so nursing graduates are prepared as competent EBP clinicians. The findings underscore the need for ongoing faculty development of EBP competencies, academic-clinical partnerships, and an integrated curriculum to support nursing students' professional formation of EBP competency consistent with professional nursing standards and current research.

Keywords: Nursing, Nursing Education, Delphi Technique, Evidence-Based Practice

Funding: This research did not receive funding.

Conflict of Interest: The authors declared no conflicts of interest.

Acknowledgement: The authors wish to acknowledge the leadership and support of the New York State Foundation for Nursing, Cathryne A. Welch Center for Nursing Research, for creating the impetus for this study and bringing nurse colleagues from across New York State together as researchers, authors, and participants to advance nursing science and EBP in NY State. We also wish to acknowledge the support, counsel, and continued involvement of ANA-NY. Last but not least, we wish to acknowledge each other for the collegiality and collaboration we have experienced in completing this study and this manuscript.

Date Submitted: November 22, 2021 Date Accepted: December 20, 2021 Date Published Electronically: February 1, 2022

Challenges to Educating Nurses about Evidence-Based Nursing Practice in NY State: A Delphi Study

Evidence-based practice (EBP) is a featured concept in the American Association of Colleges of Nursing's newest standards, *The Essentials: Core Competencies for Professional Nursing Education* (American Association of Colleges of Nursing, 2021). Nurses should be educated as competent consumers of research. They must be prepared to critically analyze evidence for application to practice and engage in EBP as a member of the interprofessional team (American Association of Colleges of Nursing, 2021). The call to educate nurses so they are prepared to use the best available evidence to improve patient care outcomes is not new. Twenty years ago, the inclusion of EBP in all health professions curricula was directed by the Institute of Medicine (2001). Two decades later, major challenges to implementing EBP in practice persist (Klimek-Yingling et al., 2021).

Given the complex academic and clinical challenges to EBP implementation by practicing nurses, we explored the problem in two phases. Phase one sought to a) identify barriers to applying EBP in clinical practice in New York State (NYS); b) prioritize resources needed to overcome barriers and c) elicit strategies that the Foundation of New York State (NYS) might engage in to help alleviate barriers (Klimek-Yingling et al., 2021).

This article reports the second phase of the study. The purpose of phase two was to identify major *academic* barriers to educating nurses about EBP and its implementation in practice in NYS. Both study phases were a collaborative effort among the Foundation of NYS Nurses' Center for Nursing Research (CNR), ANA-New York, and other colleagues described later in this article. The results of this study will inform future CNR initiatives for enhancing the academic integration of EBP into nursing curricula in NYS. In addition, we hope the findings will increase awareness about current gaps in understanding the differences between EBP and research and the different processes that guide each approach to improving healthcare for the citizens of NYS and beyond.

Review of the Literature

Two decades have passed since the Institute of Medicine's (2001) report, *Crossing the Quality Chasm*. Since then, international literature has increasingly focused on the application of EBP to improve patient care. Consistent implementation of EBP improves healthcare safety and quality outcomes, including morbidity and mortality rates, and fosters patient satisfaction (Melnyk et al., 2016). In addition, EBP reduces healthcare costs and fosters healthcare providers' professional satisfaction (Välimäki et al., 2018).

Despite strong evidence that EBP is essential to quality healthcare outcomes, it is not always applied by health care providers, including nurses (Melnyk et al., 2016; Warren et al., 2016). Previous research identified multiple barriers to clinicians' use of EBP, including a) insufficient EBP knowledge, b) shortage of mentors, c) lack of supportive organizational culture, d) challenging patient assignments, e) perceived lack of time and resources, f) lack of organizational mandates regarding EBP, g) inability to keep up with new knowledge; h) pressure to keep the status quo, and i) leaders who do not role model EBP (Duncombe, 2018; Klimek-Yingling et al., 2021; Melnyk et al., 2016; Melnyk et al. 2018).

Faculty are responsible for designing and updating curricula to prepare graduates to deliver evidence-based patient care. Graduate nurses' capacity to integrate EBP to improve clinical practice is shaped by how well they are prepared in their educational program and the degree to which they experience an evidence-based approach to patient care during their education (Blackman & Giles, 2017; Stichler et al., 2011). Melnyk et al. (2018) suggest that some nurses enter professional practice without sufficient EBP competency. In their descriptive study of 2,344 nurses from 19 hospitals or healthcare systems in the U.S., Melnyk et al. (2018) reported that overall, nurses did not believe they demonstrated EBP competency. Furthermore, nurses prepared in associate degree programs rated themselves lower on the EBP competencies than baccalaureate-prepared nurses.

Outdated Curricula

Nursing curricula that focus on the research process without situating research knowledge in an EBP context persist as a major barrier to student development of EBP competency. Faculty are responsible for conducting regular reviews of nursing curricula, and revising curricula when indicated to address current societal and health care needs (Christensen & Simmons, 2019). Professional standards and nursing research provide an important framework for building and revitalizing nursing curricula. In this regard, a Delphi study identified 13 EBP competencies needed by practicing registered nurses and 11 additional competencies for advanced practice nurses (Melnyk et al., 2014). These competencies provide a clear set of research-based guidelines for educating professional nurses to be intelligent consumers of research. In addition, the American Association of Colleges of Nursing's (2021) *Essentials: Core Competencies for Professional Nursing Education* identify EBP knowledge and skills as essential to include in nursing curricula.

While nursing faculty may support the notion of teaching EBP, they may neglect to incorporate EBP into the curriculum due to a high academic workload or lack of EBP knowledge and skills (Patelarou et al., 2020). The result is that some nurses graduate without the competencies needed for contemporary practice (Melnyk et al., 2018; Mthiyane & Habedi, 2018). Lam and Schubert's (2019) mixed-methods study highlights the need for curriculum reform. The study grounded in Melnyk's (2014) EBP competencies, examined baccalaureate students' perceptions of EBP education and competence. A major theme was that students struggled to distinguish EBP from research. Participants identified learning activities that helped them develop basic EBP competencies, such as searching for evidence but struggled to describe higher-order competencies such as using evidence to plan EBP changes. Equally concerning, participants provided few references to patient values and preferences as important evidence to inform EBP and were not able to explain how they would use EBP in practice.

Traditional Teaching Methods

Professional nurses must be prepared to manage complex patient situations, question current practices, analyze and weigh empirical and other available evidence, make autonomous evidence-based decisions, and question authorities when warranted (Del Prato, 2017). However, seminal research sponsored by the Carnegie Foundation concluded that nursing graduates were not sufficiently prepared for contemporary practice demands (Benner et al., 2010). As a result, Benner et al. (2010) called for radical reform and urged educators to move away from outdated teaching methods, such as traditional (passive) lectures and slide presentations that fail to prepare students with the higher-order thinking and analysis skills needed to engage in EBP (Benner et al., 2010; Del Prato, 2017; Mthiyane & Habedi, 2018; Nickerson & Thurkettle, 2013).

Lack of EBP Expertise

Having a positive attitude toward the importance of EBP and having achieved advanced practice level EBP competencies places faculty in a prime position to convey both to students and make EBP come alive. Ideally, faculty assigned to teach EBP exhibit a positive attitude, content expertise, and the advanced practice level EBP competencies needed to teach EBP. Previous research suggests that while faculty often exhibit a positive attitude, they may lack the knowledge and confidence to teach EBP effectively (Malik et al., 2016; Stichler et al., 2011). Stichler et al. (2011) surveyed faculty and measured their knowledge, attitudes, and perceived barriers to teaching EBP. They reported that while faculty had expertise about the research process, their research knowledge did not always translate to a positive attitude toward or knowledge about EBP, including competence in locating and evaluating available evidence. Using grounded theory, Malik et al. (2016) studied how 23 faculty in Australia taught EBP to undergraduate students. The sub-category "Demonstrating Some Understanding of EBP" (p. 56) reflected the theme that nursing faculty held different views about what constituted EBP. Several participants described EBP as identical to research utilization while others understood the broader aims of EBP regarding clinical decision-making.

Previous research advanced nursing knowledge about multiple interrelated barriers to nurses' implementation of EBP in the practice setting (Bianchi et al., 2018; Duncombe, 2018; Klimek Yingling, 2021; Melnyk et al., 2016). However, few studies examined the perspectives of nurse leaders and other EBP champions regarding educational barriers to nurses' EBP after graduation. In addition, there is limited qualitative work exploring the educational barriers that affect EBP implementation. This study sought to address these gaps in the literature by examining the challenges to educating nurses about EBP as perceived by nurse leaders in NYS

Methods

A Delphi technique was used to investigate the challenges to educating nurses about EBP. The Delphi method is an adaptable research method used to reach consensus on a specific question, or set of questions, based on the knowledge and experience of experts through repetitive rounds of two to three surveys (Hasson et al., 2000; McPherson et al., 2018). In this study, a modified Delphi technique (McPherson et al., 2018) was used to gain consensus from a purposive sample of nurse leaders on clinical and educational barriers to implementing EBP in clinical settings. Round I of the survey used open-ended questions to obtain participants' perspectives about the research questions. The research team analyzed this data and identified categories. In Round II, participants ranked the categories based on their views of educational barriers to implementing evidence-based practice. Participants were provided with a list of categories with exemplar statements that explained the categories' meaning based on the Round I participants' responses. The study design, methods, and phase I findings of clinical barriers were previously published (Klimek-Yingling et al., 2021).

Sample

This study used a purposive sample of registered professional nurses in NYS who taught EBP course content, mentored students' EBP projects/skill acquisition in practice, and/or facilitated change in clinical practice. All participants self-identified as having EBP expertise. Inclusion criteria included a minimum of a baccalaureate in nursing plus a graduate degree in nursing or a relevant field. The target goal was fifty participants selected to provide state-wide geographic representation, rural and urban/suburban setting diversity, and position/role diversity.

Nurse leaders in clinical, administrative, and academic roles were recruited through co-investigator professional networks and relationships. Clinical settings included tertiary care, ambulatory care, long-term care/assisted living, palliative care/hospice, and community care organizations. Academic settings included those with EBP course content at the associate, baccalaureate, and/or graduate levels. Letters describing the study purpose and expected time commitment for participation were sent electronically by the Foundation of NYS Nurses staff to potential participants.

Ethical Considerations

The Institutional Review Board at Utica College approved the study. Participants were over 18 years of age, with no exclusions based on gender, race, ethnicity, or sexual preference. The researchers conducting data analysis did not have access to Round I participants' identifiable information and deleted any identifiable information from Round II data before data analysis. Round I contact information was available only to Foundation of NYS Nurses staff who did not participate in data analysis. One forwarded Excel worksheet for Round II with the contact information was deleted by the lead member of the data analysis team before analysis. To ensure their confidentiality, a minimum of four participants were included in a demographic sub-group in order for that sub-group to be included in the analysis.

Data Collection for Educational Barriers

Participants' data were collected electronically using Cvent survey software (Cvent, Inc., 2021) with the survey link and reminder emails for each Round sent directly from Cvent. Thus, in addition to demographic data, Round I data for both clinical and educational barriers were collected simultaneously during the summer of 2020. Analysis of responses about clinical barriers,

resources needed to address barriers, and how the CNR might provide support was conducted during late Summer and early Fall of 2020. Round II data collection and analysis for clinical barriers, resources needed, and possible CNR support also were conducted during Fall 2020. However, because analysis of responses about educational barriers was delayed, Round II data collection for these barriers occurred in February 2021 with analysis following over the next two months.

Participants provided short-answer narrative responses to the following questions about educational barriers: What do you perceive as the first major barrier to educating nurses at the UNDERGRADUATE level to develop the knowledge and skills they need to change practice in their workplace? (asked three times to identify first, second, and third priority); and What do you perceive as the first major barrier to educating nurses at the GRADUATE level to develop the knowledge and skills they need to change practice in their workplace? (also asked three times).

As with the analysis of clinical barriers, Round I data about educational barriers were analyzed to develop categories with exemplar quotes sent to participants for Round II with instructions to rank category importance from the perspective of their agency or institution. Participants were asked to provide demographic information and, if they had participated in Round I, to identify whether their responses were reflected in the Round II categories.

Data Analysis Procedures

For each Round, survey responses were downloaded into Excel spreadsheets and forwarded to co-investigators conducting the analysis. Descriptive content analysis of Round I open-text narrative responses was conducted to synthesize participants' statements into categories. Each category identified a central theme reflecting individual statements. The data for each question were initially independently analyzed by two co-investigators. Then, four co-investigators discussed the data until consensus was reached.

For analysis of Round II data, co-investigators examined responses to the question asking whether participants thought categories from Round I data reflected their narrative responses. Investigators then analyzed the ranking of categories for each question using medians and modes to determine aggregate ranks for the total sample as well as for participants grouped by demographic categories for the primary role (clinical or academic) and geographic region of NYS (downstate, northeast, central, or western). Round II data were analyzed with descriptive statistics. For each question, a summary ranking of categories was determined first by examining median scores, second by examining modes, and lastly by looking at the number of participants who scored that category as among the top two or three in importance versus the two or three of least importance. Whenever two categories had identical medians, modes, and break-outs of individual rankings, both categories were given the same overall rank, and the next overall rank was skipped. For example, if two categories received an overall rank of 5 out of 10, a rank of 6 was skipped. Given the small sample size and the consensus among participants after Round II, investigators determined that a third-round was unnecessary.

Results

In Round I, of 88 surveys sent, 24 were returned for an initial 27% response rate. Three surveys were eliminated, two from non-RNs, and one from a nurse who stated no involvement in EBP, leaving a usable response rate of 22%. Among the 21 participants whose responses were included in Round I analysis, 10 provided complete responses, 15 responded to one or more questions about educational barriers for undergraduate students, and 13 responded to one or more questions about educational barriers for graduate students. In Round II, 14 participants responded out of 68, yielding a 20% response rate. Two of the 14 participants indicated they did not participate in Round I; however, their responses were included in the analysis.

In Round I, nurse leaders were asked how they influence EBP in their practice (See Table 1). This question was a select all-that-apply item. The nurse leaders who responded to one or more educational barriers (n=15) most frequently reported that they guided nurses and/or nursing students to integrate EBP in their clinical role (n=12 and n=9, respectively). Most nurse leaders who completed Round II (n=12 [86%]) reported a doctoral level nursing degree as their highest attained degree. A primary role as an EBP educator for clinical RNs or RN students (n=6 [43%]) was the most frequently reported primary role among Round II participants. The practice locations of Round II participants were primarily urban/suburban.

Table 1

Demographics for participants who gave responses to educational barriers in Round I and ranked categories of educational barriers in Round II

Demographic category		Round I (n=15)	Round II (n=14)
Highest earned degree	Baccalaureate	--	--
	Master's in nursing	3	2
	Doctorate in nursing	12	12a
Primary role (select all that apply) b	CNO in agency or institution	3	1
	Completed EBP project in grad school	1	--
	Conducts/guides EBP projects or research in a practice setting	4	2
	EBP educator for clinical RNs or RN students	5	6
	Other: Round I: research/IRB chair, MPD, acad. CNA; Round II: retired, acad. dept chair, asst. to provost for special projects, administrator, vice dean of academics, EVP	3	6

How you impact EBP in your practice (select all that apply) [this asked only in Round I]	Lead integration of EBP in an agency	5	--
	Guide nurses to integrate EBP in their clinical role	12	--
	Guide nursing students to integrate EBP in their clinical role	9	--
	Collect evidence to inform EBP	8	--
	Oher: support, RCA process	2	--
Practice location in NYS	Urban/suburban downstate	--	4
	Rural downstate	--	--
	Urban/suburban central	4	3
	Rural central	1	2c
	Urban/suburban northeast	6	4
	Rural northeast	1	--
	Urban/suburban western	3	1

[a]One participant also chose doctorate in another field. b One participant in each Round chose two primary roles. c One participant chose two locations; 1st was recorded.

A descriptive content analysis of open-text narrative responses from Round I revealed ten categories describing educational barriers to implementing EBP for undergraduate students (see Table 2). Categories included lack of confidence, curricular constraints, student lack of experience/context, lack of clinical curiosity, lack of faculty expertise, low expectations of students, lack of role models in practice, lack of resources, student negative attitude/fear about EBP and research, and lack of buy-in from clinical nursing staff.

Table 2

Important educational barriers for implementing EBP for UNDERGRADUATE students

Categories	Supporting Quotes
Lack of confidence	• *Their lack of confidence that they can lead the change* • *Students feel overwhelmed and don't feel empowered as change agents when facing experienced colleagues*
Curricular constraints	• *There is not enough time or education for them to fully understand the complexity of EBP.* • *Programs with EBP course where assignments to embrace EBP are teacher centered not learner centered* • *RN to BSN curricula do not spend enough time asking students to apply EBP skills to actually changing practice.*
Student lack of experience/ context	• *Their lack of context of clinical practice experience to value it or to see how it applies.* • *Pre-licensure students lack context to motivate them for changing practice* • *Their lack of experience in a clinical setting makes it less relevant to them/knowing what needs to be changed in their workplace.* • *they have to get past survival clinical skills first, their minds may not be geared towards learning EBP if what they really are stressed about is inserting a foley*
Lack of clinical curiosity	• *Encouraging them to be curious and realize they have the ability to discover, implement evidence and/or best practices* • *Developing and having clinical inquiry* • *Depends on an excitement and spirit of inquiry, and there is so much they are learning at once, that the interest is difficult to spark.*
Lack of faculty expertise	• *Lack of expertise of faculty* • *EBP trained faculty - many faculty in the academic settings…are not on the same page about EBP vs. Research* • *Lack of knowledge of standardized EBP by faculty*
Low expectations of students	• *At the associate level…competency expectations for development of EBP skills are low*
Lack of role models in practice	• *Excellent RN role models in practice who have expertise in EBP and managing change*
Lack of resources	• *Insufficient technology support and informatics resources to support access to excellent EBP resources.*
Students' negative attitude/fear regarding EBP and research	• *Finding ways to take the "fear" out of the word research and make it tangible, practical to use* • *By the time the RNs are back in school, they have already adopted a negative or neutral attitude toward EBP and research.* • *Staff have a general fear of being intimidated and avoid altogether* • *Students' dislike of "research" and research related topics i.e. stats*
Lack of buy-in	• *Seen as intrusive to status quo, getting buy-in*

The analysis identified nine categories describing educational barriers to implementing EBP for graduate students (See Table 3). Participants identified specific examples of what participants found missing: time, expertise on the part of both faculty and students, exposure/experience with EBP in practice, site support., etc. As an exception, one participant who saw implementing EBP

in practice as part of a nurse's professional role commented there were "no barriers".

Table 3
Important educational barriers to implementing EBP for GRADUATE students

Categories	Supporting Quotes
Time to implement EBP	• *The time that needs to be devoted to EBP is not built into their schedule.* • *Finding the time to acquire these skills (most have competing priorities)* • *busy-ness in professional and personal lives*
Pre-conceived notions of what EBP is	• *Preconceived ideas related to what EBP is* • *Lack of knowledge about what research and evidence based practice really are and their importance...overcoming the preconceived notions* • *Their preconceived idea that they already know how to do it*
Relevance to education	• *Clear definition of research and EBP and the relevance to the Doctoral Clinical Scholarship project.*
EBP not included in curriculum	• *EBP needs to be incorporated into this level through various "hands-on" assignments that promote creation and competence.* • *…if it is not part of the curriculum, it would be hard to fit it in* • *…important that faculty facilitating all course work at this level have EBP as a course outcome*
Lack of faculty expertise	• *Enacting a leadership role in a facility using EBP to change practice. Lack of faculty expertise in having this skill. Rely on "preceptors" to coach students vs the faculty.* • *Lack of expertise of faculty*
Lack of understanding of value of EBP	• *Getting the hook in and helping them see how this advances the nursing profession* • *Valuing the importance of clinical experience concurrent with learning new information about EBP to develop projects or integrate best practices for EBP as a powerful component of professional work*
Lack of exposure/ experience/ practice of students	• *They need experience which some are lacking to value EBP in practice.* • *The repetitive nature of gaining the skills* • *Analyzing and applying results… understanding the statistics…properly read tables, figures, graphs not gloss over them*
Lack of site support	• *Students may be excluded from being part of the clinical team, and the care delivery team encourages (or squelches) trying new practice ideas based on evidence.* • *The organization does not prioritize it in their goals* • *Helping the interact with colleagues to promote change in the work environment*
No barriers	• *No barrier, this is their primary professional role*

All rankings, regardless of the number of categories, considered "one" as most important. Although 15 participants provided educational barriers in Round 1, only 14 participants responding in Round II completed the ranking of all categories from Round I. Among the 12 participants who indicated they also responded in Round I, 11 noted that the categories accurately reflected their earlier input, and one indicated their input was not reflected. Given the relatively small number of categories for each question, participants were asked to rank all categories rather than only their top three. Rural versus urban/suburban and geographical location demographics were separated so data could be aggregated to include at least four participants in a sub-group. Because Western NYS and rural locations only had one and two participants, those data were not displayed in the tables. However, data from participants from Western NYS and rural areas were included in the total rankings and non-geographic-specific breakouts. Primary role subgroups were labeled as academic or other to accommodate the number of participants who used the "other" category to describe their role specifically. The "other" group included two with primarily clinical roles, one with a specific administrative role, one with both an administrative and academic role, and one with both a clinical administrative and academic role.

Table 4 displays the total and subgroup participant ranking of educational barriers for undergraduate students. Lack of faculty expertise was ranked as the most important barrier for the entire group, the academic primary role subgroup, and the downstate subgroup. The top barriers for the total group were a lack of role models in practice (#2) and a lack of experience/context (#3). Lack of buy-in was ranked as least important (#10) or second to last (#9) by the total group and all subgroups. Within subgroups, the academic and other primary role groups demonstrated the greatest difference for student negative attitude/fear about EBP and research with ranks of #9 and #1, respectively. A similar difference was demonstrated between northeast and downstate geographic location subgroups for the barrier lack of confidence with ranks of #10 and #2, respectively.

Table 5 displays total and subgroup participant ranking of the educational barriers for graduate students. Lack of time to implement EBP was ranked as the most important barrier for the total group and all subgroups. Also among the top three barriers for the total group were lack of faculty expertise (#2) and lack of exposure/experience/practice (#3). Lack of faculty expertise was ranked as #2 by the other primary role subgroup as well as

Table 4

Round II ranking of educational barriers to implementing EBP for UNDERGRAD students by participants in total and by demographic sub-group

Barriers to implement EBP for under-grads	Total (n=14)	Primary Role		Geographic location		
		Academic (n=9)	Other (n=5)	Central (n=5)	Northeast (n=4)	Downstate (n=4)
Curriculum constraints	4	2	7	1	3	8
Buy-in	10	10	10	9	9	10
Clinical curiosity	6	6	4	4	5*	7
Confidence	5	5	6	5	10	2
Faculty expertise	1	1	5	3	4	1
Resources	9	8	9	7	7	9
Role models in practice	2	4	2	6	1	3
Low expectations of students	7	7	8	10	5*	6
Experience/ context	3	3	3	2	2	4
Student negative attitude/ fear about EBP & research	8	9	1	8	8	5

Note: Categories ranked with 1= most important. The same rank is given to categories when matched on median, mode, and individual ranks

In these cases, the following rank is not used.

Table 5

Round II ranking of educational barriers to implementing EBP for GRADUATE students by participants in total and by demographic sub-group

Barriers to implement EBP for Grad students	Total (n=14)	Primary position		Geographical location		
		Academic (n=9)	Other (n=5)	Central (n=5)	Northeast (n=4)	Downstate (n=4)
Exposure/ experience/ practice	3	2	4	3	6	3
Faculty expertise	2	4	2	2	7	2
Site support	7	7	7	7	8	5
Understanding of value of EBP	4	3	3	4	5	4
No barriers	9	9	6	9	9	9
Not included in curriculum	8	8	9	8	3	8
Pre-conceived notions of EBP	6	5	7	6	4	6
Relevance to education	5	6	5	5	2	7
Time to implement	1	1	1	1	1	1

Note: Categories ranked with 1= most important. Same rank given to categories when matched on median, mode, and individual ranks. In these cases, the following rank was not used.

by central and downstate geographical location subgroups. Lack of exposure/experience/practice was ranked as #2 in importance by the academic primary role subgroup and #3 by both central and downstate subgroups. Other educational barriers for graduate students ranked among the top three within subgroups were relevance to education, ranked as #2 by the northeast, lack of understanding of the value of EBP, ranked as #3 by both academic and other primary role subgroups, and not included in the curriculum, ranked as #3 by the northeast. "No barriers" was ranked least important by the total participant group and all subgroups.

Discussion

The purpose of a Delphi survey is to attain consensus from experts about a research question. The study findings represent the perspectives of an expert panel of nurse leaders about major barriers to educating nurses with the EBP knowledge and skills needed to change clinical practice. Of the eighty-eight NYS nurse leaders surveyed about major educational barriers to EBP implementation, 15 shared their perspectives in round one, and twelve responded in round two.

Barriers Common to Undergraduate and Graduate Curricula

Nurse leaders identified a lack of faculty expertise as a top barrier to implementing EBP in clinical practice. This was reported as a major barrier in both undergraduate and graduate nursing education. In addition, a second barrier to EBP, lack of experience/context (in undergraduate education) and lack of exposure/experience/practice (in graduate education), reflect common themes as perceived by nurse leader participants and are reported together.

Lack of Faculty Expertise

A lack of faculty expertise was reported as a barrier to EBP for undergraduate and graduate nursing education with ranks of #1 and #2, respectively. This finding supports previous work on this topic (Malik et al., 2016; Mthiyane & Habedi, 2018; Orta et al., 2016; Stichler et al., 2011). As mentioned previously, the importance of faculty who teach EBP possessing a firm knowledge of EBP as well as advanced EBP competencies cannot be overemphasized. While faculty members often have expert knowledge about research methods, they may lack the competencies needed to teach EBP, such as developing clinical questions, literature search skills, critical appraisal skills, and statistical knowledge regarding odds ratios, relative risk, confidence intervals, and number needed to treat (Stichler et al., 2011). For example, faculty participants in Malik et al.'s (2015) grounded theory study expressed positive attitudes about EBP but lacked the knowledge and competency to appraise and apply evidence to clinical practice. Likewise, Stichler et al.'s (2011) faculty participants expressed a positive attitude but rated their EBP knowledge and skills less positively. Stichler et al. (2011) noted that academic programs did not typically teach EBP before 2000 when many of Stichler's participants received their highest academic degree.

Nursing faculty are generally clinical experts prepared with one or more graduate degrees. However, they may have little or no formal pedagogical preparation for the teaching role nor a clear understanding of EBP (Bullin, 2018; Malik et al., 2015). Melnyk et al. (2012) reported that the greater number of years in practice was correlated with decreased interest and importance placed on EBP. This finding may reflect the current faculty shortage and the climbing age of experienced faculty nationwide (American Association of Colleges in Nursing, 2020; Fang & Kesten, 2017). Lack of faculty expertise highlights the importance of cultivating faculty responsible for designing curriculum and teaching EBP to students (Stichler et al., 2011).

Lack of Exposure/ Experience/Practice

Lack of exposure/experience/practice was identified as a barrier to EBP competency in undergraduate and graduate nursing education with ranks #2 and #3, respectively. Students need experience with clinical problems and exposure to EBP during clinical placements to value EBP and develop EBP competency (Blackman & Giles, 2017; Levin & Feldman, 2013; Melender et al., 2016). Blackman and Giles (2017) reported that exposure to clinical staff delivering EBP positively influenced baccalaureate students' confidence and engagement with EBP.

A Barrier to EBP in Undergraduate Nursing Education: Lack of Role Models.

Nurse leaders identified a lack of role models as a barrier to EBP in undergraduate nursing education. Clinical role models are integral to student learning about professional practice (Felstead & Springett, 2016; Jack et al., 2017), including evidence-based clinical decision-making. Students must learn to evaluate current practice, ask relevant clinical questions, search for evidence, and apply the best available evidence to improve nursing practice. In this regard, they need competent clinical mentors and EBP role models (Melender et al., 2016). However, research indicates that direct care nurses may lack the EBP competencies (Melnyk et al., 2018) needed to role model EBP for students. The lack of role models may also represent an organizational culture that does not embrace EBP within its values and norms (Klimek-Yingling et al., 2021; Melnyk et al., 2016; Wilson et al., 2015).

A Barrier to EBP in Graduate Nursing Education: Lack of Time.

Study participants identified lack of time as a major barrier to EBP in graduate nursing education. As evident in Table 3, this category reflects participants' views that "f*inding the time to acquire EBP skills is challenging due to competing priorities"* and *"the time that needs to be devoted to EBP is not built into [students] schedule*." This finding is consistent with previous international studies in nursing education (Leach et al., 2015; Malik et al., 2015; Mthiyane & Habedi, 2018; Stichler et al., 2011). Mthiyane and Habedi (2018) reported that more time was required in the curriculum for educators and students to conduct literature searches, read the literature, and prepare and present content. In a grounded theory study, nursing faculty described their effort to apply innovative pedagogical approaches to actively engage students in learning EBP knowledge and skills in a clinical context and connect EBP knowledge to nursing practice (Malik et al., 2015). However, faculty described curricular constraints, including lack of time, insufficient resources, lack of knowledge,

and workload as challenges that hindered their ability to apply effective teaching approaches when teaching EBP.

Limitations of the Study

There are several limitations of this study. The low response rate, and subsequent small sample, was most likely a consequence of launching the survey during the first spread of COVID-19 across NYS. The unequal representation of participants limited the authors' ability to identify the needs of all regions across NYS. Although every attempt was made to provide clear instructions for participants, a conceptual issue arose throughout the final Delphi round regarding whether participants reviewed the exemplars to define each ranking item before ranking their selections. Finally, some participants did not participate in both rounds.

Conclusions and Future Prospects

This study explored the major challenges to educating nurses about EBP as perceived by nurse leaders in NY State. The findings underscore the importance of designing and updating nursing curricula to prepare graduates to transition to professional practice as competent EBP clinicians. In addition, at the graduate level, the curriculum must prepare students with the advanced practice level competencies needed to translate evidence and lead quality improvement initiatives. The *Essentials: Core Competencies for Professional Nursing Education*" (American Association of Colleges in Nursing, 2021) outlines the professional standards, including EBP knowledge and skills, essential to include in a nursing curriculum.

This study revealed important educational barriers to EBP. A lack of faculty expertise was ranked by nurse leaders as a top barrier to EBP across undergraduate and graduate nursing education. At the undergraduate level, a lack of EBP experience/context and a lack of role models were major barriers to EBP. Additional EBP barriers at the graduate level included lack of exposure/experience/practice and time to implement EBP. These barriers may hinder student learning and achievement of program outcomes, as well as subsequent patient outcomes.

Preparing nurses with the higher-order thinking and analysis skills needed to apply the best available evidence to improve patient care is a complex faculty responsibility. The findings from this study highlight the need for enhanced faculty competence regarding EBP, sufficient student engagement with EBP in the classroom and clinical setting, exposure to EBP role models during clinical placements, and dedicated time in the curriculum to teach EBP. Consistent with current professional standards, the findings support the adoption of an integrated curriculum and research-based pedagogical practices that support the professional formation of nurses. The research findings suggest faculty teach EBP within a meaningful clinical context and provide designated opportunities to use EBP to improve patient care in collaboration with the interdisciplinary team.

The findings further suggest that educational programs for nursing faculty are essential to enhance faculty readiness to role model and teach EBP in New York State. EBP in nursing education requires sustained institutional, administrative, and collegial support to promote faculty effectiveness and student learning. Further research is needed to identify evidence-based educational strategies that mitigate existing barriers to EBP and support students' professional formation of EBP competencies. Further research is also needed to better understand and address the impact of geographical variation on barriers to educating faculty and students about EBP in NYS.

References

American Association of Colleges of Nursing. (2021). *The essentials: Core competencies for professional nursing practice.* https://www.aacnnursing.org/AACN-Essentials

Benner, P., Sutphen, M., Leonard, V., Day, L. & Shulman, L.S. (2010). *Educating nurses: A call for radical transformation.* Jossey-Bass.

Bianchi, M., Bagnasco, A., Bressan, V., Barisone, M., Timmins, F., Rossi, S., Pelligrini, F., Aleo, G., Sasso, L. (2018). A review of the role of nurse leadership in promoting and sustaining evidence-based practice. *Journal of Nursing Management, 26*(8), 918–932. https://doi.org/10.1111/jonm.12638

Blackman, I. R. & Giles, T. M. (2017). Can nursing students practice what is preached? Factors impacting graduating nurses' abilities and achievement to apply evidence-based practices. *Worldviews on Evidence-Based Nursing, 14*(2), 108–117. http://dx.doi.org/10.1111/wvn.12205

Bullin, C. (2018). To what extent has doctoral (PhD) education supported academic nurse educators in their teaching roles: An integrative review. *BioMed Central Nursing, 17*(6), 1-18. https://doi.org/10.1186/s12912-018-0273-3

Christensen, L. S. & Simmons, L. E. (2019). *The scope of practice for academic nurse educators* (3rd ed.). National League for Nursing.

