Stress, Coping, Perceptions & Professional Outlook of HBCU Nursing Students Related to COVID-19

Specific Aims

The global COVID-19 pandemic has illuminated widening health disparities, social infrastructure deficits, and health care system failures in the United States. A 2017 report[1] highlighted inequality in the nursing workforce distribution across the United States and predicted that North Carolina would experience a deficit of approximately 11,000 nurses by 2030. However, this model relied on the underlying assumptions of stability in health care delivery and demand— circumstances have changed drastically. Health care workers are one of the most profoundly affected demographics, and nurses spend the most time providing direct patient care than any other health profession. Inadequate staffing, benefits, and personal protective equipment have generated feelings of fear and mistrust among health care providers, while misinformation about COVID-19 and pandemic response has generated similar feelings among U.S. citizens. Reports of violent attacks against nurses and other health care providers, including forcible eviction of providers and their families from apartment buildings, have made newspaper headlines across the world.[2] Inadequate stocks of protective gloves, masks, gowns, and eyewear place frontline providers—and by extension, their families—at constant risk of infection.[3] Meanwhile, nurses are faced with the increasingly difficult ethical tasks of balancing professional obligation with personal safety, resulting already in significant psychological symptoms, moral distress, and even post-traumatic stress symptoms.[4] These moral dilemmas are further exacerbated by increasing evidence of disparities in COVID-19 related outcomes for Americans who are impoverished and/or belong to minority racial or ethnic groups. For example, while 30% of Chicago's population identifies as Black or African American, this group makes up 70% of reported COVID-19 deaths.[5] Healthcare workers and already-disadvantaged Americans continue