Cvent, Inc. (2021). *Cvent surveys* (Legacy 2000-2022) [Computer software]. Cvent, Inc. https://www.cvent.com/en/online-survey-software

Del Prato, D. M. (2017). Transforming nursing education: Fostering student development towards self-authorship. *International Journal of Nursing Education Scholarship, 14*(1), 1-12. https://doi.org/10.1515/ijnes-2017-0004

Duncombe, D. C. (2017). A multi-institutional study of the perceived barriers and facilitators to implementing evidence-based practice. *Journal of Clinical Nursing, 27(5-6)*, 1216 -1226. https://doi.org/10.1111/jocn.14168

Fang, D. & Kesten, K. (2017). Retirements and succession of nursing faculty in 2016-2025. *Nursing Outlook, 65(5)*, 633-642. https://doi.org/10.1016/j.outlook.2017.03.003

Felstead, I. S. & Springett, K. (2016). An exploration of role model influence on adult nursing students' professional development: A phenomenological research study. *Nurse Education Today, 37(2016)*, 66-70. https://doi.org/10.1016/j.nedt.2015.11.014

Harding, K., Porter, J., Horne-Thompson, A., Donley, E., & Taylor, N.F. (2014). Not enough time or a low priority? Barriers to evidence-based practice for allied health clinicians. *Journal of Continuing Education in Nursing, 34*(4), 224-.231. https://doi.org/10.1002/chp.21255

Institute of Medicine (US) Committee on Quality of Health Care in America. (2001). *Crossing the quality chasm: A new health system for the 21st Century.* National Academies Press. https://doi.org/10.17226/10027

Jack, K., Hamshire, C., Chambers, A. (2017). The influence of role models in undergraduate nurse education. *Journal of Clinical Nursing, 26(23-24)*, 4707–4715. https://doi.org/10.1111/jocn.13822

Klimek-Yingling, J., Del Prato, D. M., Worral, P. S., Levin, R. F., Record, V. & Elliott, D. (2021). Evidence-based nursing practice in New York State: A Delphi study. *Journal of the American Nurses Association, 1*(1), 5-11. https://dx.doi.org/10.47988/janany.70647868.1.1

Lam, C. K. & Schubert, C. (2019). Evidence-based practice competence in nursing students: An exploratory study with important implications for educators. *Worldviews on Evidence-Based Nursing, 16*(2), 161-168. https://doi.org/10.1111/wvn.12357

Leach, M. J., Hofmeyer, A., & Bobridge, A. (2016). The impact of research education on student nurse attitude, skill and uptake of evidence-based practice: A descriptive longitudinal survey. *Journal of Clinical Nursing, 25*(1–2), 194–203. https://doi.org/10.1111/jocn.13103

Levin, R. F. & Feldman, H. R. (2013). Teaching evidence-based practice in nursing (2nd ed.). Springer.

Malik, G., McKenna, L. & Griffiths, D. (2016). How do nurse academics value and engage with evidence-based practice across Australia: Findings from a grounded theory study. *Nurse Education Today, 41*, 54-59. https://doi-org.sunypoly.idm.oclc.org/10.1016/j.nedt.2016.03.015

McPherson, S., Reese, C., & Wendler. C. (2018). Methodology update: Delphi studies. *Nursing Research, 67*(5), 404–410. https://doi.org/10.1097/nnr.0000000000000297

Melender, H. L., Mattila, L. R., & Häggman-Laitila, A. (2016). A systematic review on educational interventions for learning and implementing evidence-based practice in nursing education: The state of evidence. *Nordic Journal of Nursing Research, 36*(1), 3 12. https://doi.org/10.1177%2F0107408315595161

Melnyk, B., Fineout-Overholt, E., Giggleman, M., & Cruz, R. (2010). Correlates among cognitive beliefs, EBP implementation, organizational culture, cohesion and job satisfaction in evidence-based practice mentors from a community hospital system. *Nursing Outlook, 58*(6), 301–308. https://doi.org/10.1016/j.outlook.2010.06.002

Melnyk, B.M., Fineout-Overholt, E., Gallagher-Ford, L., & Kaplan, L. (2012). The state of evidence-based practice in US nurses: Critical implications for nurse leaders and educators. *Journal of Nursing Administration, 42*(9), 410–417. https://doi.org/10.1097/nna.0b013e3182664e0a

Melnyk, B. M., Gallagher-Ford, L., Long, L. E., & Fineout-Overholt, E. (2014). The establishment of evidence-based practice competencies for practicing registered nurses and advanced practice nurses in real-world clinical settings: Proficiencies to improve healthcare quality, reliability, patient outcomes, and costs. *Worldviews on Evidence-Based Nursing, 11*(1), 5–15. https://doi.org/10.1111/wvn.12021

Melnyk, B. M., Gallagher- Ford. L., Thomas, B. K., Troseth, M., Wyngarden, K., & Szalacha, L. (2016). A study of chief nurse executives indicates low prioritization of evidence-based practice and shortcomings in hospital performance metrics across the United States. Worldviews on Evidence-Based Nursing, 13(1), 6–14. https://doi.org/10.1111/wvn.12133

Melnyk, B. M., Gallagher, F. L., Zellefrow, C., Tucker, S., Thomas, B., Sinnott, L. T., & Tan, A. (2018). The first US study on nurses' evidence-based practice competencies indicates major deficits that threaten healthcare quality, safety, and patient outcomes. *Worldviews on Evidence-Based Nursing, 15*(1), 16–25. https://doi.org/10.1111/wvn.12269

Mthiyane, G. N. & Habedi, D. S. (2018). The experiences of nurse educators in implementing evidence-based practice in teaching and learning. *Health SA Gesondheid, 23*(0), 1177. https://doi.org/10.4102/hsag.v23i0.1177

Nickerson, C. J., & Thurkettle, M. A. (2013). Cognitive maturity and readiness for evidence-based nursing practice. *Journal of Nursing Education, 52*(1), 17-23. https://doi.org/10.3928/01484834-20121121-04

Niederberger, M. & Spranger, J. (2020). Delphi Technique in health sciences: A map. *Frontiers in Public Health*. https://doi.org/10.3389/fpubh.2020.00457

Orta, R., Messmer, P., Valdes, G., Turkel, M., Fields, S., & Wei, C. (2016). Knowledge and competency of nursing faculty regarding evidence-based practice. *Journal of Continuing Education in Nursing, 47*(9), 409-419. https://doi.org/10.3928/00220124-20160817-08

Patelarou, A. E., Mechili, E. A., Ruzafa-Martinez, M., Dolezel, J., Gotlib, J., Skela-Savic, B., Ramos-Morcillo, A.J., Finnoto, S., Jarosova, D., Smodis, M., Mecugni, D., & Patelarou, E. (2020). Educational interventions for teaching evidence-based practice to undergraduate nursing students: A scoping review. *International Journal of Environmental Research and Public Health, 17*(17). https://doi:10.3390/ijerph17176351

Stichler J. F., Fields, W., Kim, C., & Brown, D. E. (2011). Faculty knowledge, attitudes, and perceived barriers to teaching evidence-based nursing. *Journal of Professional Nursing, 27*(2), 92-100. https://doi.org/10.1016/j.profnurs.2010.09.012

Välimäki, T., Partanen, P., & Häggman, L. A. (2018). An integrative review of interventions for enhancing leadership in the implementation of evidence-based nursing. *Worldviews on Evidence-Based Nursing, 15*(6), 424-431. https://doi.org/10.1111/wvn.12331

Warren, J. I., McLaughlin, M., Bardsley, J., Eich, J., Esche, C.A., Kropkowski, L., & Risch, S. (2016). The strengths and challenges of implementing EBP in healthcare systems. *Worldviews on Evidence-Based Nursing, 13*(1), 15–24. https://doi.org/10.1111/wvn.12149

Wilson, M., Sleutel, M., Newcomb, P., Behan, D., Walsh, J., Wells, J., & Baldwin, K. (2015). Empowering nurses with evidence-based practice environments: Surveying magnet®, pathway to excellence® and non-magnet facilities in one healthcare system. *Worldviews on Evidence-Based Nursing, 12*(1), 12-21. https://doi.org/10.1111/wvn.12077

ORIGINAL RESEARCH

Moderating Effect of Country of Residence in Predicting Adherence to Treatment Among Black Adults Diagnosed with Hypertension

Ednah Madu[1*], Chinyere Nwajiuba[2], Chiamaka Madu[3] & Tina Nweze[4]

[1]Adelphi, University, College of Nursing and Public Health, Garden City, NY, USA; [2]Alex Ekwueme Federal University, Ndufu-Alike, Abakaliki, Ebonyi State, Nigeria; [3]American University of Antigua, College of Medicine, Antigua; [4]Ebonyi State University, Abakaliki, Ebonyi State, Nigeria

***Corresponding Author:** Ednah Madu, College of Nursing and Public Health, Adelphi University, Garden City, NY, USA.
Email: emadu@adelphi.edu

https://doi.org/10.47988/janany.64582823.2.1

Abstract

Background: Uncontrolled hypertension (HTN) is the major global risk factor for cardiovascular diseases (CVD). Black individuals have worse cardiovascular health outcomes than their racial counterparts. High incidences of HTN-related strokes, heart failure, and chronic kidney diseases are prevalent in Black communities. Long-term adherence to HTN treatment is efficacious in hypertension control but challenged by psychosocial factors and the asymptomatic nature of HTN. **Purpose:** This research aims to assess if the country of residence moderates the relationship between adherence and each of its potential predictors in Black adults with HTN residing in the United States and Nigeria. **Methodology:** This is a secondary data analysis of two studies conducted in New York and southeast Nigeria (n=226). Data were analyzed using SPSS Statistical software Version 27. Descriptive differences in adherence and predicting variables, bivariate analyses for significant predicting variables within each sample, and general linear model analyses with plots for country of residence interaction effects were conducted. **Results:** The mean ages of the US and Nigerian samples were 57.3 ± 11.9 years (70.9% female) and 46.6 ± 8.9 years (67.1% female), respectively. Significant differences ($p < .05$) were noted between levels of adherence, age, self–efficacy, illness perception, annual income, and herbal use. Adherence was significantly associated ($p < .05$) with social support, self-efficacy, provider-patient communication, depressive symptoms, herbal use, employment, and income status within the Nigerian sample. Adherence was significantly associated with depressive symptoms and income status within the US sample. The interaction of country of residence with illness perception, social support, self-efficacy, and provider-patient communication significantly predicted adherence but not for the other variables. Interestingly, there was an opposite relationship between illness perception and adherence between the two samples. **Conclusions:** The country of residence moderated the relationship between adherence and illness perception, social support, self-efficacy, and provider-patient communication. These findings have clinical, cultural, and policy implications. Understanding the similarities and differences between the US and Nigeria will help clinicians working with Black patients and tailor interventions to meet the unique needs of this population. Future studies and culturally relevant strategies to improve HTN treatment adherence could target factors unique to hypertensive patients' country of residence.

Keywords: hypertension, adherence, non-adherence, treatment regimens, Blacks or African Americans

Funding: The authors did not receive any funding from public, commercial, or not-for-profit sectors.

Conflict of Interest: The authors declare no actual or potential conflict of interest.

Acknowledgments: The first author acknowledges partners in data analysis (Dr. William Bannon, Dr. Bernard Gorman), and Dr. Jennel Osborne for her assistance with editing the work, and my family for their unwavering support.

Date Submitted: April 16, 2021 Date Accepted: May 11, 2021 Date Published Electronically: February 1, 2022

Moderating Effect of Country of Residence in Predicting Adherence to Treatment Among Black Adults Diagnosed with Hypertension

Uncontrolled hypertension (HTN) is the major and most preventable global risk factor for cardiovascular diseases (CVD) and their related diseases. Cardiovascular disease accounts for approximately 17.3 million deaths annually, constituting 31% of global deaths (World Health Organization [WHO], 2021). Eighty-five percent of those deaths were attributed to HTN-related myocardial infarction and stroke (Mozaffarian et al., 2016). In 2006, the Lancet Commission on Hypertension identified elevated blood pressure (BP) as the strongest modifiable risk factor for CVD worldwide despite extensive knowledge on the prevention and treatment of HTN (Olsen et al., 2016). Hypertension-related complications were related to inadequate prevention, treatment, and control of the disease in our world of increasing longevity. The Lancet Commission made a global call to address the concerns of elevated BP in current and future generations.

A 2021 update from the Lancet Commission on Hypertension consisted of a comprehensive global analysis of trends in HTN prevalence, detection, treatment, and worldwide control (Zhou et al., 2021). Data from 184 countries were analyzed using a standardized protocol and statistical model designed to incorporate how HTN and its care and control varied with age, geography, and time (Zhou et al., 2021). The results showed that improvements in the detection, treatment, and control of HTN had varied substantially across countries, with some middle-income countries now outperforming most high-income nations. High-income countries, central Europe, and some upper-middle-income geographic locations had the most improvement, with little change noted in most sub-Saharan Africa and Oceania countries. The improvements were attributed to the dual approach of reducing HTN prevalence through primary prevention and enhancing its treatment and control.

In the United States (US), HTN is a risk factor for heart disease and stroke, the two leading causes of death and disability in the nation (Center for Disease Control [CDC], 2020; Forouzanfar et al., 2017). According to the CDC (2020), only one in four adults with HTN in the US has their condition under control; almost half of adults in the US (108 million, or 45%) have HTN as defined by Systolic Blood Pressure (SBP) ≥ 130mmHg or Diastolic Blood Pressure (DBP) ≥ 80mmHg. About half of those with uncontrolled HTN had their BP levels ≥140/90mmHg. Nearly half of all deaths in the US in 2018 had HTN as a primary or contributory cause. In addition, the economic burden of HTN costs the US about $131 billion annually (CDC, 2020).

Studies conducted in the US consistently reported disparity in HTN prevalence, with risks differing by race. The age-adjusted HTN prevalence in 2015-2016 was 8.5% higher among non-Hispanic Blacks than non-Hispanic Whites (Dorans et al., 2018). Al-Kibria (2019) analyzed the US National Health and Nutrition Examination Survey data collected from 6,103 US adults with HTN between 2011 and 2016. The results showed that non-Hispanic Blacks had the highest proportion of people with unmet treatment goals (63.8%, 95% CI: 60.0%–67.5%). A more significant proportion of non-Hispanic Blacks required pharmacological therapy for HTN control than other races (Muntner et al., 2018). Meanwhile, higher incidences of HTN-related strokes, congestive heart failure (CHF), and chronic kidney diseases (CKD) were noted in Black communities compared to other racial and ethnic groups (Ferdinand et al., 2017; Gasevic et al., 2015; Ritchey et al., 2016).

Black adults outside of the US also have a high HTN prevalence. In Nigeria, West Africa, a high HTN rural and urban prevalence necessitated a call for change in public health policies to address the emerging disease burden (Odili et al., 2020). The nationwide survey (n= 4,192) analyzed by Odili et al. (2020) showed age-standardized HTN prevalence in the nation as 38.1%. With variations across the geopolitical regions, the survey found that HTN prevalence rates in South Nigeria (ranging from 42.1% to 52.8%) was significantly higher than the rates in the North (ranging from 20.9% to 27.5%). With a prevalence of 52.8%, Nigerians residing in the South East had the highest HTN prevalence (Odili et al., 2020).

Overall, suboptimal adherence to HTN treatment contributes to uncontrolled HTN and its associated complications. Pharmacological and non-pharmacological therapy are necessary to control HTN and reduce CVD complications (Mozaffarian et al., 2016). Adherence describes the extent to which an individual's behaviors (taking medication, following recommended dietary and lifestyle changes) corresponded with the agreed recommendations (Sabaté & Sabaté, 2003). Most Black adults with HTN will require pharmacological therapy in addition to lifestyle modifications (Williams et al., 2016). Over the years, international experts and authors developed consensus statements and strategies to address the challenges associated with adherence and health outcomes (Gossec et al., 2007; Vrijens et al., 2012; Moise et al., 2015).

Multiple factors influence adherence to HTN treatment. The WHO characterized adherence barriers into five domains: patient, condition, therapy, socioeconomic, and health care system factors (Sabaté & Sabaté, 2003). However, factors influencing adherence behaviors seemed to vary considerably depending on the countries and their access to medications. Healthcare system disparity could account for differences in healthcare access and health outcomes. While the US runs a multi-payor, heavily private health insurance system (Niles, 2019), Nigeria has a Tier-3 governmental management system (local, state, and Federal) with an overreliance on patients paying before treatment can be initiated (Aregbeshola, 2016).

The literature identifies overlapping factors influencing adherence between Black adults who reside in the US and Nigeria (Lewis et al., 2012; Okwuonu et al., 2014; Schoenthaler et al., 2016). However, it is unclear if the country of residence influences adherence and predicting variables. Therefore, this study's purpose was to assess if, among Black adults with HTN, the country of residence (US and Nigeria) moderated the relationship between adherence and each of its potential predictors.

Research Questions (RQ)

RQ1: Were there significant differences in the levels of adherence and each of the potential predictors between Black adults with HTN living in the US and Nigeria?

RQ2: Did country of residence moderate the relationships between the independent variables and adherence?

Significance of the Study

Identification of the differences in the levels of adherence and its predictors between the samples could facilitate targeting those variables to enhance hypertension control in this population. Future studies and intervention strategies could focus on the identified differences.

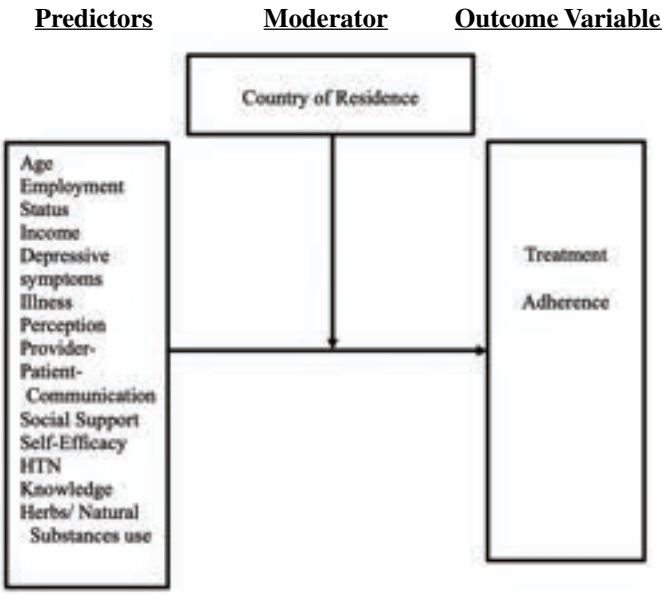
Conceptual Framework

The review of the literature on the moderation effect model guided this study. Factors that influence adherence to HTN treatment among Black adults are multifactorial and include patient, provider, clinical, and healthcare system factors (Sabaté & Sabaté, 2003; Lewis, 2012). Salient factors identified with impacting HTN treatment adherence among Black adults included patient factors: age (Lewis et al., 2012), self-efficacy (Richardson et al., 2014), illness beliefs (Al-Noumani et al., 2019; Awotidebe et al., 2016; Pettey et al., 2016), hypertension knowledge (Iyalomhe & Iyalomhe, 2010) and preferential use of natural herbs and alternative healing agents (Cuffee et al., 2020). Clinical factors included depressive symptoms (Ademola et al., 2019; Cené et al., 2013; Schoenthaler et al., 2016) and income level (de Terline et al., 2019; Lewis et al., 2010). Healthcare system factors were provider-patient communication (Schoenthaler et al., 2012) and social support (Ojo et al., 2016; Osamor, 2015).

Figure 1 shows the diagrammatic representation of the conceptual model that guided this study's research purpose and methods. The diagram includes potential factors identified in the literature, country of residence as a moderating factor, and adherence as an outcome variable.

Figure 1

Conceptual Framework



Note. Framework Based on the Authors' Review of the Literature

Methods

Design

This study is a secondary analysis of data from two separate cross-sectional studies. The research purpose for each of the two studies was to determine the strongest factors associated with adherence to hypertension treatment regimens among the salient factors identified by prior research. The data from the two studies were analyzed to examine if the country of residence moderated relationships between adherence and each of its potential predictors.

Study Participants and Setting

One of the parent studies recruited participants from New York, USA, and the other from Ebonyi State, Nigeria, in 2018 and 2019, respectively. To be eligible for the parent studies, participants had to self–identify as Black, be age 18 years or older, and be informed at least once in the past by a healthcare practitioner of having high blood pressure or being treated for primary HTN. The participant had to be able to read, write and sign an informed consent form written in the English language. The secondary data was a combination of the two de-identified datasets. The current study's researchers could not link the data to specific participants directly or indirectly. The current dataset included all of the variables and participants from the parent studies.

Variables and Measures

The variables under study, measures, and psychometric properties are displayed in Table 1. Preferential use of alternative healing agents was assessed using a three-response question that inquired the type of remedies used to treat HTN. Participants selected from the following options: (a) used only natural herbs or alternative healing agents in place of treatments recommended by their healthcare provider; (b) used both natural substances and prescribed medications; or, (c) used only prescribed medications.

Data Collection

Data collection for the two-parent studies occurred after approval by the Institutional Review Boards of the institutions. Data were collected using a face-to-face survey that combined demographic and structured questions and validated instruments. The questionnaire was pilot tested using ten eligible participants for both parent studies to evaluate the feasibility and timing of the survey, and both were completed between 30-40 minutes. Each participant completed an informed consent form, written in the English language, before each data collection, and after the PI provided the description and purpose of the study.

Ethical Considerations

The Institutional Review Boards of Adelphi University, New York, approved the first parent study. Both Adelphi University and the Ethics committee of Alex Ekwueme Federal University, Ndufu-Alaike Ikwo (AEFUNAI), Ebonyi State, Nigeria, approved the second parent study. The de-identified secondary data were stored in a password-protected computer. Only the PI and two partners in conducting data analysis had access to the secondary data.

Sample Size

For the parent study, a priori sample size was calculated with G*power, using a power of 0.80, medium effect size (Cohen's f^2 = .15), significance level of 0.05 and 7 predictors (Verma & Verma, 2020). One hundred and three participants were needed for each of the parent studies. The combined sample size of both parent studies was 226 (US: n=148, Nigeria: n= 78).

Statistical Analyses

Data were analyzed using the IBM SPSS Statistical Software for Windows, Version 27.0, and the Jamovi (2021) Statistical Software Version 1.6. Data analysis occurred in three phases. The first phase consisted of descriptive analyses. The second phase involved sets of bivariate analyses, and in the third phase, the data analysis assessed the interaction effect between the country of residence and each variable.

Regarding all continuous study variables, outliers ±3SD of the mean assessed by inspection of a boxplot were excluded from the analyses. Researchers removed observed missing data using pairwise deletion. All continuous variables, including adherence, were normally distributed. In answer to RQ1, differences in the levels of adherence and each of the potential predictors between the countries were analyzed descriptively and with independent samples t-tests. Data analyses to answer RQ2 occurred in two steps. First, a series of bivariate tests identified potential predictors for adherence. Specifically, independent-samples t-tests and Pearson's r correlations identified explanatory variables significantly related to adherence scores within each country of residence. All the explanatory variables related to adherence scores at $p < .05$ via bivariate analyses were identified. In the second step of answering RQ2, the general linear model analyses examined whether there was significant predictor interaction by the country of residence. This approach accommodated both categorical and continuous variables. Each predictor was analyzed separately, with the continuous variables as covariates and categorical variables as factors. The figures of the interaction analysis plots were obtained.

Table 1

Variables and Validated Instruments

Variables	Instrument Name	Author	# Items	Cronbach Alpha
Adherence	Hill-Bone Compliance to High Blood Pressure Therapy Scale (HBCHBPTS)	Kim et al. (2000) Lambert et al. (2006)	10	0.79
Social Support	The multidimensional scale of perceived social support (MSPSS)	Zimet et al. 1988)	12	0.98
Self-Efficacy	Medication Adherence Self-Efficacy Scale (MASES)	Fernandez et al. (2008)	13	0.97
Hypertension Knowledge	Hypertension Knowledge-Level Scale (HK-LS)	Baliz-Erkoc et al. (2012)	9	0.82
Illness Perception	The Brief Illness Perception Questionnaire	Broadbent et al. (2006)	9	0.76
Provider-Patient Communication	Communication Assessment Tool (CAT)	Makoul et al. (2007)	15	0.98
Depressive Symptoms	Patient Health Questionnaire (PHQ-9)	Kroenke et al. (2001)	9	0.87

Results/Findings

Analyses Results for RQ1

The comparative analyses of the differences in adherence and the predicting variables between Black adults who resided in the US and Nigeria are presented in Table 2 (categorical variables) and Table 3 (continuous variables). Significant differences at $p<.05$ were noted between the two countries in the following variables: adherence, age, self-efficacy, illness perception, annual income, and whether the participant preferred using a combination of herbs with prescribed medications for HTN or only prescribed medications to treat HTN. No significant differences were noted between the two samples in gender, employment status, social support, HTN knowledge, provider-patient communication, or depressive symptoms.

Table 2

Descriptive Analysis Results: Differences in the predictors between the US and Nigeria

Variable	N (%)		$x^2(df)$	*P*
	US.	Nigeria		
Gender			0.35 (224)	.55
Male	43 (29.1)	25 (32.9)		
Female	105 (70.9)	51 (67.1)		
Work Status			19.3 (222)	.30
Working	98 (66.2)	69 (93.2)		
Not working	50 (33.8)	5 (6.8)		
Herbal use preference			5.72 (223)	.02

Use Both herbs and prescribed medications	54 (36.7)	16 (21.1)		
Only prescribed medications	93 (63.3)	60 (78.9)		
Annual income			64.6 (3,214)	<.001
<$10,000	37(25)	55(83.3)		
$10,000-$40,000	21(14.2)	3 (4.5)		
$40,001-$80,000	40(27)	1(1.5)		
>$80,000	50(33.8)	7(10.6)		

Note: Significance level at p < 0.05

Table 3

Differences in adherence and its predictors between the US and Nigeria (Continuous variables)

Variable	*M±SD* U.S (n=148)	*M±SD* Nigeria (n=76)	*t(df)*	***p***
Adherence	1.6±0.4	1.4±0.4	-3.67 (224)	.00
Age	57.3±11.9	46.6±8.9	-7.46 (217)	.00
Social Support	5.6±1.0	5.6±1.4	-.083 (224)	.93
Self-Efficacy	3.2±0.8	2.7±0.6	-5.31(224)	.00
HTN Knowledge	11.3±2.7	11.6±2.2	.891 (224)	.89
Illness Perception	4.9±1.8	6.2±1.1	6.74 (224)	.00
Provider-Patient Communication	3.9±0.9	4.0±0.62	.60 (224)	.55
Depressive Symptoms	3.0±3.7	3.7±3.5	1.39 (224)	.17

Note: Significance level at p < 0.05

Bivariate Analysis Results for RQ2

A two-step analysis answered RQ2. The first step consisted of bivariate analyses. Table 4 shows the results of the independent-sample t-test used to compare the differences in adherence between the types of each categorical variable within each sample. The data analysis showed income status, herbal use, and employment status to be significantly (p < .05) associated with adherence within the US and the Nigerian samples. Table 5 shows the results of the Pearson's r correlation tests used to analyze the associations between adherence and continuous explanatory variables within each sample. Adherence was significantly (p < .05) associated with social support, self-efficacy, provider-patient communication, and depressive symptoms within the Nigerian sample. Adherence was significantly (p < .05) related with only depressive symptoms within the US sample. Interestingly, adherence was not significantly linked to age, HTN knowledge, or provider-patient communication in either sample. Notably, adherence was statistically significant with depressive symptoms in both the US and Nigerian samples.

Table 4

Independent-samples t-test Examining Differences in Adherence between Explanatory Categorical Variables within each Country.

Independent Variable	US. M±SD	*t/F*	*p*	Nigeria M±SD	*t*	*p*
Income		4.14	.01		4.65	**.01**
<$10,000	1.40±0.50			1.40±0.35		
$10,000-$40,000	1.63±0.38			1.00±0.35		
>$40,001-$80,000	1.63±0.31			.60±0.00		
>$80,000	1.64±0.24			1.66±0.22		
Herbal Use		-.91	.36		-3.02	**.00**
Yes	1.54±0.38			1.16±0.34		
No	1.60±0.35			1.46±0.35		
Work Status		-.23	.82		2.22	**.03**
Working	1.57±0.34			1.42±0.35		
Not working	1.59±0.40			1.06±0.32		

Note: Significance level at p < 0.05

Higher adherence scores indicate greater adherence

Table 5

Pearson's r Correlation Analysis between Adherence and Explanatory Study Variables within each Country

Study Variables	1	2	3	4	5	6	7	8
1. Adherence	–	-.01	.45**	.35**	.20	.19	.34**	-.26*
2. Age	.02	–	-.05	-.28*	-.15	.03	-.06	.07
3. Social Support	.05	.07	–	.47**	.26*	.40**	.33**	-.01
4. Self-Efficacy	.13	.05	.27**	–	.21	.08	0.17	.09
5. Knowledge	.05	-.01	.17**	.21**	–	.15	.29*	-.15
6. Perception	-.15	.15	.00	.15	.20**	–	.37**	.14
7. Communication	.11	.01	.41**	.27**	.20**	-.05	–	-.20
8. Depressive symptoms	-.25**	-.07	-.24**	-.17**	-.12	.07	-.38**	–

Notes: The coefficients in the upper triangle are for the Nigerian sample and the lower triangle for the US sample

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The interaction effects of each variable were reported by the country of residence. Table 6 shows the Estimated Adherence Means and Standard Errors by variable, and Table 7 displays the summary of findings from the general linear model analyses for the interaction effects of each variable with the country of residence. Specifically, the ANOVA statistics showing the F statistics, p-value, and effect sizes were reported for each interaction effect analyzed. The tables and plots of interaction effects between each variable and country of residence are supplementary documents and will be provided upon request. No interaction effect was noted

between the country of residence and herbal use, employment status, age, HTN knowledge, and depressive symptoms. The income variable was excluded from the interaction effects due to the incomparability of the Nigerian Naira and the US dollar income differences in the samples, considering the cost-of-living differences. Standardizing the income by country did not address the comparison issue, as it was not simply about being below or above average in the given country. While the income may reflect buying power, socioeconomic status, and lifestyle that these incomes might provide the person, it was noted that 83% of the participants in the Nigerian sample earned less than $10,000 per annum when the Nigerian naira is converted to the US dollar. That percentage represents middle-income groups able to enjoy a reasonable lifestyle in Nigeria.

Table 6

Estimated Adherence Means and Standard Errors by Variable for the US and Nigerian Samples.

Variable	Estimated Means and Standard Errors for US	Estimated Means and Errors for Nigeria
Herbal Use	Yes 1.56 **(.05)** No 1.60 **(.04)**	Yes 1.16 **(.09)** No 1.46 **(.05)**
Work status	Working 1.57 **(.04)** Not working 1.59 **(.05)**	Working 1.42 **(.04)** Not Working 1.06 **(.16)**
Age	1.57 **(.03)**	1.37 **(.06)**
Social Support	1.58 **(.04)**	1.39 **(.03)**
Self-Efficacy	1.57 **(.03)**	1.46 **(.05)**
HTN Knowledge	1.58 **(.03)**	1.38 **(.04)**
Illness Perception	1.56 **(.03)**	1.33 **(.03)**
Provider-Patient Communication	1.58 **(.03)**	1.38 **(.04)**
Depressive symptoms	1.57 **(.03)**	1.40 **(.04)**

Note: The Standard Errors are presented in parenthesis following the Means in each cell of the Table

Table 7

Summary of Analyses Examining Interaction Effect of Variables with Country of Residence

Variable	F Statistic/df	p value	Effect size/ $\mathbf{n^2p}$
Herb use*group	4.10 (1, 219)	.04	.018
Work Status*group	4.48 (1,218)	.04	.020
Age*group	.037 (1.215)	.84	.000
Social Support*group	11.2 (1, 222)	<.001	.048
Self-Efficacy*group	4.61 (1,222)	.03	.020
HTN Knowledge*group	1.98 (1,222)	.24	.006
Illness Perception*group	5.07 (1,222)	.03	.022
Provider-Patient Communication*group	4.70 (1,222)	.03	.021
Depressive symptoms*group	.039 (1,222)	.84	.000

Note: Researchers consider any p-value < .05 as statistically significant

Discussion

This study's purpose was to assess if, among Black adults with HTN, the country of residence (US and Nigeria) moderated the relationship between adherence and each of its potential predictors. Disproportionately higher HTN-related cardiovascular morbidity and mortality were noted among Black persons who resided in both the US and globally (CDC, 2020; Mozaffarian et al., 2016; Odili et al., 2020). Environmental differences like the country of residence could influence HTN prevalence, access to healthcare, and adherence to recommended treatment regimens.

Significant differences were noted in adherence scores and potential predictors between Black adults with HTN living in the US and Nigeria ($p < .001$) relative to RQ1. Adherence is complex, and factors influencing adherence are multifarious (Sabaté &Sabaté, 2003). Differences in environmental conditions and access to treatment may have contributed to the differences in the levels of adherence noted between the two countries. Predictors of adherence may have also differed based on the location of residence. In the current study, bivariate analyses identified factors that predicted adherence within the Nigerian sample as income status, herbal use, employment status, social support, self-efficacy, provider-patient communication, and depressive symptoms. Income status and depressive symptoms were significantly associated with adherence within the US sample, but not the other variables. Age, HTN knowledge, and illness perception were not significantly associated with adherence within either sample.

Some prior studies have found similarities in adherence factors in both samples, while others found divergent results. For example, Boima et al. (2015) found a similar non-significant relationship between income and adherence to HTN regimens using the sample from their study that recruited participants from hospitals in Nigeria and Ghana. However, a meta-analysis of twenty-two studies on factors regarding the lack of HTN medication adherence in low and middle-income participants showed that most factors affecting HTN treatment non-adherence fell within the WHO-defined dimension of "social and economic factors" (Nielsen et al., 2017). The five dimensions of adherence included social and economic factors, health care team and system-related factors, conditions-related factors, therapy-related factors, and patient-related factors. One of the key components of the social and economic dimension was income status or economic stability (Sabaté & Sabaté, 2003). Studies in the US affirmed the vital role of socioeconomic variables (including income status) in hypertension management (Anstey et al., 2019). Social support was not consistently associated with adherence in US studies (Schoenthaler et al., 2016). Most studies conducted

in Nigeria found social support as significantly associated with adherence (Ademola et al., 2019, Ojo et al., 2016, Osamor, 2015). Interestingly, depressive symptoms were associated with adherence within both the Nigerian and the US samples. Prior studies confirmed the significant influence of depressive symptoms with adherence in the US (Spikes et al., 2019) and Nigeria (Ademola et al., 2019).

This research also examined if the country of residence moderated the relationships between adherence and the predictors (RQ2). In other words, researchers examined if the country of residence had an interaction effect with any of the variables to predict adherence.

The general linear model analyses and plots showed the strength and directions of the interaction effects between the country of residence and the variables under study. A significant interaction between the country of residence and illness perception, self-efficacy, social support, and provider-patient communication predicted adherence. The literature has identified these variables to influence adherence among Black adults diagnosed with HTN both in the US and Nigeria (Awotidebe et al., 2016, Cené et al., 2013; Magrin et al., 2015; Osamor, 2015; Schoenthaler et al., 2016; Richardson et al., 2014).

Interestingly, the current study showed opposite illness perception and adherence relationships between the two samples. Illness perceptions, the organized cognitive representations or beliefs that patients have about their illness, are essential determinants of behavior. They are associated with important outcomes, such as treatment adherence and functional recovery (Petrie et al., 2007). A review of the literature on adherence showed that most authors assumed that patients would simply obey the recommendations from their healthcare provider (Hsiao et al., 2012). However, clinicians encounter challenges when patients' personal and cultural beliefs regarding their illness and treatment recommendations are not considered. Many factors contributing to non-adherence to chronic diseases like hypertension include lack of association of disease with symptoms, treatment complexity, and possible side effects. These factors and the patient's concerns shaped beliefs about their illness and recommended treatments and were conceptualized as illness perceptions (Hsiao et al., 2012).

The current study showed that participants in the Nigerian sample who had stronger perceptions about their illness were more adherent, and those with weaker illness perceptions were less adherent to treatment. The opposite was the case with participants in the US group, such that participants with stronger illness perceptions were less adherent while those with weaker illness perceptions were more adherent. This finding is consistent with conflicting evidence in the literature regarding the effect of illness perception on HTN treatment adherence. A systematic review (n=30) by Al-Noumani et al. (2019) examined the relationship between health beliefs and HTN medication adherence and found the relationships were unpredictable across and within countries. These authors advised clinicians on the importance of assessing beliefs for individual patients (Al-Noumani et al., 2019). If such beliefs appeared to undermine adherence, educational interventions could modify such beliefs.

Regarding self-efficacy, the direction of the relationship with adherence was similar in both samples, such that participants with low self-efficacy had lower adherence scores. In comparison, those with higher self-efficacy had higher adherence scores. However, participants in the Nigerian sample with high self-confidence and high adherence groups far exceeded the adherence scores of the participants in the US sample. Evidence supported the importance of self-efficacy on treatment adherence among Black adults in the US (Richardson et, 2014) and Nigerian samples (Awotidebe et al., 2016). Strategies to improve self-efficacy remain relevant to improve adherence behaviors for patients with HTN. The findings of this study suggest that individuals who reside in Nigeria may have more profound benefits from interventions that improve self-efficacy.

In this study, the interaction effect between the country of residence and social support was such that participants in the Nigerian sample with lower social support had lower adherence scores and those with higher social support had higher scores. In comparison, there was a minimal difference in the adherence scores for the participants in the US sample, regardless of their social support scores. Identifying social support as a key predictor of HTN treatment adherence in the Nigerian sample, but not in the US, is consistent with current literature. Studies conducted in the US have not shown social support as a consistent predictor of compliance. Schoenthaler et al. (2016) found that social support did not have a significant association with adherence directly, but had an indirect association with other variables found to be significantly associated with HTN medication compliance. Spikes et al. (2019) also did not find social support significantly correlated with adherence. However, in studies conducted in Nigeria, the relationship between social support and adherence was consistent. Osamor (2015) investigated the relationship between social support and HTN treatment compliance using a sample of participants residing in Southwest Nigeria and found that social support from friends was significantly associated with good compliance with hypertension treatment. Ojo et al. (2016) also found that strong perceived family support was an independent predictor of controlled blood pressure.

Lastly, the direction of the relationship between provider-patient communication and adherence was similar in both the US and Nigerian samples. Participants who had lower provider-patient communication had lower adherence scores. In contrast, those with higher provider-patient communication had higher compliance scores. In the Nigerian sample, the group with higher provider-patient communication achieved significantly higher compliance scores that reached the same level of high adherence scores as the participants in the US sample. Prior studies found that effective collaborative provider-patient communication fostered patient trust and compliance to treatments among Blacks in the US (Schoenthaler et al., 2018; Zullig et al., 2015) and Nigeria (Onyeajam et al., 2018). A similar direction and pronounced relationship between adherence and self-efficacy were noted in the Nigerian sample in the current study. Effective provider-patient communication, which fosters trust, may be linked to self-efficacy and better adherence.

The country of residence did not moderate the relationship between adherence and age, employment status, herbal use, HTN knowledge, or depressive symptoms. Line charts displaying

interaction effects teased out the potential Type 1 error, presenting false-positive interaction effects. Similar strength and direction were noted on the relationship between depressive symptoms and adherence in the US and Nigerian samples. Depressive symptoms equally influenced adherence regardless of the country of residence. This finding has clinical implications. Prior studies identified significant influences of depressive symptoms in Nigeria (Ademola et al., 2019) and the US (Cené et al., 2013; Schoenthaler et al., 2016). Additional studies and strategies that mitigate the influences of depressive symptoms on adherence among Black persons diagnosed with HTN seem prudent.

Study Limitations and Recommendations for Further Studies

The current study had some limitations. The two-parent studies used cross-sectional designs, which does not imply causation. The small sample size for the subgroups, especially the Nigerian sample (n=78), is less than the recommended size of 103. This is a study limitation and may have influenced some study findings. A larger sample size and a more diverse sample are recommended in future studies. Part of the challenges in obtaining a higher sample size from the Nigerian group might be related to many potential participants with a known history of high blood pressure declining to participate with comments like *"it is not my portion."* This perception could have validated the differences in the illness perception scores between the US and Nigerian samples.

Multiple testing might have inflated the alpha probability rate leading to Type 1 error. While multiple regression could be performed, it was likely not advantageous. Multicollinearity occurs when variables are highly correlated, making interpretation of regression coefficients difficult, if not meaningless. A typical correction might be the Bonferroni correction. However, no appropriate Bonferroni correction for correlated dependent variables is generally accepted. Therefore, the researchers used separate analyses for the interaction effects. The authors caution readers that multiple testing may have affected the alpha rate.

A recommendation for future studies is to employ qualitative approaches to explore participant views regarding barriers and facilitators of adherence. Exploring participants' perceptions of barriers to the recommended HTN treatment regimens could be beneficial.

Conclusion and Implications

Consistent with the research questions, this study found statistical differences in the levels of HTN treatment adherence and some predictors of adherence between the US and Nigerian samples. The interaction between the country of residence and illness perception, self-efficacy, social support, and provider-patient communication significantly predicted adherence. The country of residence did not moderate the relationship between adherence and age, employment status, herbal use, HTN knowledge, or depressive symptoms. These findings have clinical, cultural, and policy implications. Planning culturally relevant strategies to improve adherence and HTN control among Black adults should incorporate factors unique to the country of residence.

References

Ademola, A. D., Boima, V., Odusola, A. O., Agyekum, F., Nwafor, C. E., & Salako, B. L. (2019). Prevalence and determinants of depression among patients with hypertension: A cross-sectional comparison study in Ghana and Nigeria. *Nigerian Journal of Clinical Practice, 22*(4), 558-565. https://doi.org/10.4103/njcp.njcp_351_18

Al Kibria, G. M. (2019). Racial/ethnic disparities in prevalence, treatment, and control of hypertension among US adults following application of the 2017 American College of Cardiology/American Heart Association guideline. *Preventive Medicine Reports, 14*, 100850. https://doi.org/10.1016/j.pmedr.2019.100850

Al-Noumani, H., Wu, J. R., Barksdale, D., Sherwood, G., AlKhasawneh, E., & Knafl, G. (2019). Health beliefs and medication adherence in patients with hypertension: A systematic review of quantitative studies. *Patient Education and Counseling*. 102(6), 1045-1056. https://doi.org/10.1016/j.pec.2019.02.022

Anstey, D. E., Christian, J., & Shimbo, D. (2019). Income inequality and hypertension control. *Journal of the American Heart Association, 8*(15), e013636 https://doi.org/10.1161/JAHA.119.013636

Aregbeshola, B. S. (2016). Out-of-pocket payments in Nigeria. *The Lancet, 387*(10037), 2506. https://doi.org/10.1016/S0140-6736(16)30798-X

Awotidebe, T., Adeyeye, V. O., Ativie, R. N., Adedoyin, R. A., O. Borode, A., O. Balogun, M., & Akindele, M. (2016). Functional capacity and psychosocial correlates of exercise in Nigerian patients with hypertension. *International Journal of Clinical Medicine, 7*(07), 464-473. https://doi.org/10.4236/ijcm.2016.77051

Baliz Erkoc, S., Isikli, B., Metintas, S., & Kalyoncu, C. (2012). Hypertension Knowledge-Level Scale (HK-LS): A study on development, validity, and reliability. *International Journal of Environmental Research and Public Health, 9*(3), 1018-1029. https://doi.org/10.3390/ijerph9031018

Boima, V., Ademola, A. D., Odusola, A. O., Agyekum, F., Nwafor, C. E., Cole, H., Solato, B. L., Ogedegbe, G., & Tayo, B. O. (2015). Factors associated with medication nonadherence among hypertensives in Ghana and Nigeria. *International Journal of Hypertension*, 1-8. https://doi.org/10.1155/2015/205716

Broadbent, E., Petrie, K. J., Main, J., & Weinman, J. (2006). The brief illness perception questionnaire. *Journal of Psychosomatic Research, 60*(6), 631-637. https://doi.org/10.1016/j.jpsychores.2005.10.020

Cené, C. W., Dennison, C. R., Powell Hammond, W., Levine, D., Bone, L. R., & Hill, M. N. (2013). Antihypertensive medication nonadherence in black men: Direct and mediating effects of depressive symptoms, psychosocial stressors, and substance use. *Journal of Clinical Hypertension. 15*(3): 201–209. https://doi.org/10.1111/jch.12056

Center for Disease Control and Prevention (2020, September 8). *Facts about Hypertension.* https://www.cdc.gov/bloodpressure/facts.htm

Chobanian, A.V., Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo Jr, J. L, Jones, D. M., Matterson, B. J.,

Oparil, S., WrightJr, J. T., Rocella, E. J. & National High Blood Pressure Education Program Coordinating Committee. (2003). Seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. *Journal of Hypertension, 42*(6), 1206-1252. https://doi.org/10.1161/01.HYP.0000107251.49515.c2

Cohen, J. (1988). The effect size. *Statistical Power Analysis for the Behavioral Sciences,* 77-83.

Cuffee, Y. L., Rosal, M., Hargraves, J. L., Briesacher, B. A., Akuley, S., Altwatban, N., Hullet, S. & Allison, J. J. (2020). Does home remedy use contribute to medication nonadherence among Blacks with hypertension? *Ethnicity and Disease. 30*(3): 451–458. https://doi.org/10.18865/ED.30.3.451

de Terline, D. M., Kane, A., Kramoh, K. E., Toure, I. A., Mipinda, J. B., Diop, I. B., Nhavoto C., Balde, D.M., Ferreira, B., Ikama, M.S., Kingue, S., Kouam, C.K., Takombe, J.L., Limbole, E., Kuate, L.M., N'guetta, R., Damourou, J.M., Sesso,Z., Ali, A.S., Perier, M., Azizi, M., Empana, J., Jouven, X., & Antignac, M.. (2019). Factors associated with poor adherence to medication among hypertensive patients in twelve low and middle-income Sub-Saharan countries. *PloS One, 14*(7), e0219266. https://doi.org/10.1371/journal.pone.0219266

Dorans, K. S., Mills, K. T., Liu, Y., & He, J. (2018). Trends in prevalence and control of hypertension according to the 2017 American College of Cardiology/American Heart Association (ACC/AHA) guideline. *Journal of the American Heart Association, 7*(11), e008888. https://doi.org/10.1161/JAHA.118.008888

Fernandez, S., Chaplin, W., Schoenthaler, A. M., & Ogedegbe, G. (2008). Revision and Validation of the Medication Adherence Self-Efficacy Scale (MASES) in hypertensive African Americans. *Journal of Behavioral Medicine, 31*(6), 453-462. https://doi.org/10.1007/s10865-008-9170-7

Ferdinand, K. C., Yadav, K., Nasser, S. A., Clayton-Jeter, H. D., Lewin, J., Cryer, D. R., & Senatore, F. F. (2017). Disparities in hypertension and cardiovascular disease in blacks: The Critical Role of Medication Adherence. *Journal of Clinical Hypertension. 19* (10), 1015-1024. https://doi.org/10.1111/jch.13089

Forouzanfar M. H., Liu, P., Roth, G. A., Ng, M., Biryukov, S., Marczak, L. Alexander, L., Estep, K., Abate, K., Akinyemiju, T., Ali, R., Alvis-Guzman, N., Azzopardi, P., Banerjee, A., Barnighausen, T., Basu, A., Bekele, T., Bennett, D., Biadgilign, S ... & Murray, C. J. (2017). Global burden of hypertension and systolic blood pressure of at least 110 to 115 mm Hg, 1990-2015. *JAMA, 317*(2), 165-182. https://doi.org/10.1001/jama.2016.19043

Gasevic, D., Ross, E. S., & Lear, S. A. (2015). Ethnic differences in cardiovascular disease risk factors: A systematic review of North American evidence. *Canadian Journal of Cardiology, 31*(9), 1169–1179. https://doi.org/10.1016/j.cjca.2015.06.017

Gossec, L., Dougados, M., Tubach, F., & Ravaud, P. (2007). Reporting of adherence to medication in recent randomized controlled trials of 6 chronic diseases: A systematic literature review. *The American Journal of the Medical Sciences, 334*(4), 248-254. https://doi.org/10.1097/MAJ.0b013e318068dde8

Hsiao Chih-Yin, Chang Chue, & Chen Chi-Dao. (2012). An investigation on illness perception and adherence among hypertensive patients. *Kaohsiung J Med Sci, 28*(8), 442–447. https://doi.org/10.1016/j.kjms.2012.02.015

Iyalomhe, G. B. S., & Iyalomhe, S. I. (2010). Hypertension-related knowledge, attitudes and lifestyle practices among hypertensive patients in a sub-urban Nigerian community. *Journal of Public Health and Epidemiology.2* (4), 71-77.

Kim, M. T., Hill, M. N., Bone, L. R., & Levine, D. M. (2000). Development and testing of the Hill-Bone compliance to high blood pressure therapy scale. *Progress in Cardiovascular Nursing, 15*(3), 90-96. https://doi.org/10.1111/j.1751-7117.2000.tb00211.x

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9. *Journal of General Internal Medicine, 16*(9), 606-613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Lambert, E. V., Steyn, K., Stender, S., Everage, N., & Fourie, J. M. (2006). Cross-cultural Validation of the hill-bone compliance to high blood pressure therapy scale in a South African, primary healthcare setting. *Ethnicity and Disease, 16*(1), 286. PMID: 16599385

Lewis, L M, Askie, P., Randleman, S., & Shelton-Dunston, B. (2010). Medication adherence beliefs of community-dwelling hypertensive African Americans. *Journal of Cardiovascular Nursing, 25*(3), 199–206. https://doi.org/10.1097/JCN.0b013e3181c7ccde

Lewis, L.M. (2012). Factors associated with medication adherence in hypertensive blacks: A review of the literature. *Journal of Cardiovascular Nursing. 27*(3).208-219. https://doi.org/10.1097/JCN.0b013e318215bb8f

Lewis, L. M., Schoenthaler, A. M., & Ogedegbe, G. (2012). Patient factors, but not provider and health care system factors, predict medication adherence in hypertensive black men. *The Journal of Clinical Hypertension, 14*(4), 250-255. https://doi.org/10.1111/j.1751-7176.2012.00591.x

Magrin, M. E., D'addario, M., Greco, A., Miglioretti, M., Sarini, M., Scrignaro, M., Steca, P., Vecchio, L & Crocetti, E. (2015). Social support and adherence to treatment in hypertensive patients: A meta- analysis. *Annals of Behavioral Medicine, 49*(3), 307-318. https://doi.org/10.1007/s12160-014-9663-2

Makoul, G., Krupat, E., & Chang, C. H. (2007). Measuring patient views of physician communication skills: development and testing of the communication assessment tool. *Patient Education and Counseling, 67*(3), 333-342. https://doi.org/10.1016/j.pec.2007.05.005

Moise, N., Schwartz, J., Bring, R., Shimbo, D., & Kronish, I. M. (2015). Antihypertensive drug class and adherence: an electronic monitoring study. *American Journal of Hypertension, 28*(6), 717-721. https://doi.org/10.1093/ajh/hpu199

Mozaffarian, D., Benjamin, E. J., Go, A. S., Arnett, D. K., Blaha, M. J., Cushman, M., Turner, M. B. (2016). Executive summary: Heart disease and stroke statistics-2016 update: A report from the American Heart Association. *Circulation*,133: 447–454. https://doi.org/10.1161/CIR.0000000000000366

Muntner, P., Carey, R. M., Gidding, S., Jones, D. W., Taler, S. J., Wright Jr, J. T., & Whelton, P. K. (2018). Potential US population impact of the 2017 ACC/AHA high blood

pressure guideline. *Circulation, 137*(2), 109-118. https://doi.org/10.1161/CIRCULATIONAHA.117.032582

Nielsen, J., Shrestha, A. D., Neupane, D., & Kallestrup, P. (2017). Nonadherence to anti-hypertensive medication in low- and middle-income countries: A systematic review and meta-analysis of 92443 subjects. *Journal of Human Hypertension.* 31, 14–21. https://doi.org/10.1038/jhh.2016.31

Niles, N. J. (2019). *Basics of the US health care system.* Jones & Bartlett Learning.

Odili, A. N., Chori, B. S., Danladi, B., Nwakile, P. C., Okoye, I. C., Abdullahi, U., Nwegbu, M. N., Zawaya, K., Essien, I., Sada, K., Ogedengbe, K., Aje, A. & Isiguzo, G. C. (2020). Prevalence, awareness, treatment and control of hypertension in Nigeria: Data from a nationwide survey 2017. *Global Heart, 15*(1). http://doi.org/10.5334/gh.848

Ojo, O., Malomo, S., & Sogunle, P. (2016). Blood pressure (BP) control and perceived family support in patients with essential hypertension seen at a primary care clinic in Western Nigeria. *Journal of Family Medicine and Primary Care, 5*(3), 569-575. https://pubmed.ncbi.nlm.nih.gov/28217585/

Okwuonu, C. G., Ojimadu, N. E., Okaka, E. I., & Akemokwe, F. M. (2014). Patient-related barriers to hypertension control in a Nigerian population. *International Journal of General Medicine, 7*, 345-353. https://doi.org/10.2147/IJGM.S63587

Olsen, M. H., Angell, S. Y., Asma, S., Boutouyrie, P., Burger, D., Chirinos, J. A., Damasceno, A., Delles, C., Gimenez-Roqueplo, A., Hering, D., López-Jaramillo, P., Martinez, F., Perkovic, V., Rietzschel, E.R., Schillaci, G., Schutte, A.E., Scuteri, A., Sharman, J.E., Wachtell, K. & Wang, J. G. (2016). A call to action and a life course strategy to address the global burden of raised blood pressure on current and future generations: The Lancet Commission on Hypertension. *The Lancet*. 388(10060), 2665-2712. https://doi.org/10.1016/S0140-6736(16)31134-5

Onyeajam, D. J., Xirasagar, S., Khan, M. M., Hardin, J. W., & Odutolu, O. (2018). Antenatal care satisfaction in a developing country: a cross-sectional study from Nigeria. *BMC Public Health, 18*(1), 1-9. https://doi.org/10.1186/s12889-018-5285-0

Osamor, P. E. (2015). Social support and management of hypertension in southwest Nigeria. *Cardiovascular Journal of Africa, 26* (1), 29-33. https://doi.org/10.5830/CVJA-2014-066

Petrie, K. J., Jago, L. A., Devcich, D. A., & . (2007). The role of illness perceptions in patients with medical conditions. *Current Opinions In Psychiatry, 20*(2), 163–167. https://doi.org/10.1097/YCO.0b013e328014a871

Pettey, C. M., McSweeney, J. C., Stewart, K. E., Cleves, M. A., Price, E. T., Heo, S., & Souder, E. (2016). African Americans' perceptions of adherence to medications and lifestyle changes prescribed to treat hypertension. *SAGE Open, 6*(1). https://doi.org/10.1177/2158244015623595

Richardson, M. P., Waring, M. E., Wang, M. L., Nobel, L., Cuffee, Y., Person, S. D., Hullet, S., Kiefel, C. & Allison, J.J. (2014). Weight-based discrimination and medication adherence among low-income African Americans with hypertension: How much of the association is mediated by self-efficacy? *Ethnicity & Disease, 24*(2), 162–168. https://www.ethndis.org/edonline/index.php/ethndis/article/view/208

Ritchey, M., Chang, A., Powers, C., Loustalot, F., Schieb, L., Ketcham, M., Durthaler, J., & Hong, Y. (2016). Vital signs: Disparities in antihypertensive medication nonadherence among Medicare Part D beneficiaries — United States, 2014. MMWR. *Morbidity and Mortality Weekly Report. 65*(36), 967-976. https://doi.org/10.15585/mmwr.mm6536e1

Sabaté, E., & Sabaté, E. (Eds.). (2003). Adherence to long-term therapies: *Evidence for Action.* World Health Organization.

Schoenthaler, A., Allegrante, J. P., Chaplin, W., & Ogedegbe, G. (2012). The effect of patient-provider communication on medication adherence in hypertensive black patients: Does race concordance matter? *Annals of Behavioral Medicine. 43*(3), 372-382. https://doi.org/10.1007/s12160-011-9342-5

Schoenthaler, A. M., Butler, M., Chaplin, W., Tobin, J., & Ogedegbe, G. (2016). Predictors of changes in medication adherence in Blacks with hypertension: Moving beyond cross-sectional data. *Annals of Behavioral Medicine.50* (5), 642-652. https://doi.org/10.1007/s12160-016-9791-y

Schoenthaler, A., Rosenthal, D. M., Butler, M., & Jacobowitz, L. (2018). Medication adherence improvement similar for shared decision-making preference or longer patient-provider relationship. *The Journal of the American Board of Family Medicine, 31*(5), 752-760. https://doi.org/10.3122/jabfm.2018.05.180009

Spikes, T., Higgins, M., Quyyumi, A., Reilly, C., Pemu, P., & Dunbar, S. (2019). The relationship among health beliefs, depressive symptoms, medication adherence, and social support in African Americans with hypertension. *Journal of Cardiovascular Nursing, 34*(1), 44-51. http://doi.org/10.1097/JCN.0000000000000519

The jamovi project (2021). *Jamovi*. (Version 1.6) [Computer Software]. https://www.jamovi.org/jmv/

Vrijens, B., de Geest, S., Hughes, D., Przemyslaw, K., Demonceau, J., Ruppar, T., Dobbels, F., Fargher, E., Morrison, V., Lewek, P., Matyjaszczyk, M. N., Msheila, C., Clyne, W., Aronson, J., & Urquhart, J. (2012). A new taxonomy for describing and defining adherence to medications. *British Journal of Clinical Pharmacology, 73*(5), 691-705. https://doi.org/10.1111/j.1365-2125.2012.04167.x

Williams, S. K., Ravenell, J., Seyedali, S., Nayef, S., & Ogedegbe, G. (2016). Hypertension treatment in Blacks: Discussion of the US clinical practice guidelines. *Progress in Cardiovascular Diseases. 59*(3), 282-288. https://doi.org/10.1016/j.pcad.2016.09.004

World Health Organization. (2021, May 17). *Hypertension*. https://www.who.int/news-room/fact-sheets/detail/hypertension

Zhou, B., Carrillo-Larco, R. M., Danaei, G., Riley, L. M., Paciorek, C. J., Stevens, G. A., Gregg, E. W., Bennett, J. E., Solomon, B., Singleton, R. K., Sophiea, M. K., Iurilli, M. L., Lhoste, V. P., Cowan, M. J., Savin, S., Woodward, M., Balanova, Y., Cifkova, R., Damasceno, A., … Ezzati, M. (2021). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. *The Lancet, 398*(10304), 957–980. https://doi.org/10.1016/S0140-6736(21)01330-1

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30-41. https://doi.org/10.1207/s15327752jpa5201_2

Zullig, L. L., Shaw, R. J., Shah, B. R., Peterson, E. D., Lindquist, J. H., Crowley, M. J., Grambow, S. C., & Bosworth, H. B. (2015). Patient-provider communication, self-reported medication adherence, and race in a postmyocardial infarction population. *Patient Preference and Adherence*, 2015 (9), 311-318. https://doi.org/10.2147/PPA.S75393

ORIGINAL RESEARCH

Nursing Students' Duty to Care Amidst the COVID-19 Pandemic: A Cross-Sectional Survey

Jodi L. Sutherland,[1*] Milissa Volino,[2] Lan Jiang,[3] Bing Si,[3] Deborah Palmer,[1] Brian Coveleskie[1]

[1] Decker College of Nursing and Health Sciences, State University of New York at Binghamton, Binghamton, NY, USA; [2]Elmira College, Elmira, NY, USA; [3]Systems Science and Industrial Engineering, State University of New York at Binghamton, NY, USA
***Corresponding Author:** Jodi L. Sutherland, Decker College of Nursing and Health Sciences, Binghamton, NY, USA.
Email: sutherla@binghamton.edu
https://doi.org/10.47988/janany.70817655.2.1

Abstract

Background: Research examining undergraduate nursing students' duty to care during the COVID-19 pandemic is lacking, thus presenting many challenges in nursing education. **Significance:** This research adds to the literature about nursing students' duty to care and willingness to respond in the clinical setting early in the COVID-19 pandemic. This research will inform nurse leaders and regulators on ways to safely mobilize a nursing workforce to fill critical nursing roles needed during a pandemic. **Methodology:** This research study utilized a descriptive, cross-sectional design. The Nash Duty to Care Scale© was used to examine nursing students' duty to care early in the COVID-19 pandemic at two nursing programs in New York. **Results:** Most of the nursing students (65.8%) reported a duty to care or a willingness to respond during the COVID-19 pandemic. Perceived obligation and perceived risk were the most predictive subscales between the low and high duty to care groups. **Conclusions and recommendations:** It is suggested that nursing schools maintain adequate emergency response resources (i.e. personal protective equipment and effective communication) for students in the clinical setting. Enhanced academic and practice partnerships with clear and specific nursing student policies and procedures are needed.

Keywords: nursing students, duty to care, COVID-19

Funding: This research did not receive any financial or in kind support.

Conflict of Interest: The authors declare no actual or potential conflicts of interest.

Personal Acknowledgements: The authors would like to acknowledge and thank Dr. Melissa Sutherland for her writing assistance, technical editing, and proofreading.

Date Submitted: June 28, 2021 Date Accepted: December 21, 2021 Date Published Electronically: February 1, 2022

Nursing Students' Duty to Care Amidst the COVID-19 Pandemic: A Cross-Sectional Survey

The world is facing unprecedented challenges as the coronavirus disease 2019 (COVID-19) and its variants continue to spread rapidly. Before November 2019, COVID-19 did not pose a health threat to the global community. Within weeks, the United States (U.S.) among other countries, acknowledged this serious new infectious disease and the need for protective measures. As the number of cases, hospitalizations, and deaths increased, state mandates were issued for social distancing, quarantines, voluntary self-isolation, and stay-at-home orders to control the viral spread. Approximately 24 months after the start of the pandemic in the U.S., an estimated 903,038 deaths have been reported by the Centers for Disease Control and Prevention (CDC, 2022).

At the start of the pandemic, New York City quickly became the most prominent area in the U.S. to be affected. On March 11, 2020, then Governor of New York, Andrew M. Cuomo, announced that all State and City of New York campuses transition to online education, and students were strongly encouraged to return to their home residences to continue their education (Camera, 2020). Simultaneously, hospitals began reorganizing their operations to prepare for the predicted influx of patients, while recognizing that there was a shortage of personal protective equipment (PPE) and misalignment of the pandemic safety guidelines regarding droplet precautions (CDC, 2020; Oregon Public Health Division, 2020; World Health Organization, 2020). Many acute care hospitals decided they could no longer accommodate nursing students for clinical learning experiences. While some academic internships continued, most nursing students were not permitted in hospitals for clinical rotations. Many schools of nursing found themselves in a situation in which no real-world, hands-on clinical experiences were available for students (Dewart et al., 2020; Hechinger & Lorin, 2020). Among educators, there was rampant concern regarding the limited availability of in-person clinical learning early in the pandemic, and its lasting impact on student preparation to practice and respond to public health emergencies. Nursing students, upon graduation, are considered essential employees who will assume the role of frontline healthcare workers.

The spring 2020 COVID-19 lockdown, which limited nursing students in clinical learning settings, may have impacted their sense of duty to care. Studies have examined nursing students' duty to care and willingness to respond during pandemics. Yonge et al. (2010) reported that nursing students are willing to volunteer to work in clinical settings during pandemics. Manyisa et al. (2019) reported nursing students' fear of infection is inversely related to willingness to provide care. Natan et al. (2015) found students' perceptions of working conditions and perceived self-efficacy influenced their willingness to provide care. Volunteering during the COVID-19 pandemic was reported among nursing students (Aziz et al., 2021; Gómez-Ibáñez et al., 2020) and medical students (Buckland, 2020). Alshutwi (2021) examined nursing students' and interns' willingness to treat patients with COVID-19. Among a sample of 178 senior nursing students and interns, 38.2% felt neutral, or undecided about treating a patient with COVID-19. The percentage of nursing students and interns who were "likely" and "very likely" to care and attend clinical placements knowing there were suspected and infected patients with COVID-19 was 41% and 46%, respectively (Alshutwi, 2021). Furthermore, participants reported that if they were licensed nurses, they were unlikely to refuse attending work when caring for a patient with COVID-19.

McSherry et al. (2021) evaluated the rationale of 17 undergraduate, final-year student nurses to take paid clinical placements during COVID-19 in the United Kingdom. Thematic analysis identified sense of duty, opting-in or -out, and a valuable learning opportunity and experience. The findings were used to develop a "Student Nurses Placement Framework" as a guide for future nursing workforce recruitment and retention. McSherry et al. (2021) highlighted the importance of an integrated, collaborative relationship between the University, clinical settings, and student nurses during placement and the pivotal role of the relationship to ensure excellence in practice. Finally, in a study by Martin-Delgado et al. (2021), final-year nursing students in Spain augmented the health care workforce during the COVID-19 pandemic. The lived experience of 40 nursing students who joined the workforce revealed four themes: 1) their willingness to help; 2) the impact and challenges of using safety and protective measures; 3) the overwhelming experience of becoming aware of the pandemic's magnitude; and 4) their learning and growth. The authors concluded that implementation of adequate support and training strategies were crucial to building a nursing workforce that is able and willing to respond to a future health crisis (Martin-Delgado et al., 2021).

Although studies exist examining nursing student experiences during the COVID-19 pandemic, most are qualitative studies. To date, no quantitative studies examining nursing student's duty to care early in the COVID-19 pandemic have been published. In addition, factors that may influence nursing students' duty to care during the COVID-19 pandemic have not been explored. This research study focuses on the unique clinical needs and concerns of undergraduate nursing students early in the COVID-19 pandemic. The findings will provide data to inform schools of nursing as they embrace the challenges related to educating the next generation of nurses. The data can inform nurse educators, administrators, leaders, and regulatory bodies to develop policies and incorporate learning opportunities that promote a sense of duty to care and a willingness to respond during COVID-19. There are many lessons to be learned from the pandemic to help identify better ways of providing nursing education.

Methods

Purpose

The purpose of this study was to investigate nursing students' perceived duty to care, from two academic institutions, early in the COVID-19 pandemic. In addition, this study examined nursing students' perceived risk, confidence in clinical site, perceived obligation, and professional preparedness.

Design and Procedures

This quantitative, descriptive study was conducted at two accredited, baccalaureate degree nursing programs in New York. Using Qualtrics, an electronic survey was distributed through university e-mail systems to nursing students at the institutions. At institution A, a public university, the survey was sent to junior and senior nursing students. At institution B, a private college, the survey was sent to sophomore, junior, and senior nursing students. All the students at both institutions were scheduled to attend clinical at the time of the study. At both institutions, nursing students were recruited using email addresses provided by the nursing program administration. The principal investigator (PI) sent emails to all students at institution A and the nursing program director sent emails to all students at institution B. Data were collected at institution A the week of April 19, 2020 and collected at institution B the week of May 1, 2020. Each student received two emails inviting them to participate. Nursing students could decide to participate after reading the consent, purpose of the study, procedures and activities, and the risks and the benefits of the study. Participant responses were anonymous and not linked to email address or consent. As a token of appreciation, participants could provide an email address and enter themselves in a raffle to win one of three $25.00 Amazon.com gift cards. Participants were directed to a separate link for entry into the raffle. All study procedures and protocols were reviewed and approved by the Human Subjects Review Board at the PI's institution and participating sites. (Of note, this study is part of a larger parent study (in preparation) that examined post-licensure nursing students' [RN-BS, graduate masters, and PhD programs] duty to care; this study focuses only on pre-licensure baccalaureate nursing students.)

Participants

A convenience sample of nursing students were recruited through an email invitation. Individuals were eligible if they were ≥ 18 years of age, able to read English, and enrolled in a pre-licensure baccalaureate nursing program in the Spring of 2020. At institution A, email invitations were sent to 280 undergraduate nursing students, while at institution B, email invitations were sent to 151 nursing students.

Of the 280 invitations sent at institution A, 148 responses were received, and of the 151 invitations sent at institution B, 23 responses were received; resulting in a total response rate of 171 (40%) participants. Data were cleaned resulting in exclusion of 11 (3%) survey respondents due to missing data. The final sample included 160 (37%) undergraduate nursing students.

Measures

Participants completed a demographic questionnaire, which included age, race, ethnicity, gender, nursing school, work in healthcare, location, marital status, children, and whether they provide care to older adult(s)/parent(s). The NASH Duty to Care Scale (NDCS©) (Nash, 2017) was used to assess the degree to which nursing students were likely to report to clinical learning experiences during the COVID-19 pandemic. The NDCS© consists of 19 five-point Likert-type items, with potential responses that range from 1 (strongly disagree) to 5 (strongly agree) and possible scores ranging from 19 to 95. The Cronbach's alpha in a previous study was 0.92 (Nash, 2017). The measure includes four subscales: 1) perceived risk, seven items scale; 2) perceived obligation, five items scale; 3) professional preparedness, four items scale, and 4) confidence in clinical site, three items scale, with reported Cronbach's alpha of .91, .83, .85, and .81, respectively. (Nash, 2017). The PI received permission from the author to use and adapt the NDCS©.

Table 1

Psychometric Properties for NASH Duty to Care© Subscales

Scale	*M*	*SD*	Range	Cronbach's *a*
Perceived risk	3.73	±0.51	16 - 35	0.57
Confidence in clinical site	2.68	±0.76	3 - 15	0.58
Perceived obligation	4.15	±0.68	5 - 25	0.76
Professional preparedness	2.49	±0.93	4 - 19	0.84

Note. The NASH Duty to Care Scale© developed has four subscales (Perceived risk, confidence in clinical site, perceived obligation, and professional preparedness). From "Development, testing, and psychometric qualities of the Nash Duty to Care Scale for disaster response," by T. Nash, 2017, *Journal of Nursing Measurement, 25*(2), p. 314. T. Nash shared the Scale as well as gave permission to use and adapt the Scale to the PI on April 6, 2020.

Table 1 summarizes the psychometric properties for the NDCS© subscales. After coding and reverse coding of items, the Cronbach's alpha was calculated to evaluate the internal consistency of each subscale. The Cronbach's alpha for the subscales were 0.84 for professional preparedness, 0.58 for confidence in clinical site, 0.76 for perceived obligation, and 0.57 for perceived risk. The Cronbach's alpha for the subscales of professional preparedness and perceived obligation suggested a strong internal consistency.

Data analysis

Before statistical analysis, data were entered into SPSS Version 25. A two-step cluster procedure was used to examine student responses to the NDCS© items. All of the items from the NDCS© were entered into the SPSS two-step cluster procedure and two groups of nurses were identified. The high scoring group was identified as the high perceived duty to care (HPDC) group, while the other group was identified as the low perceived duty to care (LPDC) group (Chiu et al., 2001; Zhang et al., 1996). Independent t-tests and ANOVA tests (Brown, 2008) were performed to compare the 19 items between the two groups. T-statistics with p-value and n^2 (et-squared effect size) were reported (Lakens, 2013) to compare scale item means between the two groups of nursing students on the duty to care scale. Independent samples t-tests and chi-square tests for independence were used to compare demographic variables between the two groups.

Results

The final sample for this analysis included 160 pre-licensure, baccalaureate nursing students from two nursing programs in New York. Nursing students who participated in the survey self-reported race and ethnicity based on the National Institutes of Health (NIH): U.S. Office of Management and Budget (OMB) Standards categories (NIH: OMB, n.d.). As shown in Table 2, demographic analyses indicated that most participants attended institution A (86%, *n* = 138), and were female (92%, *n* = 144). In this study, 22 participants (15%) self-reported as Asian, four (3%) as Black or African American, and 123 (83%) as White. In addition, 10 participants (7%) self-reported ethnicity as Hispanic or Latinx. The mean age among the participants was 22.35 ± 3.4 years. Participants most often reported living in a suburban location (64%, *n* = 103) followed by rural (23%, *n* = 36), while urban (13%, *n* = 21) was least reported. Furthermore, most participants (95%, *n* = 150) reported marital status as single, and a majority of participants (98%, *n* = 155) reported having no children. Most participants (90%, *n* = 139) reported not providing care to elder adult(s)/parents(s). Statistically significant differences between the LPDC and HPDC groups were found in the sociodemographic characteristics for age and gender. At the time of the data collection, almost one-third (32%; *n* = 51) of nursing students self-reported working in the healthcare setting.

Table 2

Sociodemographic Characteristics of Pre-licensure Baccalaureate Nursing Students (N = 160)

Characteristic	*n*	%	Significant *p*-value for HPDC or LPDC groups
Gender (N = *157*)			0.010
Male	13	8	
Female	144	92	
Race (N = *149*)			
American Indian or Alaska Native	0	0	
Asian	22	15	
Black or African American	4	3	
Native Hawaiian or Pacific Islander	0	0	
White	123	83	
Ethnicity (N = *148*)			
Hispanic or Latino/a	10	7	
Non-Hispanic or Latino/a	138	93	
Nursing School			
Institution A	138	86	
Institution B	22	14	
Working in Healthcare Settings			
No	109	68	
Yes	51	32	
Location			
Urban	21	13	
Suburban	103	64	
Rural	36	23	
Marital Status (N = *158*)			
Single	150	95	
Married/Relationship	5	3	
Separated/Divorced/ Widowed	3	2	
Children (N = *158*)			
Yes	3	2	
No	155	98	
Provide Care to Elder Adult/Parents (N = *155*)			
Yes	16	10	
No	139	90	

Note. N = 160. Participants were on average 22.35 years old (SD = 3.4), and participant age did differ between the HPDC and LPDC groups ($p = 0.036+$).

Chi-squared tests were used for comparison; HPDC group reflects high perceived duty to care group; LPDC group reflects low perceived duty to care group.

Complete data were used to create and analyze the two groups (*n* = 149) and were identified as having different perceptions of duty to care. Group one, the LPDC group, had lower levels of perceived scores on the items and included 51 (34%) nursing students, and group two, the HPDC group, consisted of 98 (66%) nursing students. The item differences of the NDCS© between the LPDC and the HPDC groups are detailed in Table 3. Only six of the scale items were highly predictive in determining the separation of the nursing students into the high and low perceived duty to care groups with a cutoff of 0.3 (marked with "b" in Table 3). The six significant items examined in the logistic regression model resulted in a cross-validated prediction accuracy of 96.6%. The two items in the perceived risk subscale included: 1) "I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family" and 2) "I will report to clinical if my site has sufficient personal protective equipment to maintain my safety." The four items in the perceived obligation subscale included: 1) "I will report to clinical because of my obligation to my profession, colleagues, and program of nursing" 2) "I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so" 3) "I will not report to my clinical site because my first obligation is to my family responsibilities" and 4) "I will report to clinical because it is morally the right thing to do."

Table 3

Item Differences of the Nash Duty to Care Scale© Between the LPDC and HPDC Groups

Subscale/Item	Low perceived duty (N = 51; 34%)			High perceived duty (N = 98; 66%)			t(149)	n^2
	M	SD	SA%	M	SD	SA%		
Perceived risk								
1. I will not report to clinical if conditions begin to deteriorate quickly. [R]	3.02	1.09	4	3.68	0.98	18	3.66***	0.10
2. I will report to clinical if my site has sufficient personal protective equipment to maintain my safety. [b]	4.53	0.64	61	4.95	0.22	95	4.52***	0.19
3. I will report to clinical if I am at high risk for exposure to pathogens and/or toxins.	3.02	1.14	4	3.82	1.02	27	4.19***	0.15
4. I will not report to clinical when my family/significant others are at high risk for exposure to pathogens and/or toxins. [R]	2.18	1.03	0	2.99	1.07	6	4.50***	0.15
5. I will not report to clinical if I think I will be abandoned by faculty/co-workers. [R]	2.59	1.12	6	2.95	1.22	9	1.81	0.04
6. I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family. [b]	4.04	0.89	33	4.73	0.49	76	5.17***	0.21
7. I will report to clinical if I maintain freedom to leave at the end of my shift.	4.00	0.85	33	4.52	0.76	65	3.67***	0.13
Confidence in clinical site								
1. My clinical environment will likely become chaotic during a disaster event. [R]	2.24	1.03	2	2.39	1.12	4	0.83	0.01
2. My clinical site has sufficient written procedures, policies, and plans in place to handle all types of disaster situations.	3.47	0.88	8	3.47	0.98	15	-0.01	0.04
3. There will not be adequate staffing in my clinical site during a disaster. [R]	2.14	1.00	2	2.38	1.02	4	1.38	0.02
Perceived Obligation								
1. I will report to clinical because of my obligation to my profession, colleagues, and program of nursing/employer. [b]	3.71	0.86	12	4.88	0.36	89	9.36***	0.58
2. I will report to clinical because I am legally obligated to respond.	3.37	1.08	8	4.34	0.99	60	5.32***	0.26
3. I will not report to my clinical site because my first obligation is to my family responsibilities. [R, b]	2.80	1.06	2	3.95	0.87	27	6.65***	0.28
4. I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so. [b]	3.45	0.99	6	4.64	0.52	66	8.06***	0.42
5. I will report to clinical because it is morally the right thing to do. b	4.06	0.93	33	4.92	0.31	93	6.45***	0.40
Professional preparedness								
1. I have sufficient disaster nursing experience to practice nursing safely in a wide range of disaster settings.	2.39	1.20	0	2.11	1.15	2	-1.37	0.05
2. I have the ability to manage different types of disaster situations in a variety of disaster settings.	2.51	1.16	0	2.23	1.13	2	-1.39	0.04
3. I have sufficient disaster nursing education to practice nursing safely in response to a wide range of disaster events.	2.59	1.10	0	2.49	1.19	2	-0.50	0.02
4. I maintain knowledge at all times in preparation for disaster events.	3.06	1.21	8	3.08	1.05	5	0.11	0.03

Note. SA = Strongly agree

[b] Reflects items that were most important in forming the high and low perceived duty to care groups by the two-step cluster procedure (Zhang et al., 1996; Chiu et al., 2001)

[R] Reflects the reverse coded questions

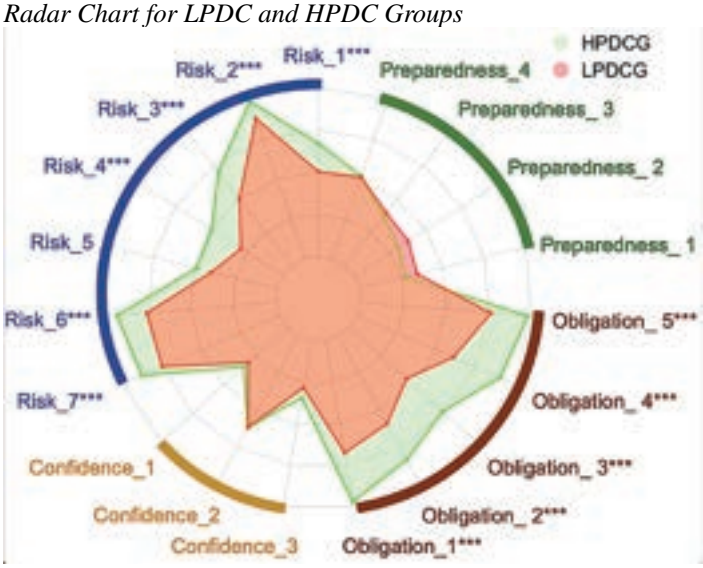
From "Development, testing, and psychometric qualities of the Nash Duty to Care Scale for disaster response," by T. Nash, 2017, *Journal of Nursing Measurement, 25*(2), p. 314. T. Nash shared the Scale as well as gave permission to use and adapt the Scale to the PI on April 6, 2020.

*$p < .05$; **$p < .01$; ***$p < .001$

As shown in Table 3, the strongest predictor items were found in the perceived obligation subscale. The item, "I will report to clinical because of my obligation to my profession, colleagues, and program of nursing," was reported strongly agree by 89% of nursing students in the HPDC group compared with 12% of nursing students in the LPDC group. The next item, "I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so," was reported by 66% of nursing students in the HPDC group with strongly agree compared to 6% of nursing students in the LPDC group. The item, "I will not report to my clinical site because my first obligation is to my family responsibilities," was reported strongly agree by 27% of nursing students in the HPDC group compared with 2% nursing students in the LPDC group. The item, "I will report to clinical because it is morally the right thing to do," was reported as strongly agree by 93% of nursing students in the HPDC group compared with 33% of the nursing students in the LPDC group. The remaining two predictor items were in the perceived risk subscale. The item, "I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family," was reported as strongly agree by 76% of nursing students in the HPDC group compared with 33% of the nursing students in the LPDC group. The final item, "I will report to clinical if my site has sufficient personal protective equipment to maintain my safety," was reported as strongly agree by 95% of nursing students in the HPDC group compared with 61% of the nursing students in the LPDC group. It is worth noting that six out of the seven items in the perceived risk subscale and all five items in the perceived obligation subscale were statistically significant items and were used to determine nursing students' duty to care. None of the items in the confidence of clinical site subscale and the professional preparedness subscale were significantly different between the groups. Figure 1 shows a visual image of the findings utilizing a radar chart.

Figure 1

Radar Chart for LPDC and HPDC Groups



Note. The graph shows the comparison of the duty to care items between the LPDC group and the HPDC group in a single diagram, or 2D plane. Of the 19-items in the NASH Duty to Care Scale©, six items in the perceived risk subscale and five items in the perceived obligation subscale were statistically significant and used to determine nursing students' duty to care.

Discussion

While the sample for the study included prelicensure, baccalaureate nursing students, who were not considered essential healthcare workers in their role as nursing students, almost a third (32%; n = 51) were permitted in a healthcare setting as a healthcare employee and were vital in responding to the pandemic. A majority of the nursing students self-reported a HPDC early in the COVID-19 pandemic. Of the two groups, more nursing students (66%) were in the HPDC group as compared with the LPDC (34%) group. Alshutwi (2021) noted similar results reporting 41% of nursing students were "likely" and "very likely" to provide care in the clinical setting knowing there were suspected and infected patients with COVID-19. In this study, we found the subscales for perceived obligation and perceived risk to be most predictive in creating the low and high duty to care groups. This finding is similar to a recent study done by McNeill et al. (2020) whereby 289 registered nurses reported that perceived risk and perceived obligation were the most important factors to predict response during a disaster.

Perceived obligation to the profession was the most predictive domain among nursing students and the most significant in the formation of the HPDC and LPDC groups. The perceived obligation item, "I will report to clinical because of my obligation to my profession, colleagues, and program of nursing" was the most predictive item in the subscale, followed by "I will report to clinical because the nursing code of ethics states it is my professional responsibility to do so." This suggests that nursing students understand the obligation to respond and the concept of duty to care. However, it is concerning that 34% (n = 51) of the nursing students were in the LPDC group. If nursing students have a low perceived duty to care, they may leave the profession shortly after graduation due to concerns pertaining to health and safety issues, stress, and burnout. These factors may exacerbate the ongoing crisis for the nursing workforce (American Nurses Association, 2021).

The perceived risk item "I will report to clinical if my faculty/clinical agency has sufficient communication equipment for me to maintain contact with my family" was the most relevant item in this subscale. This finding highlights the need for nursing students to have a system for communication with their families during clinical rotations. Additionally, findings from the perceived risk subscale indicate that nursing students need a supply of PPE in the clinical setting. Students may also need additional preparation and training to use the PPE safely. Coordination and identification of a supply chain for PPE are essential for nursing students' duty to care. If nursing students perceive that they are at risk and not protected from COVID-19, they may be less willing to respond to clinical learning during the pandemic. Consideration for the nursing students' fears about returning to their families and significant others after clinical learning should also be considered. Nurse educators should utilize strategies and resources to prevent emotional, psychological, physical, and spiritual harm among nursing students and future graduate nurses. It is critical to safeguard the wellness of the healthcare workforce (Liu et al.,

2020) and ensure they are adequately protected and safe during a pandemic. Nursing students need a robust education whereby they are prepared to respond to disasters while supporting their health and well-being (National Academy of Medicine, 2021). Future research should explore nursing students' coping skills, and their needs to successfully and competently deliver care under extreme conditions, such as a disaster or pandemic, upon graduation.

No items in the confidence and the professional preparedness subscales were predictive of membership in the HPDC and LPDC groups. Our findings were similar to findings from a study focused on the avian influenza pandemic, whereby 49% of the respondents were willing to report to duty, yet 91% of students reported "having no training to respond" to the pandemic (Natan et al., 2015). Because nursing students are at the start of their careers and lack the knowledge, training, and experience, this may be an expected finding.

Limitations

Despite the strengths of the current study, three limitations were noted. The first involved a convenience sample of nursing students in a similar geographic region in the U.S. This sample may not be representative of all nursing students in the U.S. Second, most nursing students were not permitted in the clinical setting due to COVID-19 and were provided alternative virtual experiences. It is possible that the students for whom clinical was suspended may not have the same perception of threat to their personal safety as someone who is actively working in the clinical setting. Third, social desirability bias might be present in self-reported surveys. Participants were also aware of the study's purpose during a state of emergency period in New York.

Future Recommendations

Education

Based on the findings, most nursing students indicated a duty to care during the COVID-19 pandemic at the time of data collection. Yet, nursing students indicated that they may be hesitant to respond if they did not have adequate PPE and sufficient communication to remain in contact with their families. To address this, nursing schools should consider maintaining adequate emergency response resources, which include PPE, training, and a robust communication system.

Additionally, the American Association of Colleges of Nursing (AACN, 2020) recommends: 1) expanding the amount of content specific to the pandemic response, disaster nursing, and infection control and prevention covered in nursing education programs; 2) utilizing nursing students as workforce extenders; and 3) developing plans and protective actions regarding how nursing students might be allowed to attend clinical settings should the pandemic intensify. If these recommendations were implemented prior to the pandemic, the events that resulted in limited clinical learning experiences in nursing education may have had different results.

Research

Upon reflection of the lessons learned when confronted with the pandemic, additional questions arise that warrant attention. Some of these questions are centered around reduction of clinical practicum hours, moving student learning to a web-based format, and to a simulation-based environment. Prior to COVID-19, most states allowed programs to substitute up to 50% of clinical experience with simulation (Smiley, 2019). During the pandemic, many State Boards of Nursing approved nursing programs to use more than 50% simulation, so that students could fulfill clinical requirements (National Council of State Boards of Nursing [NCSBN], 2020). Hayden et al. (2014) reported that up to 50% of clinical experiences can be substituted with simulation without negatively impacting student outcomes. However, there is no evidence regarding student outcomes beyond the 50% of simulation time. More research is needed with a careful analysis of clinical changes made in nursing education during the pandemic, as well as their implications to nursing students' safety, competence, and impact on patient outcomes.

Practice

Furthermore, there is a need for enhanced partnerships with clear and specific policy and procedures between regulatory bodies, health care facilities, and nursing education programs. For example, in the 2020 policy brief issued by the NCSBN (2020), guidance was provided to encourage health care facilities and nursing education programs to partner during the COVID-19 crisis to balance academic and workforce needs. The partnership between healthcare facilities and nursing schools could have the potential to address surge capacity experienced during a pandemic. While students may not be able to assist in high-risk critical areas, they may be able to assist with various tasks, such as patient screening, patient assessment, and data collection. With nursing students performing these tasks, the licensed nurse will be able to care for the more critically ill patients. It is worth noting that while educational accreditation bodies have issued guidance, response to the COVID-19 pandemic has been left to individual schools, programs, and hospitals. As a result, depending upon the school, program, hospital resources and access to creative learning, student training and experiences have varied, furthering disparities.

Conclusions

Nursing schools/programs aim to prepare well-educated, competent nurses who provide quality and safe patient care after graduation. The results indicate that duty to care affects nursing students' willingness to respond and was most influenced by their perceived obligation and their perceived risk. To be most responsive to nursing students' needs in the clinical learning setting during the pandemic, the authors suggest that nursing schools have emergency response resources, which include a supply of PPE, training, and a robust communication strategy. It is crucial that nursing schools and clinical sites communicate and collaborate about guidance to pandemic response and share institutional guidelines with students. Healthcare facilities and regulating bodies are encouraged to view nursing students not only as learners, but as essential workers, who understand their obligation and can serve during a pandemic. Nursing students' willingness to report and their perceived duty to care should not be overlooked or ignored.

References

Alshutwi, S. S. (2021). Senior nursing students and interns concerns and willingness to treat patients with COVID - 19: A strategy to expand national nursing workforce during the COVID - 19 pandemic. *Risk Management and Healthcare Policy, 14*, 39 - 48. http://doi.org/10.2147/RMPH.S279569

American Association of Colleges of Nursing. (2020, July 29). *Considerations for reopening U.S. schools of nursing during the COVID-19*. American Association of Colleges of Nursing. https://www.aacnnursing.org/News-Information/News/View/ArticleId/24666/Considerations-for-Reopening-U-S-Schools-of-Nursing-During-COVID-19

American Nurses Association. (2021, Sept 1). *ANA urges U.S. Department of Health and Human Services to declare nurse staffing shortage a national crisis.* https://www.nursingworld.org/news/news-releases/2021/ana-urges-us-department-of-health-and-human-services-to-declare-nurse-staffing-shortage-a-national-crisis/

Aziz, A. A. H. H. A., Abdul-Mumin, K. H., & Rahman, H. A. (2021). Willingness of university nursing students to volunteer during the COVID-19 pandemic in Brunei Darussalem. *Belitung Nursing Journal, 7*(4), 285-293. https://doi.org/10.33546/bnj.1518

Brown, J. D. (2008). Effect size and eta squared. *JALT Testing & Evaluation SIG Newsletter, 12*(2), 38 – 42. https://stardock.cs.virginia.edu/empirical/resources/Brown28.pdf

Buckland, R. (2020). Medical students volunteering during COVID-19: Lessons for future interprofessional practice. *Journal of Interprofessional Care, 34*(5), 679-681. https://doi.org/10.1080/13561820.2020.1822790

Camera, L. (2020, March 11). SUNY, CUNY move to online courses amid coronavirus. *U.S. News and World Report.* https://www.usnews.com/news/education-news/articles/2020-03-11/suny-cuny-move-to-online-courses-amid-coronavirus

Centers for Disease Control and Prevention. (2022, February 8). *COVID data tracker.* https://covid.cdc.gov/covid-data-tracker/#datatracker-home

Centers for Disease Control and Prevention. (2020, July 16). *Optimizing supply of PPE and other equipment during shortages.* https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html

Chiu, T., Fang, D., Chen, J., Wang, Y., & Jeris, C. (2001). A robust and scalable clustering algorithm for mixed type attributes in large database environment. *Proceedings of the Seventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (pp. 263-268). https://doi.org/10.1145/502512.502549

Dewart, G., Corcoran, L., Thirsk, L., & Petrovic, K. (2020). Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse Education Today, 92.* https://doi.org/10.1016/j.nedt.2020.104471

Gómez-Ibáñez, R., Watson, C., Leyva-Moral, J. M., Aguayo-González, M., & Granel, N. (2020) Final-year nursing students called to work: Experiences of a rushed labour insertion during the COVID-19 pandemic. *Nursing Education in Practice, 49*, 1-7. https://doi.org/10.1016/j.nepr.2020.102920

Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 2*(5), S1-S40. https://doi.org/10.1016/S2155-8256(15)30062-4

Hechinger, J., & Lorin, J. (2020). Coronavirus forces $600 billion higher education industry online. *Bloomberg Businessweek.* https://www.bloomberg.com/news/articles/2020-03-19/colleges-are-going-online-because-of-the-coronavirus

Lakens, D. (2013, November). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology,* 4, 863. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3840331/

Liu, Q., Luo, D., Haase, J., Guo, Q., Wang, X., Liu, S., Xia, L., Liu, Z. & Yang, J. (2020). The experiences of health-care providers during the COVID-19 crisis in China: A qualitative study. *The Lancet Global Health, 8*(6), e790-e798. https://doi.org/10.1016/S2214-109X(20)30204-7

Manyisa, Z. M., Akinsola, H. A., & Osuafor, G. N. (2019). Nursing students' perceptions and attitudes regarding Ebola patients in South Africa. Africa Journal of Nursing and Midwifery, 21(2), 1–17. https://doi.org/10.25159/2520-5293/6014

Martin-Delgado, L., Goni-Fuste, B., Alfonso-Arias, C., De. Juan, M. A., Wennberg, L., Rodriguez, E., Fuster, P., Monforte-Royo, C., & Martin-Ferreres, M. L. (2021). Nursing students on the frontline: Impact and personal and professional gains of joining the health care workforce during the COVID-19 pandemic in Spain. *Journal of Professional Nursing, 37*(3), 588-597. https://doi.org/10.1016/j.profnurs.2021.02.008

McNeill, C., Alfred, D., Nash, T., Chilton, J., & Swanson, M. S. (2020). Characterization of nurses' duty to care and willingness to report. *Nursing Ethics, 27*(2), 348-359. https://doi.org/10.1177/0969733019846645

McSherry, R., Eost-Telling, C., Stevens, D., Bailey, J., Crompton, R., Taylor, L., Kingston, P., & Simpson, A. (2021). Student nurses undertaking acute hospital paid placements during COVID-19: Rationale for opting-in? A qualitative inquiry. *Healthcare, 9*, 1001. https://doi.org/10.3390/healthcare9081001

Nash, T. (2017). Development, testing, and psychometric qualities of the Nash Duty to Care Scale for disaster response. *Journal of Nursing Measurement, 25*(2), 314-331. http://dx.doiorg/10.1891/1061-3749.25.2.314

Natan, M. B., Zilberstein, S., & Alaev, D. (2015). Willingness of future nursing workforce to report for duty during an avian influenza pandemic. *Research and Theory for Nursing Practice, 29*(4), 266–75. https://doi.org/10.1891/1541-6577.29.4.266

National Academy of Medicine. (2021). *The Future of Nursing 2020-2030: Consensus Study Report.* https://nam.edu/wp-content/uploads/2021/05/Report-Highlights_Future-of-Nursing.pdf

National Council of State Boards of Nursing. (2020). *Policy brief: U.S. nursing leadership supports practice/academic partnerships to assist the nursing workforce during the COVID-19 crisis.* https://www.ncsbn.org/Policy_Brief_US_Nursing_Leadership_COVID19.pdf

National Institutes of Health. (n.d.). *NIH inclusion outreach toolkit: How to engage, recruit, and retain women in clinical research.* https://orwh.od.nih.gov/toolkit/other-relevant-federal-policies/OMB-standards

Oregon Public Health Division. (2020). *Provisional guidance: Clinical care and healthcare infection prevention and control for COVID-19.* Oregon Health Authority. https://sharedsystems.dhsoha.state.or.us/DHSForms/served/le2288J.pdf

Smiley, R. (2019). Survey of simulation use in prelicensure nursing program: Changes and advancements, 2010-2017. *Journal of Nursing Regulation, 9*(4), 48-61. https://doi.org/10.1016/S2155-8256(19)30016-X

Yonge, O., Rosychuk, R. J., Bailey, T. M., Lake, R., & Marrie, T. J. (2010). Willingness of university nursing students to volunteer during a pandemic. *Public Health Nursing, 27*(2), 174-180. https://doi.org/10.1111/j.1525-1446.2010.00839.x

World Health Organization. (2020, August 3). *WHO COVID-19 preparedness and response report 1 February to 30 June 2020.* https://www.who.int/publications/m/item/who-covid-19-preparedness-and-response-progress-report---1-february-to-30-june-2020

Zhang, T., Ramakrishnan, R., & Livny, M. (1996). BIRCH: An efficient data clustering method for very large databases. *ACM Sigmod Record, 25*(2), 103-14. https://doi.org/10.1145/235968.233324

ORIGINAL RESEARCH

Nurse Practitioners' Awareness of Existing Barriers Regarding Breast and Cervical Cancer Screening Among African American Women

Khloe M. Barlow[1*], Loralee Sessanna[1], Pamela Paplham[1]

[1]University at Buffalo, Buffalo, NY, USA
***Corresponding Author:** Khloe M. Barlow, University at Buffalo, Buffalo, NY, USA
Email: khloebar@buffalo.edu
https://doi.org/10.47988/janany.89473123.2.1

Abstract

Background and Significance: Despite availability of adequate screening protocols, African American (AA) women face increased incidence of breast and cervical cancer due to specific barriers to care. Nurse practitioners (NP) are perfectly positioned to identify and mitigate these specific barriers. ***Study Purpose and Aim:*** The purpose of this study was to explore NPs' awareness of existing barriers regarding breast and cervical cancer screening among AA women. The aim of the study was to promote NP awareness and understanding of existing barriers to care and the need for evidence-based breast and cervical cancer screening protocols tailored to the needs of AA women. ***Methodology:*** A qualitative descriptive design was utilized with use of individual semi-structured interviews. Guided by an essentialist/realist framework, Braun and Clarke's reflective thematic analysis method was used to analyze data with an inductive approach and use of semantic or explicit data driven codes. ***Findings:*** One overarching theme, *I'm Not Sure of Anything in Particular with African American Women as Far as Breast and Cervical Cancer Go,* and three key themes, *Multiple Screening Guidelines: Whatever It's Called, It's a Little Bit Too Late...Less Likely to Get Screening Done,* and *It All Just Comes Down to Awareness,* were generated as a result of the analysis of data. ***Strengths and Limitations:*** Strengths of this study included use of semi-structured individual interviews which yielded rich data that provided valuable insight into an under-researched area of NP practice concerning cancer screening in AA women. Limitations included study implementation during the Covid-19 pandemic, the data collection time frame, a small sample size, use of convenience sampling, and potential for participant bias. ***Conclusion and Recommendations:*** The disparity that currently exists within healthcare for AA women regarding breast and cervical cancer screening is alarming with a critical need to be addressed and mitigated. Improved outcomes of breast and cervical cancer screening for AA women may be achieved through NP and patient education, the creation of culturally sensitive and appropriate standardized breast and cervical cancer screening recommendations and guidelines, and increased provider diversity to promote representation.

Keywords: breast, cervical, cancer, screening, African American, nurse practitioner

Funding: This research did not receive sources of funding.

Conflict of Interest: The authors declare the absence of any potential or actual conflict of interest

Date Submitted: May 21, 2021 Date Accepted: June 10, 2021 Date Published Electronically: February 11, 2022

Nurse Practitioners' Awareness of Existing Barriers Regarding Breast and Cervical Cancer Screening Among African American Women

According to the American Cancer Society (ACS, 2019a), non-Hispanic Black or African American (AA) individuals have the highest death rate and shortest survival for most cancers of any racial/ethnic group in the United States (U.S.). Among AA women, breast cancer is the most commonly diagnosed cancer and is the second most common cause of death (18%) following lung cancer (20%) (ACS, 2019a). AA women are more likely to die from breast cancer at any age (ACS, 2019b). The rate of breast cancer among AA women is 126.7 per 100,000 (second to Non-Hispanic Whites (NHW) at 130.8 per 100,000) and AA women have the highest breast cancer death rate at 28.4 deaths per 100,000 (ACS, 2019b). Furthermore, almost 21% of breast cancers in AA women are triple negative, double the proportion of this cancer subtype in other racial/ethnic groups, which is a major contributor to the high breast cancer death rate (ACS, 2019b). In AA women, it is estimated that only half (54%) of breast cancers are diagnosed at a local stage compared to 64% in White women (ACS, 2019a).

Regarding cervical cancer, AA women have the second highest age adjusted incidence rate behind Hispanic women, and the highest mortality amongst all races and ethnicities (Belgrave & Abrams, 2016; National Cancer Institute Surveillance, Epidemiology, and End Results Program [NCI SEER], n.d.). AA women are more likely than NHW women to present with advanced stage cervical cancer with a mortality rate twice the rate found in NHW women (Siegel et al., 2014). Due to AA women being more likely to be diagnosed with regional or distant stage disease, they are 80% more likely to die from cervical cancer compared to NHW women (ACS, 2019a). Additionally, the overall 5-year relative survival rate for cervical cancer among AA women is 56% compared to 68% among white women (ACS, 2019a). Racial differences in stage at diagnosis for cervical cancer in AA women may be due to differences in screening quality, having less screening, lack of follow-up regarding abnormal screening findings, lack of insurance, and failure to receive surgery (ACS, 2019a).

Background and Significance

MacLaughlin et al. (2019) found that cervical cancer screening and HPV testing were less likely to be completed by AA women. In contrast, Ford et al. (2021) found that although AA women reported higher cervical cancer screening rates, they had lower levels of screening knowledge and fewer healthcare provider recommendations regarding follow up when an abnormal result was received. Recent cervical cancer screening estimates from the National Cancer Institute (NCI, 2021b) demonstrated that little difference exists regarding screening rates among AA women (74.8%) compared with NHW (75.4%). Interestingly, AA women had the best group rate for receiving a mammogram within the past two years (Office of Disease Prevention and Health Promotion [ODPHP], 2021). AA women also had the highest rate of mammography (79.1%), surpassing the overall mammography rate of 76.4% for the years 1987-2019 (NCI, 2021a). Regardless of these statistics, AA women continue to experience high morbidity and mortality rates from breast and cervical cancers. The morbidity and mortality disparity may be attributed to ineffective screening guidelines, cost barriers, lack of education, lack of access to healthcare, and existing racial inequities for this particular population within healthcare (Bellinger et al., 2015; Haas et al., 2016; Penner et al., 2016; Radhakrishnan et al., 2017). Currently, a paucity of evidence-based literature exists exploring and examining nurse practitioner (NP) knowledge and understanding of barriers to care for AA women, in relation to breast and cervical cancer screening. With approximately 89% of NPs certified in a primary care specialty, they have the opportunity to investigate barriers to care for AA women to promote quality of care and life (American Association of Nurse Practitioners, 2021).

Despite the importance of and critical need for routine breast and cervical cancer screening among AA women, discrepancies exist among professional organizations suggesting screening guidelines, recommendations, and best practice for health care providers (Radhakrishnan et al., 2017; Zug & Grube, 2017). Currently, the two major discrepancies are when to initiate breast and cervical cancer screening and how often breast and cervical cancer screening should take place. The lack of consistency between screening guidelines may contribute to the delayed diagnosis and treatment of breast and cervical cancer in AA women. Through implementation of effective evidence-based screening protocols, cervical cancer is highly preventable, and breast cancer can be detected at an early stage when treatment is less extensive and more likely to be successful (ACS, 2019a). By providing trusting, cost-effective care and advocating to address barriers to healthcare access and screening, NPs are perfectly positioned to play a prominent and effective role in breast and cervical cancer screening efforts among AA women (Perks et al., 2018; Zug & Grube, 2017). A comprehensive review of nursing and health-related literature revealed that research is needed exploring NPs' awareness and proficiency in breast and cervical cancer screening and barriers to care for AA women.

Study Design and Method

The purpose of this qualitative descriptive study was to explore NPs' awareness of existing barriers regarding breast and cervical screening among AA women. According to Bradshaw et al. (2017), " The use of a qualitative descriptive approach is relevant where information is required directly from those experiencing the phenomenon under investigation..." (p. 1). The aim of the study was to promote NP awareness and understanding of existing barriers to care and the need for evidence-based breast and cervical cancer screening protocols tailored to the needs of AA women. Braun and Clarke's reflexive thematic analysis was utilized to analyze data (Braun & Clarke, 2006; Braun & Clarke, 2013; Braun et al., 2019). Approval for this study was granted from the University at Buffalo's (UB) Institutional Review Board (IRB).

Participant Recruitment and Setting

With permission and assistance from the UB School of Nursing's Director of Student Services, participants were recruited via convenience sampling through utilization of the UB Post-Masters Family Nurse Practitioner (FNP) and Adult-Gerontology Primary Care Nurse Practitioner (AGPCNP) Listserv. Participants were eligible to participate if they were a practicing NP, aged 18 years and older, English speaking, and working in a primary care, obstetrics-gynecology (OB/GYN), or oncology specialty practice. Five NP participants were voluntarily recruited. According to Braun et al. (2019), when determining sample size in research utilizing thematic analysis, the "rule of thumb is to have at least five or six interviews for a very small project, data that are rich, a relatively homogenous sample, a focused research question," and previously unpublished findings (p. 852). All five participants identified as female and their ages ranged from 34 to 53 (mean 43.5 years). The average number of years practicing as an NP was 9.4. Sixty percent (n=3) of participants identified as Caucasian, 20% (n=1) as Black, and 20% (n=1) as Hispanic. Settings included two oncology practices, two women's health practices, and one adult primary care practice.

Data Collection

A semi-structured interview questionnaire was used to collect data (see Table 1). The semi-structured interview questionnaire was developed by the authors guided by findings resulting from the literature review focusing on healthcare provider barriers and facilitators to cervical and breast screening practices for AA women, items found on the National Cancer Institute's (NCI, 2019) *National Survey of Primary Care Physicians' Recommendations & Practice for Breast, Cervical, Colorectal, & Lung Cancer Screening* (permission for adoption/adaption granted with citation), and Leininger's (2002) *Culture Care Theory*. Leininger's (2002) *Culture Care Theory* provided foundational and holistic grounding when creating the semi-structured interview questionnaire by helping the authors reflect on the importance of discovering and explaining diverse and universal cultural based care factors that influence the health and well-being of individuals and groups as well as the significance for using research findings to "…provide culturally congruent, safe, and meaningful care to clients of diverse or similar cultures" (p. 190).

Table 1

Semi-Structured Interview Questionnaire: Sample Questions

1. What published clinical guideline(s) for breast and cervical cancer screening do you currently follow, and why do you follow this organization as opposed to the others? Based on that guideline, how frequently do you personally screen or refer your patients for breast and cervical cancer screening?
2. Describe your stance on clinical breast exams for AA women. Do you perform them in your practice? Do you recommend that your patients do self-breast exams, and if so, how frequently do you recommend it is performed?
3. Tell me about your perceived level of proficiency when it comes to breast and cervical cancer screening and education for AA women.
4. Describe for me the information you provide to your patients concerning breast and cervical cancer screening, and how you present this information.
5. Do you think AA women are more likely to die from breast and cervical cancer? Why or why not?
6. Please explain why or why not you feel your current practice setting promotes or impedes your ability to screen AA women for breast and cervical cancer.
7. Please describe for me some common risks associated with breast and cervical cancer related to AA women.
8. Do you think AA women have a higher or lower incidence of breast/cervical cancer? Why or why not?
9. Do you think AA women are more or less likely to get their screening done? Why or why not?
10. Have you ever referred an AA woman who was at high risk for breast cancer for genetic testing? Why or Why not?
11. Explain to me your understanding of the term "medical mistrust." How do you think this term applies in the context of caring for AA women?
12. What resources are you aware of that you can provide to your female AA patients regarding information on breast and cervical cancer screening?
13. Does your EHR have a decision support feature that reminds you when patients are due for breast and cervical cancer screenings? If so, do you utilize this feature?
14. Do you discuss risk reduction and preventive measures for breast and cervical cancer with your AA patients? What are some of the topics you discuss?
15. How could you go about promoting positive health outcomes and increasing the screening rates for breast and cervical cancer for AA women?
16. What other factors do you feel impact the quality of care received by AA women and influences their breast and cervical cancer screening decisions?

Note. AA=African American; EHR=Electronic Health Record

Individual semi-structured interviews were conducted via a password protected Zoom video-conference meeting by author KB in a private and quiet location at the author's personal residence. Participants were free to choose a private and quiet location of their choice for the interview session. Participants were reminded that study participation was completely voluntary, that they could withdraw from study participation at any time without fear of penalty or reprisal, and that they had the right to refuse to answer any question asked of them. All participant questions were answered prior to interview session implementation and verbal consent was obtained. A scripted standardized introduction was read to all participants prior to interview session implementation. Interviews lasted approximately one hour and were audio-recorded, transcribed verbatim as de-identified by KB, and then were read and re-read by KB while listening to the audio recordings to ensure transcription accuracy, thoroughness, and quality (Braun et al., 2019). Data was stored as per the approved UB IRB protocol.

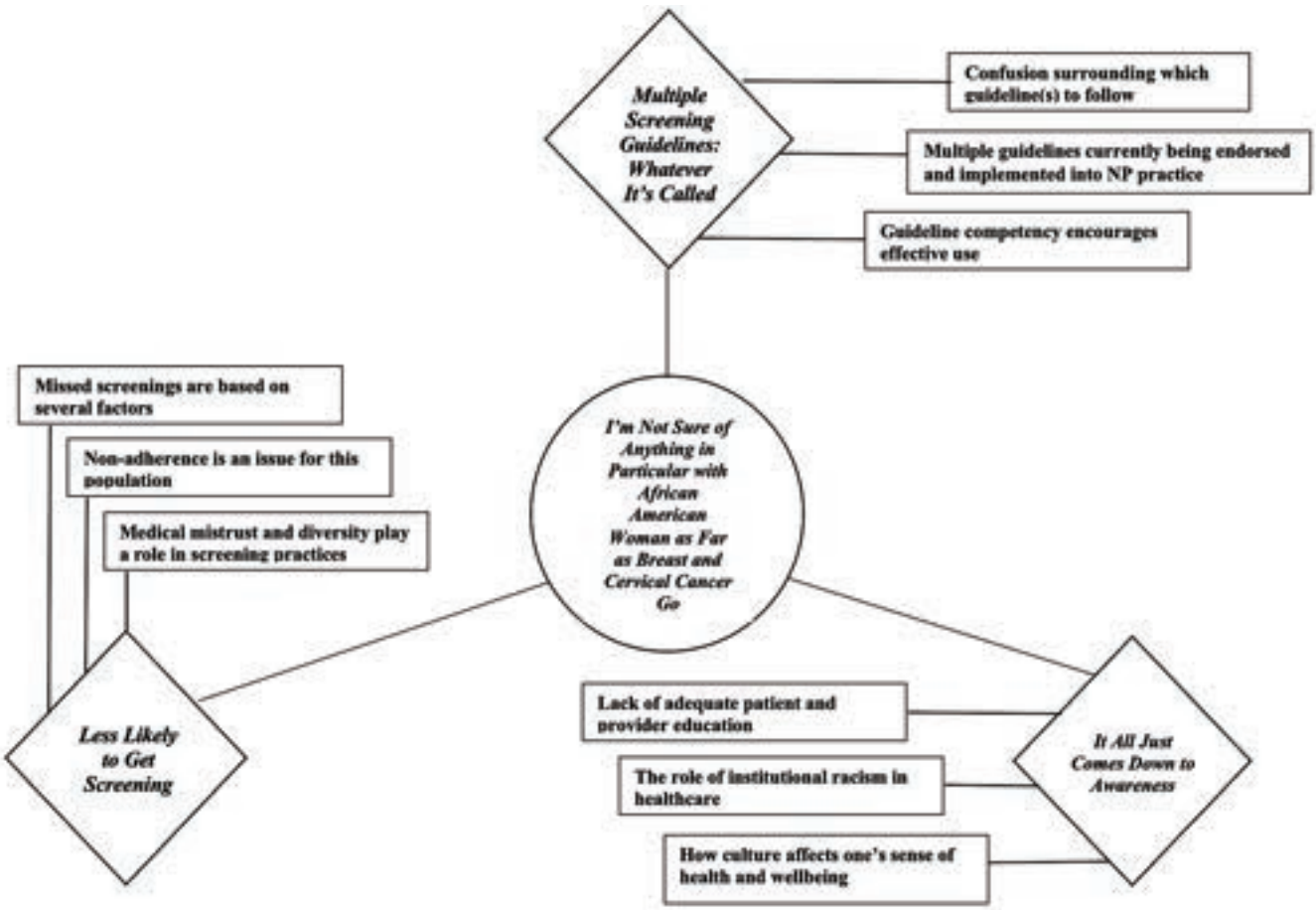
Data Analysis

Guided by an essentialist/realist framework, Braun and Clarke's reflexive thematic analysis method was utilized using an inductive or 'bottoms up approach' and use of semantic or explicit data driven codes identified in the dataset (Braun & Clarke, 2006; Braun et al., 2019). According to Braun and Clarke (2006), an essentialist/realist framework supports exploring the experiences, meanings, and reality of the participants in a straightforward manner. Braun and Clarke's reflexive thematic analysis consists of the following six iterative and recursive phases: 1) becoming connected with the dataset through data transcription, familiarization, and immersion; making casual notes and being thoughtful and curious when reading the dataset; 2) generating initial codes across the entire dataset and collating codes to succinctly and systematically identify meaning throughout the dataset; 3) generating candidate or prototype themes; 4) revising and defining candidate themes; producing an early thematic map illustrating theme and subtheme relationships; 5) revising, refining, and defining final themes and theme names so they comprehensively represent the scope and core of each theme and concisely capture what is meaningful in the data related to the research question; and 6) finalizing the data analysis by checking generated themes against the entire dataset to ensure that they remain close to the data, answer the research question, and tell the participant's story; writing up the final report and finalizing the thematic map (Braun & Clarke, 2006; Braun & Clarke, 2013; Braun et al., 2019).

According to Braun and Clarke (2019), practicing reflexivity is an essential component of the data collection, analysis, and reporting of findings process. Practicing reflexivity entails having each study team member reflect on how their role as a researcher and their personal and professional knowledge, experiences, and positioning may shape or inform the data collection and analysis process and writing the final report (Braun & Clarke, 2013; Braun et al., 2019). Throughout the duration of the study, while working both independently and together as a group, study team members practiced reflexivity. During the first two data analysis phases, study team members worked independently to document their initial notes and codes and then met on a weekly basis to discuss and revise codes and themes until final themes were generated, the final report was written, and the thematic map was finalized (Figure 1).

Figure 1

Thematic Map: Perceived Barriers and Facilitators of Breast and Cervical Cancer Screening for AA Women among NPs



Findings

One overarching theme, *I'm Not Sure of Anything in Particular with African American Women as Far as Breast and Cervical Cancer Go,* and three key themes, *Multiple Screening Guidelines: Whatever It's Called, It's a Little Bit Too Late...Less Likely to Get Screening Done,* and *It All Just Comes Down to Awareness,* were generated as a result of the analysis of data. The following presents the findings.

Overarching Theme:

I'm Not Sure of Anything in Particular with African American Women as Far as Breast and Cervical Cancer Go

The overarching theme captured the main idea threaded throughout the dataset and within the three key themes. Participant 2 voiced, "*… I'm not sure of anything in particular with AA women as far as breast and cervical cancer go. Um, that I don't know… I did not know that AA women had higher rates of that [breast and cervical cancer]…*" Several participants stated that they do not modify anything in their plan of care when treating and screening AA women for breast and cervical cancer. Participants commented, "*… I don't remember if there's anything specific to AA women that the risk factors are different… I don't think there's anything specific…No…[screening is not different for AA women]* (P3)"; *"I don't have anything different for African American women...*(P1)"; and *"I educate everybody... you got a cervix and you got breasts [sic] and you need to go get yourself checked"* (P2).

When asked about their breast and cervical screening practices and recommendations for AA women, all five participants stated that they base their practice and recommendations on personal experiences as a female receiving screening, on recommendations set forth by their chosen organizations, and that their screening practice was uniform for all women regardless of race or ethnicity. Participant 4 noted,

> *I guess I would say I would just go on myself…I would say all women should have, visit their GYN once a year and have a pap at least once every three years...I don't have a ton of knowledge about it...I think that being a female, I'm very aware of it [breast and cervical screening] um, so I think that is on my side versus a male colleague would be.*

Participant 5 stated, "So we, basically, we do everyone, not only just AA women, we just follow the guidelines for everyone, white, Hispanics." Finally, Participant 3 reflected,

> *Uh, I think they have a higher incidence [breast and cervical cancer]....I mean, when I think about it, I really don't know if I have a specific plan of care that would be specifically for African Americans...I mean, I guess I talk to, again about you know, general screening. Do I do it in a different way? I don't, which is, I guess I should maybe, you know, start focusing on you know, some higher risk situations they have but honestly, I don't think I do.*

Several participants acknowledged that the current state of health for AA women is not optimal and that there stands room to improve the health of this population. Participated 4 remarked, *"Um, I would say that it [current state of health for AA women] needs to be improved upon...So I would say not good and it could be improved upon"* and Participant 2 noted, *"It's [current state of health for AA women] not good. And the current state of this country unfortunately is making it harder for them to seek healthcare."*

Theme 1: Multiple Screening Guidelines: Whatever It's Called

Theme 1, *Multiple Screening Guidelines: Whatever It's Called,* captured the NPs' confusion as to which breast and cervical screening guidelines they should be following. Participant 4 expressed, *"Um, I guess I don't follow any in particular. I probably do the US, um, whatever it's called…"* and Participant 1 noted, *"It's AC…ACCC…I'm gonna [sic] cheat cause it's on my phone (laughing), it's ASCC something. It has the little, it gives you the algorithms, the ASCCP guidelines, the management and the screening guidelines because they are so confusing."*

When participants were asked to identify what screening guidelines for breast and cervical cancer they used in practice, their answers revealed that the following multiple screening guidelines were being followed: American Cancer Society (ACS), American Society for Colposcopy and Cervical Pathology (ASCCP), American College of Obstetricians and Gynecologists (ACOG), U.S. Preventive Services Task Force (USPSTF), the American Academy of Family Physicians (AAFP), and an institution specific guideline. The USPSTF was cited as the most frequently followed guideline. All five participants discussed the importance of staying updated on current guidelines to promote best screening practices for their patients, regardless of the guideline followed. When asked how proficiency could be maintained regarding cervical and breast cancer screening, Participant 4 remarked, *"I think I could brush up on my guidelines, of course...I think that would be something good to do in every aspect."*

Theme 2: It's a Little Bit Too Late...Less Likely to Get Screening Done

Theme 2, *It's a Little Bit Too Late... Less Likely to Get Screening Done,* captured the participants' belief that AA women are less likely to get their cervical and breast cancer screenings done. Participant 5 stated, *"There's a fair amount of them [AA women] that they don't come in at all and when they come in, it's a little bit too late... Less likely to get screening done."* All five participants reported that although most of their AA patients get their breast and cervical cancer screenings done on a regular basis, many AA women miss screenings due to a lack of healthcare provider diversity and AA representation, medical mistrust, and non-adherence. With regard to the lack of provider diversity and AA representation, Participant 1, the only AA participant, reflected,

> *…'cause [sic] usually myself, I'm the only brown face that I see at my job every day…I think it depends on presentation, um, and, representation. The few AA female patients that I have do all of their screenings. And this is where like I feel representation plays a role because they see a black face telling them that this is important and that they should do it, and they go do it....I think that if there was better representation…AA women would definitely get their screenings and that they probably don't at the level they should because they're not 1., going to the office to get any screening and 2., there's not enough, um, black and brown faces out there. There's just not enough representation.*

Regarding medical mistrust, Participant 1's response was the only response that focused on why AA women may distrust their providers:

Medical mistrust...I think they're [AA women] certainly prone to it. Um, just they don't think they need screening, they don't trust what they read on the internet, they don't trust their doctor, um...I think it's hard to find a doctor you completely trust…You just have to find somebody you like.

Several participants either never heard of medical mistrust or incorrectly described medical mistrust. Participant 3 remarked,

Um, I never heard that term before, but it sounds very interesting…when they come in for a visit, they are coming in with a whole history of mistrust from other clinics...I guess that's what it would be is mistrust from…not being taken seriously, not having their problems addressed.

Participant 5 expressed,

Not trusting the care? Not trusting the...yeah, I guess the care? Not believing it...I'm sure there is a lot of patients [AA women] out there who do not trust, do not believe. They think that you know, nothing is going to happen or sometimes they just don't believe the system or you know, don't wanna [sic] come to the doctor as well because there is yeah, exactly, no trust in anybody. Yeah, I'm sure it plays a big role.

Screening non-adherence was another issue identified by all five participants as a breast and cervical cancer screening barrier among AA women. Factors contributing to screening non-adherence among AA women was described by participants as lack of transportation, trouble getting time off from work, limited access to childcare, misplacing their prescription, and not making an appointment. Two participants commented, *"I would say transportation, getting time off work, and actually and uh, child care [factors influencing care]"* (P3) and *"That's because they never went so where they misplaced their prescription, where they didn't make the appointment, they didn't have any time or you know for multiple reasons I find that that's you know, goes into the cracks sometimes, just to get the mammogram"* (P5).

Theme 3: It All Just Comes Down to Awareness

The final theme, theme 3, *It All Just Comes Down to Awareness,* captured the participants' perceptions of how the health of AA women could be improved on including how to increase their breast and cervical cancer screening rates. Participant 1 simply stated, *"Um, I think it all just comes down to awareness."* According to all five participants, breast and cervical cancer screening awareness encompassed the need for community outreach, use of smart phones and social media to promote screenings, improved patient education, acknowledging one's own implicit biases, understanding institutional racism and the role it may play in shaping healthcare outcomes for AA women, implementing shared decision making in the workplace, fostering a sense of healthcare provider trust and approachability, and recognizing the important role both faith and religion play in the lives of AA women. With regard to the need for community outreach, Participant 1 spoke about the cultural importance that word of mouth plays in AA communities as well as the need to constantly remind AA women to get their screening done, commenting,

…when you do something ad nauseum…so maybe if we were overkill with awareness. Like maybe if there were commercials, if there were big hospitals in rural communities that went out and just went into the community, if people got so sick of hearing about 'Oh, I need to get my pap smear', 'Okay, ugh, I gotta [sic] go get my mammo [sic], oh God.' Like if they were put to the point where they were just sick of hearing about it, they would do it.

Most participants acknowledged having awareness of their implicit bias and how their biases impact the care they provide to patients. Participant 2 remarked,

....as much as I would like to sit here and say I don't have any [biases], that would be a lie because everyone has biases. I mean whether or not I think it's how we overcome our own biases and you know, we deal with it, makes us a practitioner...

Participant 3 reflected,

I almost feel like I get a little protective of my AA patients just because I feel like I don't know if they know how bad, you know, the prejudice is out there....I don't know if they really know...I'm sure they do but you know, these are my friends. So, I feel a little bit protective when I see my AA patients come in.

Participants had general knowledge regarding what institutional racism is but did not substantially understand its impact on their AA female patient population. Participant 2 stated, *"You mean where Black people are treated like second class citizens just because of their color of their skin? [Chuckles]. It's still prevalent even though it's 2020. It sucks, but it's still there..."* Participant 3 noted,

I wonder if patients really know how bad it [institutional racism] is 'cause [sic] I don't think they know. And it's just uh, and it's not something that's overt, it can be kind of under the radar, um, but I think it's just insidiously injected into everything.

Among all five participants, there was awareness of the need to be open, approachable, nonjudgmental, and honest to help foster trusting and constructive therapeutic partnerships with their AA patients. Participant 2 commented, "I try to...look approachable, I try to be approachable. I try to keep my mouth shut. I try not to judge" and Participant 4 noted,

I feel like I try to be, have a good relationship with my patients, you know I see them frequently so I, they know me by name and we talk all the time so I just try to be honest and I feel like that's the best way in healthcare is to be honest.

Finally, all five participants identified the important role that both faith and religion play in the lives of their AA female patients and how they help support promoting a deeper patient-provider connection. For the sake of building rapport and cultivating therapeutic and trusting patient-provider relationships, participants stated that they were comfortable praying with their AA patients, even if were not personally religious. Participant 5 remarked, *"It's [prayer] cultural. So, you know, something they believe and they*

feel more comfortable with and if you believe it then sometimes that helps. And it will make you feel more comfortable. That's fine, yeah" and Participant 3 reflected,

> *Oh! We've done that a few times. Yeah, I feel fine...I find that a lot of my AA patients are very faith-based. And you have, um, not that you have to, but if you're open to it as a provider, to talk to them on that level you know is, uh, it gives you that bond, it gives you that patient interaction. That deeper patient interaction.*

Discussion

Throughout the entire interview process, all five NPs frequently commented that they learned something from participating in this study. Study findings revealed that although the NPs felt proficient in their care of AA women and the quality of their interactions with this population, they identified gaps in their clinical knowledge regarding utilizing available breast and cervical screening guidelines and protocols. Many participants felt inspired to write topics down that were being discussed during their interview for further personal reflection, stating that they were going to ask their specific organization and/or workplace why certain measures for promoting positive patient outcomes regarding breast and cervical screening for AA women were not in place.

Several participants stated that they do not modify anything in their plan of care when treating and screening AA women for breast and cervical cancer, that their breast and cervical cancer screening practice was uniform for all women regardless of race or ethnicity, and that they based their approach to care for AA women on personal experiences as a female receiving screening and/or on recommendations set forth by their workplace. All five participants admitted confusion as to which breast and cervical screening guidelines they should be following and had a difficult time verbalizing how the ethnicity and cultural beliefs and values of their AA patients could be incorporated into their plan of care and breast and cervical screening recommendations and practices. Current research is needed focusing on how to improve culturally sensitive and appropriate breast and cervical cancer screening guidelines, recommendations, and practices for NPs caring for AA women (Haddad & Sweeting, 2017; Kidd et al., 2015; Viens et al., 2017). To reduce confusion, further research is also needed examining and exploring best evidence-based approaches that can be implemented to foster and improve collaboration between NPs and their female AA patients to increase breast and cervical screenings and promote individualized patient-centered care (Haddad & Sweeting, 2017; Kidd et al., 2015).

Many AA individuals experience stigma, fear, socioeconomic and political disparities, and structural racism which have negatively impacted their health outcomes, quality of life, overall standard of living, and trust in the current healthcare system (ACS, 2019a; Bellinger et al., 2015; Gibson et al., 2019; Newman & Kaljee, 2017). According to Penner et al. (2016), patients will be suspicious of a system when they do not trust it. When healthcare providers express genuine interest and empathy with their patients, patients report feeling a sense of trust and comfort with the provider-patient interaction and relationship (Torres et al., 2016; Bellinger et al., 2015; Haas et al., 2016; Samuel et al., 2018). Although many AA women rely on the expertise and opinion of their NP and/or healthcare provider to make decisions about their health care and routine screening practices, a level of medical mistrust continues to exist stemming from a long history of discrimination, racism, poor treatment, and socioeconomic and political disparities (Bellinger et al., 2015; Gibson et al., 2019; Head et al., 2017; Molina et al., 2015; Torres et al., 2016). Participants in this study acknowledged that the current state of health for AA women remains sub-optimal and deficient. To improve the health of this population, all participants recognized that a critical need exists for NPs to acknowledge their existing biases, to be educated about the root causes of medical mistrust, the existing fear and stigma among African Americans resulting from historical health care inequities and inequalities, and for NPs to promote AA representation both in their profession as well as in other health related disciplines. Among all five participants, there was awareness of the need to be open, approachable, nonjudgmental, and honest with their AA patients to help foster trusting and constructive therapeutic partnerships that emphasize empowerment, self-efficacy, and informed decision making while staying current on screening protocols, guidelines, and recommendations.

Finally, screening non-adherence was identified by all five participants as a breast and cervical cancer screening barrier among AA women. Interestingly, this discovery contradicted findings resulting from the literature review which indicated that AA women tend to have better breast and cervical screening rates than their counterparts. Factors identified as contributing to screening non-adherence among AA women were described by participants as lack of transportation, trouble getting time off from work, limited access to childcare, misplacing their prescription, and not making an appointment. Participants' perceptions of how breast and cervical cancer screening non-adherence could be improved included better community outreach, use of smartphones, use of social media platforms to promote screenings, and improved approaches to patient-provider education. Regarding the need for community outreach, Participant 1 specifically spoke about how word of mouth plays an important role for promoting breast and cervical cancer screening rates among AA women.

Study Strengths and Limitations

A strength of this qualitative descriptive study was use of semi-structured individual interviews to gain insight into breast and cervical cancer screening barriers for AA women among NPs working with this vulnerable population. Despite the small sample size, rich data resulted from the interviews. Findings resulting from this study strongly support the critical need for more research exploring and examining NP awareness of barriers to breast and cervical cancer screening among AA women as well as research exploring and examining breast and cervical screening facilitators and barriers from the voices of AA women themselves. A major study limitation was that this study was conducted during the 2020 Covid-19 pandemic. The pandemic may have contributed to the reason that only five NPs volunteered to participate. Many participants discussed how practicing during the pandemic greatly impacted their care and their patients' perceptions of seeking healthcare. Study limitations also included

use of convenience sampling, recruiting participants from only one school of nursing Listserv, a limited time frame for collecting data, the inability to generalize study findings due to the small sample size, and risk of participant bias due to the reporting of personal practice habits which may have been altered regarding true practice approaches. Further research should take place using mixed-methods approaches and larger sample sizes to advance evidence-based knowledge and understanding regarding care and breast and cervical cancer screening practices for AA women among NPs.

Conclusion and Recommendations

This study was timely in that it was conducted during a time in this country where there has been great movement and action regarding the need to address and bring more awareness to the importance of diversity and inclusion. Previous research supports that many AA patients prefer to work with healthcare providers that they can trust and relate to, especially providers 'who look like me'. This necessitates and supports the need for more diversity in the NP workforce (Penner et al., 2016). NPs strive towards positively impacting healthcare and improving health outcomes for their patient populations. As a critical first step toward change, advanced nursing degree programs need to actively work toward cultivating an ethnically diverse workforce that reflects and represents individuals from all walks of life. NPs, as well as other healthcare providers, need to be educated on culturally specific barriers and risk factors for AA women concerning breast and cervical cancer. Additionally, NPs and other healthcare providers need to be aware of the role HPV screening and prevention through vaccination plays in cervical cancer in order to adequately educate their patients. This topic was only briefly touched upon in the present study. NPs are in a unique position to guide AA women in their education and decision-making processes regarding breast and cervical cancer screening and prevention. To advocate and promote best care and practice, NPs need to be educated and well-versed on how to provide culturally appropriate and sensitive care to diverse patient populations.

Finally, to promote and support optimal health and well-being for AA women, future breast and cervical cancer screening guidelines and recommendations need to take ethnicity and cultural beliefs, practices, and values into consideration when making recommendations. It is known that AA women have unique cancer risk factors and that breast and cervical screening efforts need to take place at an earlier age than what is currently recommended. To the authors' knowledge, there are no screening guidelines available that are specifically tailored to the needs of AA women. Currently, the World Health Organization (WHO, 2021) recommends initiating cervical cancer screening at age 30 with a frequency of every 5-10 years when HPV DNA detection is used. This varies from guidelines and recommendations presently available in the U.S., further exemplifying differences in what is considered to be best practice. To reduce confusion among NPs and other healthcare providers caring for AA women, standardization of breast and cervical cancer recommendations and guidelines among professional issuing organizations is needed. Additionally, further research is needed exploring if a tailored breast and cervical cancer screening protocol would improve morbidity and mortality rates among AA women. It is the authors' sincere hope that the knowledge and insight gained from findings of this study encourage and promote future evidence-based work and research aimed at improving the quality of health care provided to AA women to promote their quality of life.

References

American Association of Nurse Practitioners. (2021). *NP facts.* https://storage.aanp.org/www/documents/NPFacts—052721.pdf

American Cancer Society. (2019a). *Cancer facts & figures for African Americans 2019-2021.* https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-facts-and-figures-for-african-americans/cancer-facts-and-figures-for-african-americans-2019-2021.pdf

American Cancer Society. (2019b). *Breast cancer facts & figures 2019-2020.* https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breast-cancer-facts-and-figures-2019-2020.pdf

Belgrave, F., & Abrams, J. (2016). Reducing disparities and achieving equity in African American women's health. *The American Psychologist, 71*(8), 723–733. https://doi.org/10.1037/amp0000081

Bellinger, J. D., Millegan, W., & Abdalla, A. E. (2015). "I'm not ashamed to talk on it!": African-American women's decisions about cervical cancer prevention and control in South Carolina. *Women's Health Issues, 25*(2), 120-127. https://doi.org/10.1016/j.whi.2014.10.006

Bradshaw, C., Atkinson, S., & Doody, O. (2017). Employing a qualitative description approach in health care research. *Global Qualitative Research, 4*, 1-8. https://doi.org/10.1177/2333393617742282

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners.* Sage Publications.

Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic Analysis. In P. Liamputtong (Ed.), *Handbook of research methods in health social sciences* (pp. 843-860). Springer.

Ford, S., Tarraf, W., Williams, K. P., Roman, L. A., & Leach, R. (2021). Differences in cervical cancer screening and follow-up for black and white women in the United States. *Gynecologic Oncology, 160*(2), 369–374. https://doi.org/10.1016/j.ygyno.2020.11.027

Gibson, E. G., Gage, J. C., Castle, P. E., & Scarinci, I. C. (2019). Perceived susceptibility to cervical cancer among African American women in the Mississippi Delta: Does adherence to screening matter? *Women's Health Issues, 29*(1), 38-47. https://doi.org/10.1016/j.whi.2018.09.006

Haas, J. S., Sprague, B. L., Klabunde, C. N., Tosteson, A. N. A., Chen, J. S., Bitton, A., Beaber, E. F., Onega, T., Kim, J. J., MacLean, C. D., Harris, K., Yamartino, P., Howe, K., Pearson, L., Feldman, S., Brawarsky, P., & Schapira, M. M. (2016). Provider attitudes and screening practices following changes in breast and cervical cancer screening guidelines. *Journal*

of General Internal Medicine, 31(1), 52–59. https://doi.org/10.1007/s11606-015-3449-5

Haddad, D., & Sweeting, R. (2017). Black women should NOT change breast cancer screening behaviors based on new guidelines. *Preventive Medicine, 105*, 95–96. https://doi.org/10.1016/j.ypmed.2017.07.031

Head, K. J., Imburgia, T. M., Zimet, G. D., & Shew, M. L. (2017). Women's understanding of their Pap and HPV test results: Implications for patient–provider communication. *Journal of Communication in Healthcare, 10*(1), 37-46. https://doi.org/10.1080/17538068.2017.1282085

Kidd, A. D., Colbert, A. M., & Jatoi, I. (2015). Mammography: Review of the controversy, health disparities, and impact on young African American women. *Clinical Journal of Oncology Nursing, 19*(3), E52-58. https://doi.org/10.1188/15.CJON.370-372

Leininger, M. (2002). Culture Care Theory: A major contribution to advance transcultural nursing knowledge and practices. *Journal of Transcultural Nursing, 13*(3), 189-192. https://doi.org/10.1177/10459602013003005

MacLaughlin, K. L., Jacobson, R. M., Radecki Breitkopf, C., Wilson, P. M., Jacobson, D. J., Fan, C., St. Sauver, J. L., & Rutten, L. J. F. (2019). Trends over time in Pap and Pap-HPV cotesting for cervical cancer screening. *Journal of Women's Health, 28*(2), 244–249. https://doi.org/10.1089/jwh.2018.7380

Molina, Y., Kim, S., Berrios, N., & Calhoun, E. A. (2015). Medical mistrust and patient satisfaction with mammography: The mediating effects of perceived self-efficacy among navigated African American women. *Health Expectations, 18*(6), 2941-2950. https://doi.org/10.1111/hex.12278

National Cancer Institute. (2019). *National survey of primary care physicians' recommendations & practice for breast, cervical, colorectal, & lung cancer screening.* https://healthcaredelivery.cancer.gov/screening_rp/

National Cancer Institute. (2021a, July). *Breast cancer screening: Cancer trends progress report.* https://progressreport.cancer.gov/detection/breast_cancer

National Cancer Institute. (2021b, July). *Cervical cancer screening: Cancer trends progress report.* https://progressreport.cancer.gov/detection/cervical_cancer

National Cancer Institute Surveillance, Epidemiology, and End Results Program. (n.d.). *Cancer stat facts: Cervical cancer.* https://seer.cancer.gov/statfacts/html/cervix.html

Newman, L. A., & Kaljee, L. M. (2017). Health disparities and triple-negative breast cancer in African American women: A review. *JAMA surgery, 152*(5), 485-493. https://doi.org/10.1001/jamasurg.2017.0005

Office of Disease Prevention and Health Promotion. (2021). *Disparities details by race and ethnicity for 2018.* Healthy People. https://www.healthypeople.gov/2020/data/disparities/detail/Chart/4055/3/2018

Penner, L. A., Dovidio, J. F., Hagiwara, N., Foster, T., Albrecht, T. L., Chapman, R. A., & Eggly, S. (2016). An analysis of race-related attitudes and beliefs in black cancer patients: Implications for health care disparities. *Journal of Health Care for the Poor and Underserved, 27*(3), 1503-1520. https://doi.org/10.1353/hpu.2016.0115

Perks, J., Algoso, M., & Peters, K. (2018). Nurse practitioner (NP) led care: Cervical screening practices and experiences of women attending a women's health centre. *Collegian, 25*(5), 493-499. https://doi.org/10.1016/j.colegn.2017.12.007

Radhakrishnan, A., Nowak, S. A., Parker, A. M., Visvanathan, K., & Pollack, C. E. (2017). Physician breast cancer screening recommendations following guideline changes: Results of a national survey. *JAMA Internal Medicine, 177*(6), 877-878. https://doi.org/10.1001/jamainternmed.2017.0453

Rodriguez, E. M., Jandorf, L., Devonish, J. A., Saad-Harfouche, F.G., Clark, N., Johnson, D., Stewart, A., Widman, C. A., & Erwin, D. O. (2020). Translating new science into the community to promote opportunities for breast and cervical cancer prevention among African American women. *Health Expectations, 23*(2), 337-347. https://doi.org/10.1111/hex.12985

Samuel, C. A., Schaal, J., Robertson, L., Kollie, J., Baker, S., Black, K., Mbah, O., Dixon, C., Ellis, K., Eng, E., Guerrab, F., Jones, N., Kotey, A., Morse, C., Taylor, J., Whitt, V., & Cykert, S. (2018). Racial differences in symptom management experiences during breast cancer treatment. *Supportive Care in Cancer, 26*(5), 1425-1435. https://doi.org/10.1007/s00520-017-3965-4

Siegel, R., Ma, J., Zou, Z., & Jemal, A. (2014). Cancer statistics. *CA: A Cancer Journal for Clinicians, 64*(1), 9-29. https://doi.org/10.3322/caac.21208

Strohl, A. E., Mendoza, G., Ghant, M. S., Cameron, K. A., Simon, M. A., Schink, J. C., & Marsh, E. E. (2015). Barriers to prevention: Knowledge of HPV, cervical cancer, and HPV vaccinations among African American women. *American Journal of Obstetrics and Gynecology, 212*(1), 65.e1–65.e5. https://doi.org/10.1016/j.ajog.2014.06.059

Thompson, T., Pérez, M., Kreuter, M., Margenthaler, J., Colditz, G., & Jeffe, D. B. (2017). Perceived social support in African American breast cancer patients: Predictors and effects. *Social Science & Medicine, 192*, 134–142. https://doi.org/10.1016/j.socscimed.2017.09.035

Torres, E., Dixon, C., & Richman, A. (2016). Understanding the breast cancer experience of survivors: A qualitative study of African American women in rural eastern North Carolina. *Journal of Cancer Education, 31*(1), 198-206. https://doi.org/10.1007/s13187-015-0833-0

Viens, L., Perin, D., Senkomago, V., Neri, A., & Saraiya, M. (2017). Questions about cervical and breast cancer screening knowledge, practice, and outcomes: A review of demographic and health surveys. *Journal of Women's Health, 26*(5), 43–412. https://doi.org/10.1089/jwh.2017.6441

World Health Organization. (2021). *WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention* (2nd ed.). World Health Organization.

Zug, K. E., & Grube, W. D. (2017, August 9). Expanding the NP role in the cervical cancer prevention triad: Screening, diagnosis, and treatment. *Women's Healthcare: A Clinical Journal for NPs*. https://www.npwomenshealthcare.com/expanding-the-np-role-in-the-cervical-cancer-prevention-triad-screening-diagnosis-and-treatment

ORIGINAL RESEARCH

Mindfulness-Based Relapse Prevention as a Health Promotion Tool for Substance Use Disorders in Adults

Anne Bartone[1] & Rosemarie Van Patten[2]

Tompkins County Mental Health[1]
Siena College[2]
***Corresponding Author:** Anne Bartone, Tompkins County Mental Health, Ithaca, NY, USA.
Email: abartone@tompkins-co.org
https://doi.org/10.47988/janany.23103123.2.1

Abstract

Background: Substance-use disorders (SUDs) are a prevalent and destructive public health issue. Therefore, tools aimed at reducing/preventing relapse are critical in promoting positive health outcomes. **Objective and/or Significance of the Study:** Mindfulness-based interventions show promising results for a variety of issues/clientele, including adults with SUDs. One that is showing feasibility and efficacy in reducing/preventing relapse, thereby promoting well-being, is Mindfulness-Based Relapse Prevention (MBRP). **Methodology:** In addition to a literature review, this paper addresses role-specific information related to MBRP for SUDs. The six functional sub-roles include expert clinician, educator, counselor, collaborator, consultant, and researcher. **Results:** Nurses at all levels can utilize the techniques associated with this approach in their work with substance use disordered patients to help them stay in the present moment and be less impulsive when faced with triggers. **Conclusion and Recommendations:** MBRP for SUDs is considered one of the "third wave" interventions, has empirical support, and can be utilized after several weeks of training and practicing the techniques with ongoing supervision concordant to the patient. As an expert clinician, educator, counselor, collaborator, consultant, or researcher, nurses can promote MBRP as one of the methods shown to be effective when working with a SUD population.

Keywords: Substance-Use Disorders, Mindfulness-Based Relapse Prevention, Nurses, Treatment

Funding: The authors did not receive funding from the public, commercial, or not-for-profit sectors.

Conflict of Interest: The authors declare no actual or potential conflict of interest.

Date Submitted: August 26, 2021 Date Accepted October 16, 2021 Date Published Electronically: February 1, 2022

Mindfulness-Based Relapse Prevention as a Health Promotion Tool for Substance Use Disorders in Adults

For thousands of years, the Buddhist tradition has used a practice called "mindfulness" to help alter negative behaviors and alleviate psychological suffering. Mindfulness is defined as "an intentional direction of attention toward experiences as they arise in the present moment, characterized by a non-judgmental, open receptivity toward all phenomena" (Bowen & Enkema, 2014, p. 1). Through this practice, one is an observer, becoming aware of one's thoughts, sensations, and the physical environment. Instead of reacting to, numbing, or trying to escape these stimuli, individuals learn to "stay with" their discomfort and instead choose their response (Bowen, Chawla, & Witkiewitz, 2014).

Mindfulness-based tools show promising results for a variety of issues/clientele, including adults with substance-use disorders (SUDs) (Bowen & Enkema 2014; Mumba et al., 2018). Evidence suggests that such practices may change brain function and thought processes in a way that mitigates the potential for relapse (Li et al., 2017). One that has shown to be feasible and efficacious when used for SUDs is Mindfulness-Based Relapse Prevention (MBRP).

MBRP is a manual-based protocol that incorporates three already established evidence-based practices, including formal Mindfulness, Motivational Interviewing, and Cognitive Therapy (Li et al., 2017). Through the integration of these approaches, there is a decreased risk of relapse and an increased chance of long-term sobriety. MBRP is generally eight weeks in length, with patients engaging in 2-hour group sessions each week. Patients are led in meditation practices (with different weekly themes) and taught healthier responses to substance use cravings and/or withdrawal. MBRP can be used to complement existing interventions or as a stand-alone tool (Grant et al., 2017).

Substances continue to be misused in the United States, which has resulted in a major health crisis. In particular, opioid misuse has led to increased numbers of unintentional fatal overdoses (Jones et al., 2020). As a society, we are in desperate need of effective tools promoting health that connect the mind, body, and spirit "and unity in health as well as the ability of humans to intentionally practice self-healing and participate in healing others and society" (American Holistic Nurses Association [AHNA], 2016, p. 1). Based on the most recent literature, the purpose of this paper is to explore the utility of MBRP in reducing/preventing substance-use relapse among adults to promote improved health. The utilization of MBRP is also examined through six functional sub-roles of nurses (expert clinician, educator, counselor, collaborator, consultant, and researcher). Role-specific information related to evidence-based practice, clinical judgement, interpersonal communication, intervention across levels of prevention, cultural competency, advocacy, quality assurance, and application of research are addressed.

Health Promotion Issue

Approximately 22.6 million Americans have a SUD (Witkiewitz et al., 2014). Research shows that in 2013, 9.4% of Americans 12 years of age or older (24.6 million) were using illegal drugs (Li et al., 2017). Additionally, 25% of Americans 12 years of age or older (60.1 million) were considered binge drinkers, having 5 or more alcoholic drinks in one sitting (Li et al., 2017). Only a small percent of these individuals seek intervention (Bowen et al., 2014). Even if they decide to seek help, outcomes are unsatisfactory, with up to 60% relapse rates within a year (Li et al., 2017). Beyond these alarming statistics, SUDs have serious consequences, both personally (e.g., loss of family/jobs, associated medical/mental-health issues) and on society, e.g., economic burden and related crime (Bowen & Enkema, 2014, Grant et al., 2017, & Li et al., 2017). Because of this, additional supports must be accessible to help lessen the impact of this crisis (Grant et al., 2017). Health promotion interventions have always been a focus of the nursing discipline. With that said, there has been historically less attention paid, by way of research, practice, and policies, to those health promotion interventions that specifically relate to mental health (Calloway, 2007; Svedberg, 2011).

Methodology

This clinically based analysis is focused on best clinical practice and the articles were reviewed in-depth to provide support. While a systematic review was not completed, a critical analysis revealed a significant amount of literature focusing on mindfulness-based interventions for SUDs, namely MBRP. The referenced studies were published between 2008 and 2014 and were qualitative, quantitative, mixed-method, or systematic reviews. In addition, the authors addressed role-specific information related to MBRP for SUDs. The six functional sub-roles discussed include expert clinician, educator, counselor, collaborator, consultant, and researcher. This helps to identify the significance of each role in treating individuals suffering from SUD.

Theoretical Frameworks

One nursing theory that aligns with the focus of this paper and supports holistic practice is the *Theory of Human Relatedness,* which is based on the "various states of connectedness and disconnectedness" individuals have with the self, others, society, and the environment (Hagerty et al., 1993, p. 291). Any interruption to relatedness can result in biological, psychological, and social disorders. Strobbe et al. (2012) apply the *Theory of Human Relatedness* to alcoholism and recovery. According to Strobbe et al. (2012), during active alcoholism (or any active addiction), an individual's involvement with a substance or enmeshment [one of the four states of relatedness] can hinder [healthy] relatedness with the self, others, society, and the environment. Participation in MBRP can help provide a sense of belonging, reciprocity, mutuality, and synchrony.

A second relevant nursing theory is Martha E. Rogers' *Theory of Unitary Human Beings*. According to White (1993), Rogers' theory is based on the premise that a person is unitary and not merely the sum of their parts. The unitary human seeks self-actualization where changes and experiences in life are "recorded in our minds through feelings" (p. 124). As such,

recovery that focuses on feelings enables a gateway to freedom from the torment associated with addiction. This perspective is also supported by a long-standing belief that people addicted to substances are not as addicted to the substance itself but the feelings associated with use. Because individuals with addiction issues are closely connected to the environment of their origin, the environment itself becomes one of the focal points of treatment. Based on Rogers' theory, Compton (1989) proposes that while nurses cannot change the patterns of substance users per se, they can become both significant and supportive "growth-promoting" components of their environmental field through mentorship and guidance toward health and healing (p. 104).

Review of the Literature

Rigorous studies have been conducted showing the feasibility and efficacy of MBRP as a tool to prevent continued addictive behaviors since it was first developed in 2010 at the University of Washington. The following review offers a sample of the most recent and robust studies available in the literature.

Bowen et al. (2014) conducted a randomized control trial between 2009 to 2012 comparing MBRP, standard relapse prevention (RP), and treatment as usual (TAU) at a chemical dependency facility. A total of 286 participants (aged 18 and older) were included and followed for twelve months. Participants randomly assigned to the MBRP group engaged in the standard 2-hour sessions for eight weeks. Each week focused on a different theme. Participants were taught how to become more aware of their emotional, physical, and cognitive functions, practiced mindfulness in the face of triggers and learned to become aware of the thoughts associated with relapse, compassion, self-care, balance, and support. Guided meditation, daily mood and cravings monitoring, and out-of-session assignments were also incorporated. The TAU group engaged in an abstinence-based 12-step program (Alcoholics Anonymous/Narcotics Anonymous). Participants met 1 to 2 times per week for 1.5 hours. Sessions were open-group and included topics like stress management, communication, and recovery. In the RP group, participants worked on coping skills, goal setting, problem-solving, social support, and self-efficacy. Similar to the MBRP group, participants in TAU and RP were asked to monitor their moods and cravings daily.

Results showed that compared to TAU, the risk of relapse to heavy drinking was decreased by 59%, and the risk of relapse to drug use was reduced by 54% with MBRP and RP. MBRP and RP participants also had 31% fewer heavy drinking days than TAU participants. Although there were no significant differences between MBRP and RP participants at the six-month follow-up, MBRP participants showed a significantly lower probability of engaging in heavy drinking and 31% decreased drug use compared to the RP participants at the twelve-month mark. This points to the enduring effects of MBRP as a health promotion tool. Limitations include differences between TAU and the MBRP and RP programs [e.g., lack of homework or therapist training in TAU], self-reporting biases, and shortage of urinalysis data.

Witkiewitz et al. (2014) also conducted a randomized control trial for substance use at a women's residential treatment facility. A total of 105 women were referred from the criminal justice system after they were detoxed and stable. For the inpatient portion, participants were randomly assigned to either MBRP or RP groups for eight weeks. For the women taking part in the MBRP group, sessions included guided meditation, exercises using mindfulness-based skills for real-life situations, and discussion. Homework was given and completed. Conversely, the RP group focused on skills-based learning, including balancing one's lifestyle, managing substance use cravings, and recognizing situations that may lead to relapse. Based on a sample of 6 participants, at the fifteen-week follow-up, 5 participants from the RP group had an average of 2.6 days of drug use while the 1 participant from the MBRP group had only 1 day of drug use. In addition to fewer days of drug use, the MBRP group also reported fewer legal and medical problems. This provides some support for the effectiveness of MBRP as a tool in preventing relapse.

Grant et al. (2017) conducted a systematic review and meta-analysis to determine the effectiveness of MBRP for SUDs. Trial registries from the World Health Organization and the National Institutes of Health, databases (PsycINFO and Allied and Complementary Medicine), reference lists from included studies, and prior studies were all used to collect material for this project. Grant et al. (2017) set substance use relapse rates, craving/withdrawal symptoms, amount and duration of substance use, treatment dropout rates, negative impact from substance use, feelings of depression and/or anxiety, and quality of life as components needed for inclusion in this study. After an extensive search, 9 randomized controlled trials met the criteria. A total of 7 took place in a substance abuse outpatient care setting, 1 in a residential treatment center, and the other in a prison.

Participants were primarily male (72%), with a median age of 39, and had abused various substances, including cocaine, alcohol, opioids, methamphetamines, and marijuana. Sessions followed the MBRP manual, such as guided meditation, learning and practicing skills to avoid relapse, daily mood and craving tracking sheets, and homework. Results showed no significant differences on average between MBRP and RP, TAU, Cognitive behavioral therapy (CBT), and health education focused substance use relapse in terms of frequency and quantity of use, feelings of anxiety or depression, mindfulness, and treatment dropout rates. MBRP showed a positive clinical effect related to cravings and withdrawal symptoms overall. There was also a medium positive clinical effect on the quality of life among the MBRP group participants. In patients with stimulant use disorder, indirect evidence showed that MBRP significantly decreased symptoms of depression. There were significant reductions in cravings and withdrawal symptoms in patients with an alcohol use disorder using MBRP. While differences did not specifically reduce relapse rates, improved quality of life, decreased symptoms of depression, and fewer cravings and withdrawal symptoms are supportive factors needed to achieve lasting sobriety.

Next, Hammerstein et al. (2019) piloted a prospective observational study focused on adult patients who participated in an eight-week MBRP program on an outpatient basis for alcohol use disorder. The program lasted for eight weeks and included 2-hour sessions weekly. Sessions included both mindfulness meditation exercises and elements from the Cognitive-Behavioral Therapy-Based Relapse Prevention intervention. The overall goal

of the MBRP program was to increase the level of mindfulness and help patients learn to manage their alcohol cravings. Data were collected at baseline, three months, and six months using several measures, including the Alcohol Time Line Follow Back (TLFB), the Alcohol Quality of Life Scale (AQoLS), The Craving Experience Questionnaire (Frequency; CEQ-F), the Acceptance and Action Questionnaire (AAQ-II), the Five Facets Mindfulness Questionnaire (FFMQ), the Impulsive Behavior Scale (UPPS-P), the Beck Depression Inventory (BDI 21), and the Beck Anxiety Inventory (BAI).

Overall, the MBRP program demonstrated good feasibility and acceptability among participants, with significant reductions in cravings, days of use, depression, and anxiety. In addition, there were significant improvements in flexibility of the mindfulness and overall quality of life at the six-month mark. In terms of the reductions in cravings, Hammerstein et al. (2019) suggest that MBRP may be particularly efficacious to patients because, unlike most traditional interventions, the model helps individuals focus on acceptance of cravings versus attempts to resist or suppress them. The key is to help individuals recognize that they do not have to react to the discomforts associated with cravings. In terms of improved mindfulness and psychological flexibility, results suggested that participants were better able to experience their emotions rather than trying to suppress them. Finally, regarding mindfulness, participants showed progress in the 'non-reactivity' component of mindfulness, which involves allowing thoughts and feelings to come and go without getting caught up in them. This is thought to suggest improvement in self-control.

Glasner-Edwards et al. (2017) compared the effects of a health education (HE) control condition and MBRP with stimulant-dependent individuals also receiving contingency management. Participants received four weeks of contingency management of a twelve-week program, and then were randomly assigned to either HE (n=32) or MBRP (n=31). A total of 51% of the participants were methamphetamine users, and 49% used cocaine. The program included contingency management twice weekly for twelve weeks, eight weeks of either HE or MBRP, weekly assessments, and at one-month follow-up. For participants in the HE group, weekly sessions for eight weeks of group psychoeducation were used and included physical, emotional, spiritual, environmental, social, and intellectual components. More specifically, participants learned about physical activity, nutrition, sleep activity, and cancer screening. The content was derived from a smoking cessation wellness manual. On the other hand, the typical protocol was employed for the MBRP group participants. The only caveat was that the length of the sessions was reduced from 120 minutes to 75 minutes to improve engagement.

Results showed no significant difference between the MBRP and HE participants, ".73 versus .70, $p>0.05$" with regard to the urine samples collected over the eight-week intervention phase (Glasner-Edwards et al., 2017, p.7). However, MBRP was significantly beneficial (compared to HE) to the participants with Major Depressive Disorder after controlling for Generalized Anxiety Disorder, demographics, and alcohol dependence. Similarly, among the participants with Generalized Anxiety Disorder, when controlling for Major Depressive Disorder, demographics, and alcohol dependence, those who participated in MBRP (compared to those in HE) reduced their odds significantly of using stimulants over time. In addition, the severity of depression, measured by the Beck Depression Inventory-II, significantly decreased in the MBRP group (compared to the HE group). Also, Addiction Severity Index scores showed significant improvement over time for those in the MBRP group (compared to the HE group). The Emotion Regulation Scale revealed that the MBRP participants had notably lower scores indicating less of a challenge in emotion regulation as well. Finally, the MBRP group also showed clinically significant improvements in anxiety and substantial improvements in overall psychiatric severity. This study provides additional evidence for the usefulness of MBRP as a tool that fosters health among patients suffering from a SUD.

Finally, Davis et al. (2018) investigated substance use outcomes after MBRP was used as an intervention for young adults in residential treatment. The authors assessed differences among TAU plus MRBP and TAU plus 12 step meetings on cravings, substance use, and perceived stress. The MBRP portion of the intervention included eight group sessions (1.5 hours each at two times per week) to ensure completion of the protocol. Each session was focused on a different theme ranging from personal triggers to emotional and physical experiences. Participants were also assigned homework daily [mindfulness-based and written exercises]. Participants were low-income patients with SUDs residing at a substance use treatment center. Measures used included the Substance Frequency Scale (SFS), the Perceived Stress Scale (PSS), the Global Appraisal of Individual Needs (GAIN), and the Timeline Follow Back (TLFB).

Results suggested that MBRP is beneficial. Participants had lower substance use, cravings, and stress levels. For example, participants in the MBRP group abstained from substance use immediately post-treatment and maintained this trajectory through the post-treatment follow-up points (through 28 weeks). In terms of cravings, participants assigned to the MBRP group continued to report significant decreases in their level of cravings throughout the study. The MBRP group also showed significant improvements in the overall stress level throughout the study. Davis et al. (2018) propose that MBRP may help mitigate stress, resulting in decreased cravings and substance use.

Roles

Expert Clinician

Clinical expertise involves a "hybrid of practical and theoretical knowledge" (McHugh & Lake, 2010, p. 277). The intuitive perspective inherent in experts enables them to make clinical decisions at critical times while remaining cognizant of the situation as a whole. All aspects of practice are influenced by the "expert" status, including clinical judgment and quality of care (Benner, 1984). In the context of MBRP, an expert clinician should have an advanced knowledge base in mindfulness practices, Motivational Interviewing, Relapse Prevention Cognitive Therapy, and SUDs and experience working with patients using this approach. With the ability to make sound clinical judgments while never losing sight of the bigger picture, expert clinicians are in a unique position to manage the more complicated patient cases. Another component best suited for an expert clinician is that of an expert rater. As MBRP evolves, integrity-type measures

are being developed. Expert clinicians have the ability to rate clinicians in training adherence and competence to MBRP skills (Chawla et al., 2010).

Expert rater tasks encompass the Quality and Safety Education in Nursing (QSEN) Competency of Quality Improvement in the sense that it is focused on improved quality and safety (American Association of Colleges of Nursing [AACN], 2012). Expert clinicians can provide secondary and tertiary-level interventions given the skill set that they possess. For example, they can proactively and accurately detect SUDs through appropriate screening tools [early on]. Given their knowledge base, they may even participate in developing said screening tools. Also, helping patients navigate their treatment options given their unique circumstances is one example of a tertiary-level strategy an expert clinician may utilize.

Educator

According to the World Health Organization (2016), educator core competencies within the nursing realm include (1) theories and principles of learning, (2) curriculum and implementation, (3) nursing practice, (4) research and evidence, (5) communication, collaboration, and partnership, (6) ethical and legal principles and professionalism, (7) monitoring and evaluation, and (8) management, leadership, and advocacy. At the crux, educators have an essential role in professional development and advancing practice within the field (Sayers et al., 2011). Aligned with these aspects, educators have the unique challenge and privilege of training other clinicians and patients on how to implement MBRP techniques appropriately. According to the UC San Diego Center for Mindfulness (2019), educators use various methods, including role-play, simulated exercises, demonstration, and discussion.

Using knowledge to promote and advance health is subsumed in the Roles and Responsibilities Competency (Competency 2) of the Core Competencies for Interprofessional Collaborative Practice and addresses the important aspects of the educator role (Interprofessional Education Collaborative [IPEC], 2016). Educators are particularly useful at implementing primary prevention strategies. One example is educating young people before they start using or experimenting with drugs and alcohol.

Counselor

There are 14 qualities and actions that make up an effective counselor, including 1) refined interpersonal skills, e.g., empathy, verbal fluency, 2) understanding and trust, 3) ability to form an effective working alliance with a broad range of patients, 4) provides adequate explanations for a patient's distress, 5) offers a treatment plan aligned with a patient's explanation, 6) influential, persuasive, and convincing, 7) monitors patient progress in a genuine way, 8) flexible, 9) uses difficulties in therapeutic ways, 10) communicates hope, 11) aware of the nuances of each patient, 12) mindful of their own psychological process and does not project this on patients inappropriately, 13) implements evidence-based treatments, and 14) continually seeks improvement (American Psychological Association, 2011).

According to Bowen et al. (2009), counselors providing MBRP optimally endure several weeks of intense training, participate in their own daily meditation practice, and receive weekly supervision from expert clinicians in this arena. University of California San Diego Center for Mindfulness (2019) proposes that counselors ensure delivery of MBRP through a variety of ways, such as demonstrating an understanding of the principles inherent in the intervention, practicing, inquiring, leading the core MBRP techniques, and working toward developing or deepening their own mindfulness practices.

It is important to note that counselors have been successful at implementing MBRP techniques with culturally diverse populations (Amaro et al., 2014). Cultural competency is associated with the QSEN Competency of Patient-Centered Care in that care is based on "respect for patient's preferences, values, and needs" (AACN, 2012, p. 4). In a more general sense, establishing strong therapeutic relationships/partnerships with patients is essential. This is arguably most important in the role of the counselor because it is the foundation that helps to determine the success of the intervention (American Psychiatric Nurses Association [APNA], 2014; National Organization of Nurse Practitioner Faculties [NONPF], 2003). Counselors are most likely to use secondary (e.g., drug screening) and tertiary (e.g., employing evidence-based interventions such as MBRP, Alcoholics Anonymous, Motivational Enhancement to lessen the likelihood of relapse) level interventions.

Collaborator

Collaboration with other professionals is central to nursing practice (Wiltjer, 2017). Collaboration and teamwork can be a complex undertaking and a process that takes time. As the healthcare system evolves, it is becoming more and more critical for the purposes of quality outcomes (Gardner, 2005). Several factors promote collaboration, with effective communication being one of the most important (Hughes, 2008). Interprofessional Communication (Competency 3) and Team and Teamwork (Competency 4) of the Core Competencies for Interprofessional Collaborative Practice underscore the need for interprofessional communication and the value of teamwork (IPEC, 2016). Collaboration, as it relates specifically to MBRP, might include advocating for the use of these techniques with providers and educating providers in various subspecialties on the importance of referrals when appropriate. Collaborators may be particularly helpful in the primary prevention realm. Collaborators could work with others to develop approaches to prevent drug and alcohol use in the United States, e.g., programs focused on cultivating good mental health hygiene practices in youth.

Consultant

Nurse consultants are leading experts involved in various tasks focused on quality improvement within their specialty area (O'Connor & Chapman, 2008). Part of their duties might include identifying problems and developing solutions to improve standards of care and treatment (McCutcheon & Perkin, 1996). As it relates to MBRP, professionals may rely on the help of a consultant to advise on treatment plans, supervision, and to assist with the more complicated clinical issues (Boyce & Tobin, 1998). Providers from the various subspecialties might request the assistance of a consultant when treating behavioral health issues or in the development of a more integrated behavioral health care

approach at their facility. Consultants are probably best suited for tertiary prevention-related tasks. For instance, consultants have the expertise to work with the various systems, e.g., healthcare, criminal justice, to provide high-quality treatment options.

Researcher

Researchers play an essential role in the delivery and improvement of safe and effective healthcare practices (Pick et al., 2011). Like other disciplines, research is used to support the practices nurses use day-to-day in the provision of care they provide. Researchers have already played a significant role in establishing MBRP as an evidence-based practice/empirically supported intervention based on the results from numerous studies (Witkiewitz & Bowen, 2010; Witkiewitz et al., 2013).

Evidence-based practice is one of the QSEN Competencies and integrates evidence, clinical expertise, and patient preferences/values (AACN, 2012). Researchers will continue to be important in refining and advancing the approach in the future. Recognizing the importance of using evidence-based practices and applying research findings to patient care is also essential (NONPF, 2003). Actively participating in research-related activities personally and/or integrating evidence and research findings into practice is also necessary (APNA, 2014). Researchers play an integral role in all three prevention levels, primary (e.g., researching the causes of substance use, so primary intervention is possible), secondary (e.g., through developing valid and reliable screening and assessment tools), and tertiary (e.g., in developing evidence-based treatments, assessing the efficacy of mindfulness-based clinical interventions such as MBRP).

Conclusion

Mindfulness as an alternative strategy has been utilized favorably with a variety of clientele and issues. In general, mindfulness is a good practice for all, regardless of the context. Nurses can begin by first studying and becoming proficient in their own mindfulness practices and then begin to transfer their knowledge to promote health among their patients.

MBRP for SUDs is considered one of the "third wave" interventions, has empirical support, and can be utilized after several weeks of training and practicing the techniques with ongoing supervision concordant to the patient. As an expert clinician, educator, counselor, collaborator, consultant, or researcher, nurses can promote MBRP as one of the methods shown to be effective when working with a SUD population. These techniques can be used to ground patients and provide concrete methods to deal with the cravings and triggers associated with substance use relapse.

Those who abuse drugs and alcohol typically have difficulty delaying gratification and frequently act on triggers to use despite knowing intellectually that continued use can be destructive to every facet of their life. By teaching MBRP techniques, it is thought that patients will become better at thinking through the decision to use. By slowing this process down and teaching alternative coping skills when cravings and triggers arise, nurses can help cultivate healthier and more intentional choices among patients with whom they work.

References

Amaro, H., Spear, S., Vallejo, Z., Conron, K., & Black, D. S. (2014). Feasibility, acceptability, and preliminary outcomes of a mindfulness-based relapse prevention intervention for culturally-diverse, low-income women in substance use disorder treatment. *Substance Use and Misuse, 49*(5), 547-559. https://doi.org/10.3109/10826084.2013.852587

American Association of Colleges of Nursing (AACN). (2012). *Graduate-level quality and safety education in nursing [QSEN competencies] knowledge, skills and attitudes.* http://www.aacnnursing.org/Portals/42/AcademicNursing/CurriculumGuidelines/Graduate-QSEN-Competencies.pdf

American Holistic Nurses Association (AHNA) Research Committee Taskforce. (2016). *White paper on holistic nursing research.* https://www.ahna.org/Portals/66/Docs/American%20Holistic%20Nurses%20Association%20Research%20White%20Paper.pdf?ver=2017-04-05-142407-830

American Psychiatric Nurses Association (APNA). (2014). *Scope and standards of practice: Psychiatric-mental health nursing* (2nd ed.). American Nurses Association.

American Psychological Association with Bruce E. Wampold [Producer and Lecturer]. (2011). *Qualities and actions of effective therapist* [DVD]. http://www.apa.org/videos/

Benner, P. (1984). From novice to expert: *Excellence and power in clinical nursing practice*. Addison-Wesley.

Bowen, S., Chawla, N., Collins, S. E., Witkiewitz, K., Hsu, S., Grow, J., Clifaseff, S., Garner, M., Douglass, A., Larimer, M. E., & Marlatt, A. (2009). Mindfulness-based relapse prevention for substance use disorders: A pilot efficacy trial. *Substance Abuse, 30*(4), 295-305. https://doi.org/10.1080/08897070903250084

Bowen, S., Chawla, N., & Witkiewitz, K. (2014). Mindfulness-based relapse prevention for addictive behaviors. In R. Baer (Ed.), *Mindfulness-based treatment approaches: Clinicians guide to evidence base and applications* (pp. 141-157). Elsevier.

Bowen, S., & Enkema, M. C. (2014). Relationship between dispositional mindfulness and substance use: Findings from a clinical sample. *Addictive Behaviors, 39*(3), 532-537. https://doi.org/10.1016/j.addbeh.2013.10.026

Bowen, S., Witkiewitz, K., Clifasefi, S. L., Grow, J., Chawla, N., Hsu, S. H., Carroll, H. A., Harrop, E., Collins, S. E., Lustyk, M. K., & Larimer, M. E. (2014). Relative efficacy of mindfulness-based relapse prevention, standard relapse prevention, and treatment as usual for substance use disorders: A randomized clinical trial. *JAMA Psychiatry, 71*(5), 547-556. https://doi.org/10.1001/jamapsychiatry.2013.4546

Boyce, P., & Tobin, M. (1998). Defining the role of the consultant psychiatrist in a public mental health service. *Australian and New Zealand Journal of Psychiatry, 32*(5), 603-611. https://doi.org/10.3109/00048679809113110

Calloway, S. (2007). Mental health promotion: Is nursing dropping the ball? *Journal of Professional Nursing, 23*(2), 105-109. https://doi.org/10.1016/j.profnurs.2006.07.005

Chawla, N., Collins, S., Bowen, S., Hsu, S., Grow, J., Douglas, B. A., & Marlatt, G. A. (2010). The mindfulness-based relapse prevention adherence and competence scale: Development,

interrater reliability and validity. *Psychotherapy Research, 20*(4), 388-397. https://doi.org/10.1080/10503300903544257

Compton, M. A. (1989). The Rogerian view of drug abuse: Implications for nursing. *Nursing Science Quarterly, 2*(2), 98-105. https://doi.10.1177/089431848900200209.

Davis, J. P., Berry, D., Dumas, T. M., Ritter, E., Smith, D. C., Menard, C., & Roberts, B. W. (2018). Substance use outcomes for mindfulness-based relapse prevention are partially mediated by reductions in stress: Results from a randomized trial. *Journal of Substance Abuse Treatment, 91*(1), 37-48. https://doi.10.1016/j.jsat.2018.05.002.

Gardner, D. B. (2005). Ten lessons in collaboration. *The Online Journal of Nursing of Issues in Nursing, 1*(1), 1-11. https://doi.10.3912/OJIN.Vol10No01Man01

Glasner-Edwards, S., Mooney, L. J., Ang, A., Garneau, H. C., Hartwell, E., Brecht, M. L., & Rawson, R. A. (2017). Mindfulness based relapse prevention for stimulant dependent adults: A pilot randomized clinical trial. *Mindfulness, 8*(1), 126-135. https://doi.10.1007/s12671-016-0586-9.

Grant, S., Colaiaco, B., Motala, A., Shanman, R., Booth, M., Sorbero, M., & Hempel, S. (2017). Mindfulness-Based Relapse Prevention for substance use disorders: A systematic review and meta-analysis. *Journal of Addiction Medicine, 11*(5), 386-396. https://doi.10.1097/ADM.0000000000000338.

Hagerty, B. M. K., Lynch-Sauer, J., Patusky, K. L., & Bouwsema, M. (1993). An emerging theory of human relatedness. *Journal of Nursing Scholarship, 25*(4), 291-296. https://doi.org/10.1111/j.1547-5069.1993.tb00262.x

Hammerstein, C. V., Khazaal, Y., Dupuis, M., Aubin, H. J., Benyamina, A., Luquiens, A., & Romo, L. (2019). Feasibility, acceptability and preliminary outcomes of a mindfulness-based relapse prevention program in a naturalistic setting among treatment seeking patients with alcohol use disorder: A prospective observational study. *BMJ Open, 9*(1), 1-10. https://bmjopen.bmj.com/content/9/5/e026839.

Hughes, R. G. (2008). Patient safety and quality: *An evidence-based handbook for nurses.* Agency for Healthcare Research and Quality.

Interprofessional Education Collaborative (IPEC). (2016). *Core Competencies for Interprofessional Collaborative Practice: 2016 Update.* https://www.unthsc.edu/interprofessional-education/wp-content/uploads/sites/33/Core-Competencies-for-Interprofessional-Collaborative-Practice.pdf

Jones, J.J., Tierney, M., Jacobs, G., Chien, S., & Mallisham, S. (2020). Empowering psychiatric mental health nurse practitioners to expand treatment opportunities for veterans with opioid use disorder. *Journal of Addictions Nursing, 31*(4), 261-268. https://doi.10.1097/JAN.0000000000000366

Li, W., Howard, M. O., Garland, E. L., McGovern, P., & Lazar, M. (2017). Mindfulness treatment for substance misuse: A systematic review and meta-analysis. *Journal of Substance Abuse Treatment, 75*(1), 62-96. https://doi.org/10.1016/j.jsat.2017.01.008

McCutcheon, S., & Perkin, K. (1996). Effective consultation in nursing. *Canadian Journal of Nursing Administration, 9*(1), 87-102. PMID: 8695611

McHugh, M. D., & Lake, E. T. (2010). Understanding clinical expertise: Nurse education, experience, and the hospital context. *Research in Nursing & Health, 33*(4), 276-287. https://doi.10.1002/nur.20388.

Mumba, M.N., Findlay, L.J., & Snow, D.E. (2018). Treatment options for opioid use disorders: A review of the relevant literature. *Journal of Addictions Nursing, 29*(3), 221-225. https://doi.10.1097/JAN.0000000000000241

National Organization of Nurse Practitioner Faculties (NONPF). (2003). Psychiatric-Mental Health Nurse Practitioner Competencies. https://www.allencollege.edu/filesimages/academics/PMHNP_Competencies.pdf

O'Connor, M., & Chapman, Y. (2008). The palliative care clinical nurse consultant: An essential link. *Collegian, 15*(1), 151-157. https://doi.10.1016/j.colegn.2008.06.002

Pick, A., Liu, A., Drew, V. L., & McCaul, J. (2011). The role of the research nurse. *Nursing Times, 107*(1), 1-2. https://www.nursingtimes.net/roles/nurse-educators/the-role-of-the-research-nurse-26-04-2011/

Sayers, J. M., DiGiacomo, M., & Davidson, P. M. (2011). The nurse educator role in the acute care setting in Australia: Important but poorly described. *Australian Journal of Advanced Nursing, 28*(4), 44-52. http://hdl.handle.net/10453/16984

Strobbe, S., Hagerty, B., & Boyd, C. (2012). Applying the nursing theory of human relatedness to alcoholism and recovery in alcoholics anonymous. *Journal of Addictions Nursing, 23*(4), 241- 247. https://doi.10.1097/JAN.0b013e31826f67e8. PMID: 24622492.

Svedberg, P. (2011). In what direction should we go to promote health in mental health care? *International Journal of Qualitative Studies on Health & Well-Being, 6*(1), 1-5. https://doi.10.3402/qhw.v6i2.7118

UC San Diego Center for Mindfulness. (2019). *Mindfulness-Based Relapse Prevention*. https://cih.ucsd.edu/mbpti/mbrp-mindfulness-based-relapse-prevention

White, D. M. (1993). Treatment of the addicted client utilizing Rogerian Theory. *Addictions Nursing Network, 5*(4), 123-127. https://doi.org/10.3109/10884609309149724

Wiltjer, H. (2017). Why collaboration should count as a core value of nursing. *Nursing Times, 113*(12), 47-48. https://www.nursingtimes.net/roles/nurse-educators/why-collaboration-should-count-as-a-core-value-of-nursing-13-11-2017/

Witkiewitz, K., & Bowen, S. (2010). Depression, craving, and substance use following a randomized trial of mindfulness-based relapse prevention. *Journal of Consulting and Clinical Psychology, 78*(3), 362-374. https://doi.10.1037/a0019172

Witkiewitz, K., Greenfield, B. L., & Bowen, S. (2013). Mindfulness-based relapse prevention with racial and ethnic minority women. *Addictive Behaviors, 38*(12), 2821-2824. https://doi.org/10.1016/j.addbeh.2013.08.018

Witkiewitz, K., Warner, K., Sully, B., Barricks, A., Stauffer, C., Thompson, B. L., & Luoma, J. B. (2014). Randomized trial comparing mindfulness-based relapse prevention with relapse prevention for women offenders at a residential addiction treatment center. *Substance Use & Misuse, 49*(5), 536-546. https://doi.10.3109/10826084.2013.856922

World Health Organization (WHO). (2016). *Nurse educator core competencies.* https://www.who.int/hrh/nursing_midwifery/nurse_educator050416.pdf

ORIGINAL RESEARCH

Tracking the New York State Faculty Shortage: Report on the Schools and Faculty Survey 2013 and 2017

Adele K. Stanley[1*], Rhonda E. Maneval[1], Linda Millenbach[2], M. Bridget Nettleton[3], Deborah Elliott[4,5], Gertrude B. Hutchinson[6], Marilyn Stapleton[7], and Yvonne Johnston[8]

[1]Pace University, Lienhard School of Nursing, Pleasantville, NY, USA; [2]University of Albany, School of Public Health, Albany, NY, USA; [3]SUNY Empire State College, Saratoga Springs, NY, USA; [4]Foundation of New York State Nurses Inc., Schenectady, NY, USA; [5]Nurses House Inc., Schenectady, NY, USA; [6]Russell Sage College, Albany, NY, USA; [7]Ellis Medicine, Schenectady, NY, USA; and, [8]Binghamton University, Division of Public Health, Decker College of Nursing and Health Sciences, Binghamton, NY, USA

Corresponding Author: Adele K. Stanley, Pace University, Pleasantville, NY, USA

Email: as46165p@pace.edu

https://doi.org/10.47988/janany.23587684.2.1

Abstract

Background: This secondary analysis of existing data compared the results of the 2013 New York State (NYS) Nursing Schools and Faculty Report Survey to the results of a replication study completed in 2017. The NYS Council of Deans representing baccalaureate and higher degree programs in NYS and the Council of Associate Degree Nursing were surveyed in academic years 2012-2013 and 2016-2017 (referenced as 2013 and 2017, respectively). ***Objective:*** The purpose of this study was to provide detailed and aggregate baseline data about NYS nursing schools' capacity in relation to the number, characteristics, distribution, vacancy rates, and retirement plans of faculty and to contextualize these findings in current national trends. While the issue of nursing faculty shortage is not new in NYS, two studies were conducted in academic years 2012-2013 and 2016-2017, respectively, that examined the rate of nursing faculty vacancies and factors contributing to the nursing faculty shortage. In addition, the secondary analysis revealed trends that have implications for the current and future state of New York States' ability to prepare an adequate nursing workforce. ***Methodology:*** Data analysis included 22 questions that appeared on both surveys. The survey response rate was 71.4% in 2013 and 43% in 2017. SPSS was used for data analysis. Descriptive statistics summarize the data and identify patterns and trends between the two data collection points. ***Results:*** Faculty gender composition remained unchanged from 2013 to 2017, with 92% women and 8% men. Race and ethnicity of faculty also remained stable in 2013 and 2017, with 78% and 79% of faculty reported as White, respectively. There was little change in the percentage of minority faculty. Most faculty were between the ages of 50 and 59 years (35% in 2013 and 31% in 2017). The master's degree was the highest level of degree for most nursing faculty at 64% in 2013 and 63% in 2017. The top strategy used by nursing schools to fill vacancies was to hire more adjunct faculty, while the most cited strategy to recruit full-time faculty was to increase salaries. The most cited reason for the separation of faculty in 2013 was that faculty accepted a position elsewhere (31%), and in 2017 the most cited reason was retirement (49%). ***Limitations:*** The limitations of this analysis include: (a) decrease in survey response rates between the two survey periods, since response rates are a potential source of bias, and (b) the wording of questions was not identical in some cases, which could have led to different responses based on how the question was worded. ***Conclusions and Recommendations:*** Complex factors contribute to the NYS faculty shortage and include an aging faculty, increasing retirements, lack of diversity, and low compensation. These results mirror the results of national surveys on the faculty shortage, indicating that NYS needs to take action now to address the nursing pipeline issue.

Key Words: *Nursing Faculty, Nursing Schools in New York State, and Faculty Shortage*

Funding: The authors did not receive any funding from the public, commercial, or not-for-profit sectors.

Conflict of Interest: The authors declare no actual or potential conflict of interest.

Date Submitted: September 2, 2021 Date Accepted: December 22, 2021 Date Published Electronically: February 1, 2022

Tracking the New York State Faculty Shortage: Report on the Schools and Faculty Survey 2013 and 2017

This secondary analysis of existing data compared the results of the 2013 New York State (NYS) Nursing Schools and Faculty Report Survey to the results of a replication study completed in 2017. The NYS Council of Deans (NYSCOD) that represents baccalaureate and higher degree programs in NYS and the Council of Associate Degree Nursing (CADN) were surveyed in academic years 2012-2013 and 2016-2017 (hereafter referred to as 2013 or 2017, respectively). The surveys were conducted to examine nurse faculty vacancies rates and contributing factors to the faculty shortage. The 2013 survey contained 22 items, while the subsequent 2017 survey included additional items resulting in a 33-question survey. Between the two surveys, there were 22 comparable items. This paper focuses on analyzing the 22 similar items and contextualizes the results within the current national faculty shortage and school capacity data.

Background

The original NYS Nursing Schools and Faculty Report Survey conducted in the 2010-2011 academic year (Brewer et al., 2012) was under the direction of the NYS Institute for Nursing (Institute). The Institute's original study was supported by the NYS Nurses Association (NYSNA), the New York Organization of Nurse Executives and Leaders (NYONEL), NYSCOD, CADN, the Foundation of NYS Nurses, and the NYS Area Health Education Center (AHEC) System. Subsequent NYS Nursing Schools and Faculty Surveys were conducted during the 2012-2013 and 2016-2017 academic year by The Cathryne A. Welch Center for Nursing Research (CNR) at the Foundation of NYS Nurses. The 2016-2017 survey was updated before administration, with 11 new items added to the previous survey.

Understanding faculty data is essential because an insufficient faculty supply places a bottleneck on the supply of all new registered nurse (RN) graduates. In addition, a lack of doctoral-prepared faculty limits enrollments in nursing programs and adversely affects the pipeline for new nursing faculty. However, data were needed regarding NYS nursing schools and faculty and the characteristics of the nursing faculty workforce. The data helped shape educational and recruitment/employment policies. Therefore, the Institute initiated the 2012-2013 survey and a subsequent survey to fill this gap, inform stakeholders, and guide policymakers.

In 2012-2013, academic nursing leaders in NYS sought data related to the nursing faculty shortage. While some of the data were reported on an annual basis to the NYS Education Department (NYSED), additional information was needed to identify trends and offer solutions to the nursing programs in NYS. Therefore, an instrument was developed, which included data reported to NYSED and other items such as public or private parent institutions, type of program (associate, bachelor's, master's), number of students, number of faculty, and reasons for faculty vacancies such as resignation or retirement. A cover letter that included an invitation to participate in the study, directions on completing the instrument, collecting and reporting the data in the aggregate, and a link to the electronic survey was sent to all the program directors and deans for NYS nursing programs. The timeframe for data collection was the academic year 2012-2013. The directors and deans were encouraged to use the data reported to NYSED to aid in completing the survey distributed in the fall of 2013. This process was repeated for the academic year 2016-2017, following the steps described above, but with the addition of some items to the survey instrument. The data were collected in the academic year 2016-2017 from the late fall of 2017 into early spring 2018 due to a low response rate during the initial distribution of the survey. Program directors and deans were contacted in late 2017 and asked again to complete the survey for the academic year 2016-2017, with some additional responses received.

Review of the Literature

United States (US) nursing schools turned away over 80,000 qualified applications from baccalaureate and graduate nursing programs primarily due to faculty shortages (AACN, 2020a). In addition, the AACN reported that in 2020, "…almost half of the generic baccalaureate nursing programs reported rejecting qualified applications due to an insufficient number of faculty. Of these programs, about 72 percent report being unable to hire additional faculty due to insufficient funds. This shortage of nursing faculty continues to be a top concern, as it contributes to the loss of qualified nursing talent" (AACN, 2021a). In addition to budgetary constraints, other reasons included insufficient clinical sites, classroom space, and clinical preceptors. An estimated 600,000 RNs (approximately 70,000 annually) will be retiring and expected to leave the workforce by 2030 (Buerhaus et al., 2018). It has been suggested the COVID-19 pandemic will hasten retirements, worsening the nursing shortage (NSI Nursing Solutions Incorporated, 2021). The US Bureau of Labor Statistics (2021) projects a 10% increase in the healthcare sector jobs from 2019 to 2029, with the demand for registered nurses growing as much as 7% by 2029. To meet this demand, 221,900 new RNs will need to enter the workforce annually. A major limiting factor to increasing the nursing workforce is the lack of nursing faculty and other resources required to expand enrollments in pre-licensure and graduate nursing programs.

In 2019, Li et al. reported a total of 1,637 faculty vacancies in a survey of 892 nursing member schools with baccalaureate and graduate degree programs, resulting in a national nursing faculty vacancy rate of 7.2%. Most of the vacancies (89.7%) were faculty positions requiring or preferring a doctoral degree. Fifty-six percent of schools reported full-time vacancies, with those schools reporting on average a 10.4% vacancy rate in their school of nursing. The vacancy rate was highest in the North Atlantic region, which reported an 11% vacancy rate for NYS. The barriers to hiring more full-time faculty included insufficient funds to hire new faculty (62.1%); unwillingness of the administration to commit to additional full-time positions (47.1%); inability to recruit qualified faculty because of competition for jobs with other marketplaces (30.0%), and a lack of qualified applicants (25.0%) (Li et al., 2019).

The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity (National Academies of Sciences, Engineering & Medicine, 2021) revealed that the RN workforce has steadily become more diverse, although the majority of RNs continue to be White women. The proportion of White RNs decreased from 79.1% in 2000 to 69% in 2018. The proportion of RNs who are Black/African American rose and now approximates that of the nation's population (12%). The proportion of RNs who are Asian (9.1%) exceeds that of the nation's population (6.0%). Yet despite doubling since 2001, the proportion of Hispanic RNs in the nursing workforce (7.4%) is well below that of the nation's population (18.3%). Gender diversity in the RN workforce is also on the rise, with the proportion of men who are RNs having grown to 12.7% by 2017. Though the diversity of nurses has expanded, there continues to be a lack of diversity, including men, within nursing faculty nationally. The 2018-2019 National League of Nursing (NLN) faculty survey of member schools found 82% of full-time faculty to be White/Non-Hispanic, 9% Black/African American, 3.4% Hispanic, and 2.9% Asian (NLN, 2019). The report also found only 7% of faculty were men. The number of RNs licensed in NYS has grown in the past five years, from 15,892 (2016) to 23,611 (2020), a 32% increase (NYSED, Office of the Professions, 2021a). Yet, a Center for Health Workforce Studies survey found that the number of new pre-licensure nursing program graduates has only increased by 5.7% from 2013 to 2017, with 8,753 and 9,283 total annual graduates from NYS schools respectively for those years (Martiniano et al., 2019). Though the reason for the rise in licensed RNs is not clear, some portion may be linked to the emergency measures taken by NYS to meet the critical need for nurses during the pandemic. In March 2020, at the height of the pandemic, Governor Cuomo issued an executive order that temporarily suspended and modified education laws and regulations. It authorized retired health care professionals, including nurses, to re-register through the use of an expedited automatic registration form developed by the state and to waive any registration fees (Exec. Order 202.86, March 7, 2020).

Additionally, travel nurses were recruited by many hospital systems during this time, particularly those in New York City. ABC News (Krauth, 2020, July 17) reported that more than 4,000 travel nurses worked in NYS in response to the pandemic. Given these travel nurses will likely leave NYS, and those who re-entered from retirement will return to retired status, the actual numbers of working RNs in NYS will decline.

Martiniano et al. (2019) also reported that 34% of nursing school deans and directors cited a lack of qualified faculty and lack of funding for faculty as the major limiting factor in increasing enrollments in their programs. Faculty data are essential because new nurses are educated by the faculty workforce, and an insufficient supply of faculty places a bottleneck on the supply of all recent RN graduates, and most especially on new graduates of baccalaureate and doctoral programs. The number of graduates from NYS schools seems insufficient to meet future workforce needs.

In a report by the Center for Health Workforce Studies in NYS (Martiniano et al., 2019), nursing program expansion is limited by: (a) limits placed on admissions (66%), (b) lack of clinical sites (45%), (c) lack of qualified faculty (34%), (d) lack of classroom space (31%), and (e) lack of funding for faculty (34%). These limitations may indicate an educational and governmental inability or unwillingness to invest in nursing schools. Currently, there are approximately 114 NYS nursing schools (we use the term "school" to generically refer to a complete set of programs within one nursing department, school, or college). There are approximately 419 programs within NYS nursing schools, including Associate Degree (AD), Bachelor of Science (BS) completion programs, and pre-licensure BS programs, as well as graduate degree and certificate programs (NYSED, Office of the Professions, 2021b). All three types of colleges and universities in NYS: State University of NY (SUNY); City University of NY (CUNY); and, private universities and colleges provide pre-licensure nursing programs.

Purpose

The purpose of this study, which examined both the original 2013 and subsequent 2017 NYS nursing school surveys, was to provide detailed and aggregate baseline data about NYS nursing schools' capacity in relation to the number, characteristics, distribution, vacancy rates, and retirement plans of faculty. The type of school and type of programs offered as well as factors that impact the adequacy of the schools in providing nurses to NYS were collected. Data from the surveys were intended to assess school capacity and the impact of faculty vacancy. Additionally, given the lack of faculty diversity reported nationally, this analysis also focused on faculty profile data, including race/ethnicity, gender, age, and the highest level of educational attainment. This analysis compared the data collected at two time points, with five years between data collection points. These data reflect substantial changes over time that mirror current national trends regarding school capacity, faculty vacancy, and faculty diversity.

Survey Data

The survey data provide detailed information regarding the number of faculty aggregated by age, gender, race/ethnicity, the highest level of faculty education, tenure status, the number of faculty, faculty vacancies, anticipated retirements, and information about recruitment strategies and approaches employed to compensate for faculty vacancies. Responses were categorized based on the type of school (SUNY, CUNY, or Private). Table 1 provides the list of questions addressed by both surveys.

Table 1

Comparable Survey Questions from the NYS Nursing Schools and Faculty Survey, 2013 and 2017 Survey Years

1. Total number of faculty
2. Type of schools in the survey (CUNY, SUNY, Private)
3. Type of nursing programs offered (pre-licensure only, post-licensure only, both pre- & post-licensure)
4. Total faculty by age
5. Total faculty by type of school (CUNY, SUNY, Private)
6. Total faculty by gender
7. Total faculty by gender and type of school (CUNY, SUNY, Private)
8. Total faculty by race /ethnicity

9. Total faculty by race/ethnicity and type of school (CUNY, SUNY, Private)
10. Highest level of education for faculty
11. Highest level of education for faculty by type of school (CUNY, SUNY, Private)
12. Highest level of education for faculty by type of nursing programs offered (pre-licensure only, post-licensure only, both pre- & post-licensure)
13. Total tenured faculty
14. Total tenured faculty by type of school (CUNY, SUNY, Private)
15. Estimated need for faculty in specialty areas (to be recruited)
16. Estimated anticipated retirements
17. Estimated anticipated retirements by type of school (CUNY, SUNY, Private)
18. Estimated number of budgeted full-time positions that are vacant
19. Estimated number of budgeted full-time positions that are vacant by type of school (CUNY, SUNY, Private)
20. Information about recruitment strategies
21. Reasons for separation of faculty from schools
22. Approaches employed to compensate for vacancies

Methods

Sample

Institutional Review Board approvals were obtained for the surveys conducted in 2013 and 2017. A convenience sample of nursing schools within NYS was used. The 2013 and the 2017 surveys were sent to the NYS Council of Deans, which represents BS and higher degree programs, and the NYS Council of Associate Degree Programs. In 2012, there were 105 NYS nursing schools, with the number increasing to 114 in 2017 (NYSED, Office of the Professions, 2021b). The survey response rate in 2013 was 75 schools responding (71.4% response rate) and 114 schools in 2017, with 49 schools responding (43% response rate). Responding schools were categorized based on the type of school (SUNY, CUNY, or Private). Table 2 shows the number of survey responses and response rates by type of school and overall, for each of the two survey years.

Data Analysis

IBM SPSS Statistics for Windows software (IBM, 2020) was used for data analysis. Both surveys were electronically sent to NYS nursing schools using Cvent® online web survey software. Descriptive statistics were used to summarize each survey's results and identify patterns in the data over the two time points. Data analysis included only those surveys that were complete and only examined the 22 questions that were common to both. Given the difference in response rates, there was no attempt to match a school-to-school response from the first to second surveys. Therefore, even though the response rates for 2013 and 2017 were quite different, survey participation reflected a similar representation of CUNY, SUNY, and private schools.

Table 2

New York State Nursing Schools and Faculty Survey Responses by Type of School, 2013 and 2017

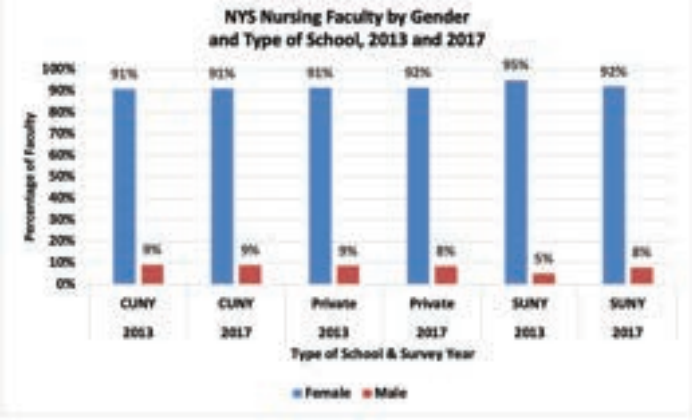
School Type	Number of Responses	2013 Number of NYS Nursing Schools	Response Rate	Number of Responses	2017 Number of NYS Nursing Schools	Response Rate
CUNY	7	12	58.3%	6	13	46.1%
SUNY	30	41	73.2%	20	46	43.5%
Private	38	52	73.1%	23	55	41.8%
Total	**75**	**105**	**71.4%**	**49**	**114**	**43.0%**

Faculty Demographics

Demographic data were analyzed for overall responses for each survey year and, when appropriate, were stratified by type of school (SUNY, CUNY, Private) or by type of programs offered (pre-licensure only, post-licensure only, both pre- & post-licensure). Comparisons for gender, race/ethnicity, and age are displayed in Figures 3a, 3b, and 3c, respectively.

Figure 3a

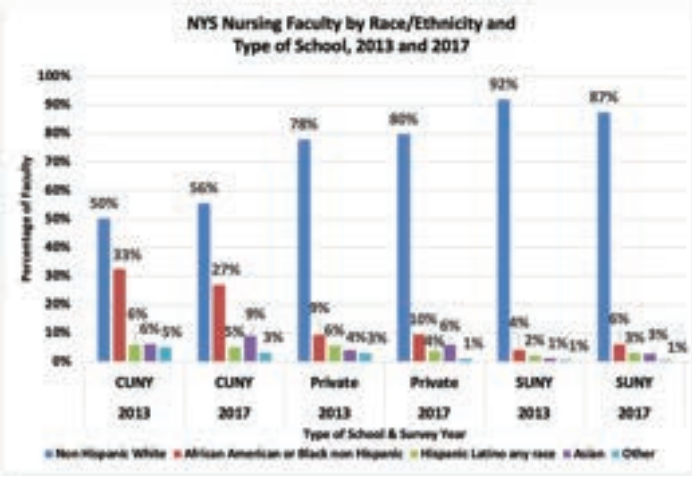
New York State Nursing Faculty by Gender and Type of School, NYS Nursing Schools and Faculty Report Survey, 2013 and 2017



*Percentages may not total 100 due to rounding

Figure 3b

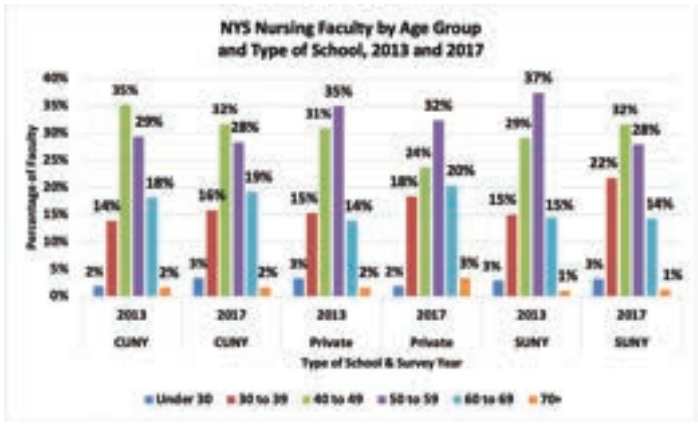
New York State Nursing Faculty by Race/Ethnicity and Type of School, NYS Nursing Schools and Faculty Report Survey, 2013 and 2017



*Percentages may not total 100 due to rounding

Figure 3c

New York State Nursing Faculty by Age Group and Type of School, NYS Nursing Schools and Faculty Report Survey, 2013 and 2017



*Percentages may not total 100 due to rounding

Faculty composition based on gender was 92% women and 8% men in 2013 and 2017. When stratified by type of school, the SUNY schools had the lowest percentage of men in both survey years, 5% in 2013 and 8% in 2017 compared to 9% men in each year for CUNY schools (Figure 3a).

The faculty's race/ethnicity was categorized as White/Non-Hispanic, Black/African-American, Hispanic/Latino, Asian, and Other (Figure 3b). There was little change in NYS faculty's overall racial and ethnic composition between 2013 and 2017. Seventy-eight percent of faculty in 2013 were reported as White/Non-Hispanic, and that percentage increased slightly to 79% in 2017. Black/African American faculty was unchanged at 11%, with Hispanic/Latino faculty decreasing from 5% in 2013 to 4% in 2017. Asian faculty increased from 4% to 5% between survey years, and the percentage identified as Other decreased from 3% to 1%. The CUNY schools reported the greatest diversity of faculty, though some ground seems to have been lost from 2013 to 2017. In 2013, the percentage of White/Non-Hispanic faculty was 50% compared to 56% in 2017 for CUNY schools, while Black/African American was 33% and 27%, respectively. There was little change in the percent of Hispanic/Latino faculty (6% and 5%), while Asian faculty increased from 6% to 9%. The SUNY schools were the least diverse; faculty composition was reported to be 92% White/Non-Hispanic in 2013 and 87% in 2017.

The largest proportion of faculty were over 50 years of age, with the majority between 50-59 years of age in both 2013 (35%) and 2017 (31%) (Figure 3c). Age is continuing to increase, with more faculty reported in the 60 to 69 age group from 2013 (15%) to 2017 (18%). In addition, the 70 years old and older faculty has grown from 1% in 2013 to 3% in 2017. Aging faculty is particularly acute for private schools, with the percentage of faculty in the 60 to 69 year age group growing from 14% in 2013 to 20% in 2017. The 70+ age group within the private universities has also increased from 2% to 3%. There was also a reduction in the percentage of 40 to 49 years old for private universities from 31% in 2013 to only 24% in 2017. In both 2013 and 2017, the majority of faculty at private schools were 50 to 59 years old. Conversely, CUNY schools reported the majority of faculty as

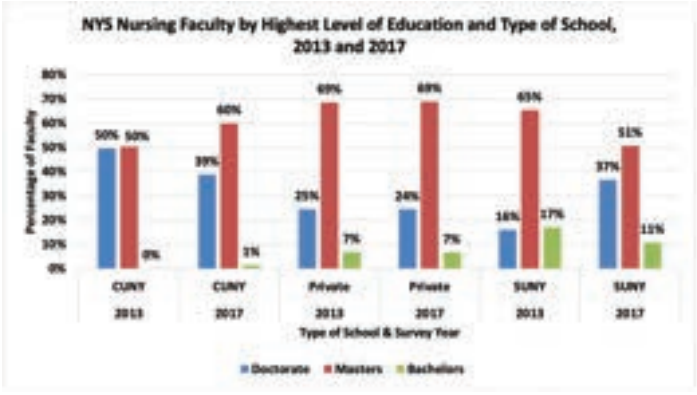
younger, between the ages of 40 to 49 years old 35% in 2013 and 32% in 2017.

Faculty Educational Level

Since the master's in nursing degree is required for all faculty teaching in NYS programs, it is not surprising that the majority of faculty in NYS are prepared at the master's level in both survey years (64% in 2013 and 63% in 2017). The overall percentage of faculty prepared with doctorates rose from 27% to 30%, with much of this increase realized in CUNY and SUNY systems. Private schools employed the highest percentage of master's prepared faculty (69%) and the lowest percentage of doctoral prepared (24%) in 2017 (Figure 4).

Figure 4

New York State Nursing Faculty by Highest Level of Education and Type of School, NYS Nursing Schools and Faculty Report Survey, 2013 and 2017



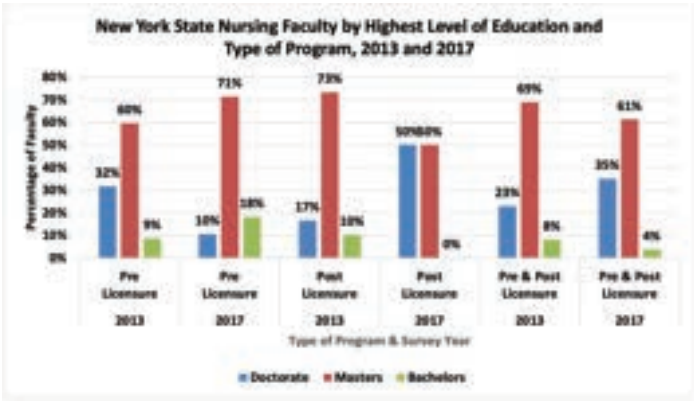
*Percentages may not total 100 due to rounding

Faculty Education Level by Type of Program

The surveys also collected data on the percentage of faculty by educational level with respect to the type of programs offered (Figure 5). Schools were categorized as providing only pre-licensure programs, offering only post-licensure programs, or offering both pre-licensure and post-licensure programs. For schools that offered only pre-licensure programs, the percentage of faculty with a bachelor's degree as the highest level of education rose from 9% in 2013 to 18% in 2017. Also, there was a decrease in the percentage of bachelor's prepared faculty teaching in post-licensure programs from 10% in 2013 to 0% in 2017. The percentage of master's prepared faculty increased in pre-licensure programs from 60% in 2013 to 71% in 2017. However, among schools offering post-licensure programs only, the percentage of master's prepared faculty decreased from 73% in 2013 to 50% in 2017. Among schools offering both pre-and post-licensure programs, there was a decrease in master's prepared faculty from 69% in 2013 to 61% in 2017. For schools that provide only pre-licensure programs, the percentage of faculty with the highest level of education, the doctorate, decreased from 32% in 2013 to 10% in 2017. In contrast, among schools with post-licensure programs only and schools that offer both pre-and post-licensure programs, there was an increase in doctorally prepared faculty (Figure 5).

Figure 5

New York State Nursing Faculty by Highest Level of Education and Type of Program, NYS Nursing Schools and Faculty Report Survey, 2013 and 2017



*Percentages may not total 100 due to rounding

Tenure Status

In 2013, the percentage of tenured faculty was 12%, which decreased to 9% in 2017. All school types reported a decrease in the percentage of tenured faculty. CUNY reported 18% in 2013 of tenured professors that decreased to 13% in 2017. Private colleges and universities had a decrease from 2013 to 2017 from 8% to 6%, respectively. The SUNY schools followed the trend of decreasing tenured faculty from 17% in 2013 to 14% in 2017, suggesting perhaps an increase in the hiring of faculty to non-tenure-track positions.

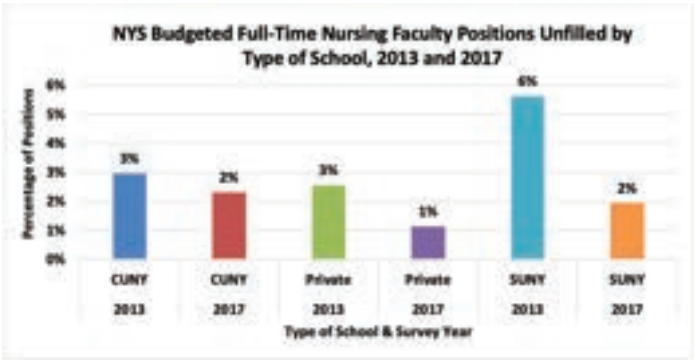
Budgeted Full Time Positions Unfilled

Between 2013 and 2017, the vacancy rate for CUNY schools decreased by 1%, private schools by 2%, and SUNY schools by 4% (Figure 6). All school types experienced a decrease in faculty vacancy rates in 2017 compared to 2013. While the percentage of vacancies for budgeted full-time faculty positions appears to decrease from 2013 to 2017, these data may be misleading without considering what might account for this change. If some of these faculty lines were eliminated, the net result would be a lower percentage of unfilled faculty vacancies.

Schools also reported difficulty filling vacant positions based on specialty areas. In 2013, schools reported the following specialty areas as being challenging to recruit: Mental Health (45%), Medical-Surgical (30%), Pediatrics (35%), and Maternal/Obstetrics (17%). Likewise, similar specialties were identified as challenging to recruit in 2017: Mental Health (57%), Pediatrics (37%), Maternal/Obstetrics (39%), and Medical-Surgical (17%) [data reported here, but not shown].

Figure 6

New York State Budgeted Full-Time Nursing Faculty Positions Unfilled by Type of School, NYS Nursing Schools and Faculty Report Survey, 2013 and 2017



Anticipated Retirement

Anticipated retirements of faculty in 2012-2013 were 2% (*n*=44). Anticipated retirements of faculty in 2016-2017 dropped to 1% (*n*=21). When examining by the type of school, anticipated retirements for 2013: CUNY (0.5%), Private (1.3%), and SUNY (2.6%). Anticipated retirements for 2017 by school: CUNY (1.6%), Private (0.49%), and SUNY (1.3%).

Recruitment and Retention Strategies

The type of strategies for recruitment and retention for full-time faculty were similar across the two surveys. However, a higher percentage of schools reported using recruitment strategies in 2017 compared to 2013. For the 2013 survey, 45 out of the 75 responding schools (60%) reported using recruitment strategies to attract full-time faculty. In 2017, 35 out of the 49 responding schools (71%) reported using recruitment strategies for full-time faculty. In both 2013 and 2017, the most frequently cited strategy to recruit and retain full-time faculty was to increase salaries (49% in 2013 and 57% in 2017). The second most frequent strategy was to entice part-time faculty to advance their education, creating an internal pipeline for new faculty. The remaining strategies included: hiring baccalaureate graduates who were completing their master's degrees, converting part-time faculty to full-time faculty, and providing research assistance. Four major strategies were employed to compensate for vacancies: hiring more adjunct faculty, limiting admissions to programs, increasing faculty teaching loads, and increasing the number of students in didactic courses.

The majority of schools in both 2013 (80%) and 2017 (83%) reported that they hired more adjunct faculty to fill vacancies. Twenty-five percent of 2013 respondents indicated they were limiting admission to account for faculty vacancies. In comparison, only 11% of schools reported limiting admissions due to faculty vacancies in 2017. However, the percentage of schools that reported increasing teaching loads to compensate for faculty vacancies was only 27% in 2013 but rose to 31% in 2017. Likewise, increasing the number of students in didactic courses was reported by 25% of nursing schools in 2013 but rose to 29% in 2017. These findings suggest that the decrease in vacancy rates may be attributed to the lack of new faculty lines approved by college/university administration, leading to increasing class sizes and heavier teaching loads.

The reasons why faculty leave their positions included: retirement, accepted a job elsewhere, career change within nursing, termination, family obligations, salary issues, and advancement of education. In 2017, retirement (49%) was the most cited reason for the separation of faculty. Poor salary continued to be a reason for separation in 2013 (17%) and 2017 (10%). Efforts to increase salaries as reported in the surveys may have contributed to the observed reduction in separations due to salary issues. Faculty returning to school for more education rose by 8% from 2013 (5%) to 2017 (13%), resulting in separation from full-time positions. Career change within nursing was reported by 30% of schools in 2013 and 28% in 2017, which likely reflects nursing faculty returning to clinical practice roles that garner higher wages. In both years, schools reported that faculty also left their positions to take faculty positions elsewhere (31%). The percentage of schools that reported termination as a reason for separation is concerning, though this percentage decreased from 28% to 15% between 2013 and 2017.

Discussion

The capacity of NYS nursing programs to meet the demand for nursing professionals is hampered by the lack of nursing faculty available to educate students at all levels of the educational continuum. This lack of faculty limits the pool of baccalaureate-prepared professional nurses able to pursue advanced degrees and assume faculty positions. The results presented here, an aging faculty, increasing retirements, lack of diversity, and low compensation, mirror results of national surveys on the faculty shortage (AACN, 2020a; NLN, 2019), indicating that NYS needs to take action now to address the nursing pipeline issue. In addition, in our study, when we looked at faculty level of education, we found that in schools that offered only pre-licensure programs, the percentage of faculty with a bachelor's degree as the highest level of education rose from 9% in 2013 to 18% in 2017.

Age is a significant factor. The majority of the nursing professoriate in NYS is over 50 years of age, with only 18% under 40 years of age in 2013 and 21% under 40 years of age in 2017. According to AACN (2020a), the average ages of doctoral-prepared nursing faculty holding the ranks of professor, associate professor, and assistant professor were 62.6, 56.9, and 50.9 years, respectively. For master's degree-prepared nursing faculty, the average ages for professors, associate professors, and assistant professors were 57.1, 56.0, and 49.6 years respectively. The National League for Nurses (NLN, 2019) reported the percentage of faculty age range by rank, revealing that the majority of faculty were over 46 years of age.

The faculty shortage will continue to intensify as faculty retire, and only a small pool of replacements is available. As indicated in the 2017 survey, retirement was a major reason cited for faculty vacancy. Nationally, Fang and Kesten (2017) reported that one-third of the current nursing faculty workforce in baccalaureate and graduate programs are expected to retire by 2025. Succession planning is needed but is hampered by the lack of seats available in graduate nursing programs. Nurses must be able to obtain graduate degrees to assume faculty positions. The lack of graduate

faculty is leading to limited enrollments in graduate and doctoral nursing programs. This situation is further complicated by the lack of nurses pursuing doctoral degrees, the preferred degree for nurse educators. In 2019, AACN (2020a) found that 8,471 qualified applicants were turned away from master's programs, and 3,157 qualified applicants were turned away from doctoral programs. The primary reasons for not accepting all qualified students were a shortage of faculty and clinical education sites.

Faculty recruitment and retention are further impacted by the salaries of nurse educators. This situation is particularly acute in urban areas within NYS, where the cost of living is high. Potential faculty, and current faculty, are forced to choose between lower-paying faculty positions or higher-paying clinical practice positions. Low faculty compensation is a major barrier to faculty recruitment and retention. In 2020, the American Association of Nurse Practitioners National Sample Survey (2020) found the mean salary for all types of nurse practitioners (NPs) was $110,000. In NYS, the average NP salary is $122,000. By comparison, according to AACN (2020a), the average salary for a master's-prepared Assistant Professor in schools of nursing was $79,444. As indicated in the NYS surveys, the most effective strategy to recruit and retain faculty was to increase salaries. In 2017, NYS schools reported the major reasons for faculty leaving their positions as poor salary and career change within nursing. Additionally, some faculty left to take faculty positions elsewhere, highlighting the intense competition for a limited pool of faculty.

Lack of faculty diversity continues to be a problem in NYS and nationally. The lack of diverse faculty results in two significant issues. First, the lack of diverse faculty is a barrier to the success of racially and ethnically diverse students and men in nursing (Dos Santos, 2020; Mkandawire-Valhmu et al., 2010). The presence of diverse faculty creates a supportive community, sense of belonging, and improves recruitment, retention, and graduation (Zajac, 2011). The second issue, and the one that impacts the faculty shortage, is the effect that a lack of diversity has on the recruitment and retention of faculty. Increasing the diversity of students increases the pipeline for diverse faculty (Zajac, 2011). The need for recruitment of diverse faculty is imperative to meet the higher demand resulting from an increase in minority high school graduates attending college and the more culturally diverse backgrounds of patients today (Abdul-Raheem, 2016; Zajac, 2011). Helping students and graduates appreciate the faculty role as a viable career goal increases the pipeline of diverse faculty. Actively recruiting men and minority nurses for faculty positions is a positive strategy to reduce the faculty shortage and improve the faculty pipeline (Dos Santos, 2020; Mkandawire-Valhmu et al., 2010).

Strategies to mitigate faculty vacancies in NYS included limiting enrollment in nursing programs, increasing the use of adjunct faculty, and increasing faculty teaching loads. Though limiting enrollments contributes to the nursing shortage, enrolling students without sufficient faculty to teach them may affect overall program quality. The use of this strategy by NYS nursing programs suggests a symbiotic relationship between the nursing faculty shortage and the nursing shortage at large. The use of adjuncts was the most cited strategy in both 2013 and 2017, 80% and 83%, respectively. Adjunct faculty serve a valuable role in the education of students; however, overuse may affect the educational quality of programs. The use of adjunct faculty, in place of full-time faculty, is on the rise nationally (Hussar et al., 2020). Since there is a growing faculty shortage, many colleges and universities depend on adjuncts to fill clinical positions (Sousa & Resha, 2019). From 1999 to 2018, the total number of full-time faculty increased to

40% (Hussar et al., 2020). However, the amount of part-time faculty or adjuncts increased to 72% between 1999 and 2011 but then decreased between the years 2011 to 2018. The overall percentage of part-time faculty remains higher than in 1999 (Hussar et al., 2020). Hiring more adjuncts to fill vacancies in nursing schools comes at a price (Dunker & Manning, 2018). According to Dunker and Manning (2018), one of the challenges is that many adjunct faculty work another job outside of their academic position and may be less committed to their college or university. In addition, many adjuncts are novices as nursing faculty. This inexperience may decrease their ability to effectively teach nursing students unless they receive mentoring, continuing education, and faculty support (Dunker & Manning, 2018; Hewitt & Lewellen, 2010).

Increasing faculty workloads is also a national problem, and though it allows programs to continue to enroll students, it often results in burnout, discontent, separation, and early retirement. In the nursing profession, 74% of nursing faculty report burnout (Thomas et al., 2019). One of the factors associated with burnout was the increase in workload, as many take on additional teaching responsibilities due to the shortage of qualified faculty (Sousa & Resha, 2019; Thomas et al., 2019). Bittner and Bechtel (2017) found that 51% of faculty experienced an increase in their workload due to a shortage of nursing faculty. In addition, 32% percent of the participants between 45 to 55 years of age reported they were likely to leave their college or university due to the inability to balance work and their life outside of teaching (Bittner & Bechtel, 2017).

COVID-19 Pandemic and Faculty Vacancy

The effects of the COVID-19 pandemic on the number of nursing faculty is not yet known; however, it is likely the pandemic has and will continue to have a negative impact on the number of full-time and adjunct nursing faculty in NYS. The COVID-19 pandemic caused many nursing schools to cancel all direct care clinical experiences due to safety concerns and move to virtual learning (Zerwic et al., 2021).

The need to deliver high-quality virtual nursing education in the midst of a pandemic is a major challenge and source of stress for faculty. When many college campuses moved to remote learning in 2020, faculty were required to quickly pivot their classes from in-person learning to distance learning formats. This transition often included re-designing clinical experiences to remote formats using virtual reality simulation in place of direct care clinical experiences. The faculty faced steep learning curves in making this transition. The concerns regarding the effectiveness and sufficiency of remote learning to prepare students adequately for clinical practice created additional stress. Anecdotal evidence suggests that similar to the large number of nurse retirements reported among direct care nurses, these stressors are motivating

faculty to retire ahead of schedule due to the overwhelming work and stress resulting from the pandemic.

Additionally, many colleges and universities suffered financial losses due to decreasing enrollments of students and the expenses associated with safety measures implemented for schools. In response to these losses, many institutions placed moratoriums on new full-time faculty hires, and the hiring of adjunct faculty has faced increased scrutiny as universities tighten their budgets (Flaherty, 2020). According to Jaschik (2021), 67% of adjuncts have lost their jobs due to pandemic-related cost-cutting measures. Schools of nursing are likely experiencing even more severe shortages of faculty given the combination of retirements and moratorium on new faculty hires.

Limitations

The response rates between the two survey time periods, 71% in 2013 and 43% in 2017, are a limitation of the study. Low response rates can be a potential source of bias (Kelly et al., 2003). The reason for the lower response rate in 2017 is unknown; it is speculated that from the first survey to the second, there were changes to program leadership. In addition, survey fatigue may be at least partly contributory since, in 2017, the Center for Health Workforce Studies also surveyed deans and directors of RN education programs in NYS. Another limitation is the slight variation in the wording of some questions between the two surveys; the survey questions were not, in all cases, identical. Variations in language can produce different results (Kelly et al., 2003).

Additionally, there was no attempt to match data longitudinally. Data for each time period were analyzed and compared as serial cross-sectional studies. Despite these limitations, this study provided an opportunity to increase our understanding of the state of nursing faculty in NYS.

Conclusion

The comparison of nursing school survey data from 2013 to 2017 contextualized in current national trends reveals that NYS nursing schools face similar challenges: increasing faculty vacancy rates, lack of capacity to enroll more students, and lack of diversity. These findings are a call to action for academic leadership among CUNY, SUNY, and private colleges and universities, NYSED, NYS legislators, and healthcare organizations, including the Healthcare Association of New York State (HANYS), and New York Organization of Nurse Executives and Leaders (NYONEL).

Existing literature provides some guidance concerning the development of long-term and sustainable solutions. However, many of these strategies lack robust outcome data. Such evidence of effectiveness would allow for more confidence in the applicability and expected outcomes for the various strategies. Allen and Aldebron (2008) conducted an integrative review of published strategies used to address the nursing faculty shortage. Though an older study, their analysis and recommendations have implications for today's shortage. They uncovered four domains used to address the issue: advocacy, educational partnerships, academic innovation, and external funding. Each domain consists of several sub-categories for which exemplars were identified. The advocacy domain focused on increasing awareness of the shortage, both nursing, and nursing faculty, through mass media campaigns and by the collection of nursing workforce data. Education partnerships consisted of collaborative agreements between schools or between schools and healthcare organizations and/or government entities to expand educational capacity through graduate scholarships, hiring of faculty, and expansion of clinical sites. Academic innovation included: (a) the use of non-traditional faculty (e.g., retired faculty, non-nurse faculty, and nurses in clinical practice), (b) development of new curricula (e.g., use of Dedicated-Education Units, new DNP and PhD program development, and accelerated BS programs), and (c) utilization of technology (e.g., using more simulation and remote modalities). Most strategies across these three domains were aimed at increasing nursing program enrollments, further highlighting the connection between the nursing shortage and the nursing faculty shortage. Underlying these strategies is the hope that by increasing the number of nurses, the nursing faculty shortage will also be eased. However, the domain of external funding was the only domain that specifically targeted increasing faculty directly. Funding was obtained from one of three sources: public sector, philanthropy, or health care industry. These funds were used to support graduate education, either through providing scholarships for future faculty or by funding new or expanding existing graduate programs (Allen and Aldebron, 2008).

In NYS, the Senator Patricia K. McGee Nursing Faculty Scholarship Program is an example of a public sector grant program aimed at increasing the number of nursing faculty (NYS, Higher Education Services Corporation, n.d.). This award provides up to $20,000 of tuition support for qualified nurses to pursue advanced education in return for a commitment to work as a faculty member in NYS for four years. More scholarships, like the Senator Patricia K. McGee program, are needed to help nurses obtain the necessary educational preparation for the faculty role and ease the burden of the nursing faculty shortage.

A global perspective on the nurse faculty shortage was examined by Nardi and Gyurko (2013) in their systematic review and meta-synthesis of proposed solutions. The authors state that the global nursing faculty shortage is the result of several factors, including the devaluation of faculty, disincentives, reduction in full-time positions, and global migration. Their review of the literature netted 181 recommendations in 62 publications and resulted in eight major themes (solutions): centralized data and strategy management, educational paradigm change, removal of barriers to advanced practice, stabilizing funding for all educational programs, improved nursing scholarship, competitive nursing salaries, international collaboration, and managed migration. Though some themes are not relevant to the US shortage (migration), others are similar to those reported by Allan and Aldebron (2008). The need to centralize data is similar to the advocacy domain identified by Allan and Aldebron (2008), with a call to collect international nursing workforce data. Though both studies addressed educational methods, Nardi and Gyurko (2013) discussed baccalaureate entry to practice as a critical part of the educational paradigm change solution, citing the continued use of the associate degree program model as reducing the faculty pool. The NYS BS in 10 legislation, which is now fully enacted, may ultimately increase the number of nurses who go on to graduate

school and enter nursing education careers (University at Buffalo School of Nursing, 2021). Removal of barriers to advanced practice is seen as a strategy that would encourage more nurses to enter masters and doctoral programs, which would increase the pool of qualified nursing faculty. Much like the external funding theme found by Allan and Aldebron (2008) that focused on external funding to directly address the faculty shortage, Nardi and Gyurko (2013) reported on the theme, stabilization of funding. This theme includes dedicated funding streams to support nursing education, faculty productivity, and graduate education that prepares nurses for the faculty role. Competitive faculty salaries were also an identified theme. Competitive salaries as well as other recruitment and retention strategies, were seen as critical solutions to attracting and retaining nursing faculty.

These studies suggest a need for a systematic approach to solving the faculty shortage. The implications of our findings indicate the need for further research into gender, race/ethnicity, diversity of faculty, and the salary differential between nursing faculty and nurses outside of academia. Although addressing the nursing shortage is an essential part of the solution, strategies explicitly focused on the nursing faculty shortage are likely needed. Attempts to solve one issue without addressing the other reduce the likelihood of success. Though a challenging problem, it is imperative that action be undertaken now to meet the need for nursing faculty in order to ensure the highest quality healthcare for our communities. Having a sufficient number of nursing faculty is critical for the education of both new nurses and new nursing faculty and is crucial to the future of nursing.

References

Abdul-Raheem, J. (2016). Faculty diversity and tenure in higher education. *Journal of Cultural Diversity, 23*(2), 53-56. PMID: 27439231

Allan, J., & Aldebron, J. (2008). A systematic assessment of strategies to address the nursing faculty shortage, US, *Nursing Outlook, 56*(6), 286-297. https://doi.org/10.1016/j.outlook.2008.09.006

American Association of Colleges of Nursing (2020a). *Nursing faculty shortage fact sheet.* https://www.aacnnursing.org/Portals/42/News/Factsheets/Faculty-Shortage-Factsheet.pdf

American Association of Colleges of Nursing. (2020b). 2019-2020 *Enrollment and graduations in baccalaureate and graduate programs survey Report.* American Association of Colleges of Nursing, Institutional Data Service and Research Center.

American Association of Colleges of Nursing. (2021a). *Data Spotlight: Insights on the nursing faculty shortage.* https://www.aacnnursing.org/News-Information/News/View/Articleld/25043/data-spotlight-august-2021-Nursing-Faculty-Shortage

American Association of Colleges of Nursing. (2021b). *2020-2021 Salaries of instructional and administrative nursing faculty in baccalaureate and graduate programs in nursing.* American Association of Colleges of Nursing, Institutional Data Service and Research Center.

American Association of Nurse Practitioners. (2020). NP Fact Sheet. https://www.aanp.org/about/all-about-nps/np-fact-sheet

Bittner, N. P., & Bechtel, C. F. (2017). Identifying and describing nurse faculty workload issues: A looming faculty shortage. *Nursing Education Perspectives, 38*(4), 171-176. https://pdfs.semanticscholar.org/e232/f6dbfd4fb927454db5140d44228eca028661.pdf

Brewer, C. S., Wolff, D. A., & Welch, C. A. (2012). *New York State nursing schools and faculty report: 2010-2011.* Foundation of New York State Nurses, Inc.

Buerhaus, P. I., Skinner, L.E., Auerbach, D. I., & Staiger, D. O. (2017). Four challenges facing the nursing workforce in the United States. *Journal of Nursing Regulation,* 8(2), 40-46. http://healthworkforcestudies.com/images/JNR0717_40-46_Buerhaus.pdf

Dos Santos, L. M. (2020). Male nursing practitioners and nursing educators: The relationship between childhood experience, social stigma, and social bias. *International Journal of Environmental Research and Public Health, 17*(14), 4959. https://doi.org/10.3390/ijerph17144959

Dunker, K. S., & Manning, K. (2018). Live continuing education program for adjunct clinical nursing faculty. *Nursing Education Perspectives, 39*(1), 16-18. https://doi.org/10.1097/01.NEP.0000000000000248

Exec. Order No. 202.86, Sections 6951, 6952, 6953, and 6955 of the New York State Education Law. (2020, March 7). Continuing temporary suspension and modification of laws relating to the disaster emergency. https://www.governor.ny.gov/sites/default/files/atoms/files/EO_202_86.pdf

Fang, D., & Kesten, K. (2017). Retirements and succession of nursing faculty 2016-2025. *Nursing Outlook, 65*(5), 633-642. https://doi.org/10.1016/j.outlook.2017.03.003

Flaherty, C. (2020, April 1). Frozen searches: Scores of institutions announce faculty hiring freezes in response to the coronavirus. *Inside Higher Ed.* https://www.insidehighered.com/news/2020/04/01/scores-colleges-announce-faculty-hiring-freezes-response-coronavirus

Hewitt, P., & Lewellen, P. (2010). Ready, set, teach! How to transform the clinical nurse expert into the part-time clinical nurse instructor. *The Journal of Continuing Education in Nursing, 41*(9), 403-407. https://doi.org/10.3928/00220124-20100503-10

Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., Smith, M., Bullock Mann, F., Barmer, A., & Dilig, R. (2020). *The condition of education 2020* (NCES 2020-144). US Department of Education. National Center for Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020144

IBM Corporation. (2020). IBM SPSS Statistics for Windows, Version 27.0. IBM Corp.

Jaschik, S. (2021, April 26). Provosts face the pandemic. *Inside Higher Ed.* https://www.insidehighered.com/news/survey/survey-shows-how-provosts-faced-pandemic

Kelly, K., Clark, B., Brown, V. & Sitzia, J. (2003). Good practice in the conduct and reporting of survey research, *International Journal for Quality in Health Care, 15*(3), 261-266. https://doi.org/10.1093/intqhc/mzg031

Krauth, D. (2020, July 17). Coronavirus News: Traveling nurses recall "It was like a medical war zone." ABC, Inc., WABC-TV

New York. https://abc7ny.com/traveling-nurses-nyc-covid-19-news/6320577/

Li, Y., Turinetti, M., & Fang, D. (2019). Special survey on vacant faculty positions for academic year 2018-2019. American Association of Colleges of Nursing. https://www.aacnnursing.org/Portals/42/News/Surveys-Data/Vacancy18.pdf

Martiniano, R., Goodwin, N., Cleaves, M., Stiegler, K., Khalid, T., & Moore, J. (2019). *Trends in New York Registered Nurse Graduations, 2002-2018.* Center for Health Workforce Studies, School of Public Health, SUNY Albany. https://www.chwsny.org/wp-content/uploads/2019/10/Trends_NY_Nurse_Grads_2018.pdf

Mkandawire-Valhmu, L., Kako, P. M., & Stevens, P. E. (2010). Mentoring women faculty of color in nursing academia: Creating an environment that supports scholarly growth and retention. *Nursing Outlook, 58*(3), 135-141. https://doi.org/10.1016/j.outlook.2010.02.001

Nardi, D. A., & Gyurko, C. C. (2013). The global nursing faculty shortage: Status and solutions for change. *Journal of Nursing Scholarship, 45*(3), 317-326. https://doi.org/10.1111/jnu.12030

National Academies of Sciences, Engineering & Medicine. (2021). *The future of nursing 2020-2030: Charting a path to achieve health equity.* The National Academies Press. https://doi.org/10.17226/25982

National League for Nurses. (2019). *Faculty census survey 2018-2019.* https://www.nln.org/education/education/research-statistics/newsroomnursing-education-statistics/nln-faculty-census-survey-2018-2019-6e3bcc5c-7836-6c70-9642-ff00005f0421

New York State Higher Education Services Corporation. (n.d.). *Senator Patricia K. McGee Nursing Faculty Scholarship Program.* https://www.hesc.ny.gov/pay-for-college/financial-aid/types-of-financial-aid/nys-grants-scholarships-awards/senator-patricia-k-mcgee-nursing-faculty-scholarship-program.html

New York State Education Department, Office of the Professions. (2021a). *Nursing: License statistics.* http://www.op.nysed.gov/prof/nurse/nursecounts.htm#

New York State Education Department, Office of the Professions. (2021b). *New York State nursing programs.* http://www.op.nysed.gov/prof/nurse/nurseprogs.htm

NSI Nursing Solutions, Inc. (2021). *2021 NSI national healthcare retention and RN staffing report.* NSI Nursing Solutions, Inc. https://www.nsinursingsolutions.com/Documents/Library/NSI_National_Health_Care_Retention_Report.pdf

Sousa, M. P., & Resha, C. A. (2019). Orientation learning needs of adjunct clinical faculty in the United States. *Nursing Education Perspectives, 40*(4), 222-227. https://doi.org/10.1097/01.NEP.0000000000000462

Thomas, C. M., Bantz, D. L., & McIntosh, C. E. (2019). Nurse faculty burnout and strategies to avoid it. *Teaching and Learning in Nursing, 14*(2), 111-116. https://doi.org/10.1016/j.teln.2018.12.005

US Bureau of Labor Statistics. (2021). *Occupational outlook handbook: Registered Nurses.* https://www.bls.gov/ooh/healthcare/registered-nurses.htm

University at Buffalo School of Nursing. (2021). New York's BSN in 10 law: What you need to know. *The Nurses Report.* http://nursing.buffalo.edu/news-events/nurses-report.host.html/content/shared/nursing/articles/nurses-report/posts/bsn-in-10.detail.html

Zajac, L. (2011). Double-Loop approach: Recruitment and retention of minority nursing faculty. The *ABNF Journal, 22*(3), 73-77. PMID: 21901996

Zerwic, J. J., Montgomery, L. A., Dawson, C., Dolter, K. J., & Stineman, A. (2021). Planning and implementing a practice/academic partnership during COVID-19. *Journal of Professional Nursing, 37*(1), 24-28. https://doi.org/10.1016/j.profnurs.2020.11.007

Journal of the American Nurses Association - New York (JANANY)

Send inquiries to:
150 State St., 4 FL
Albany, NY 12207 USA
journal@anany.org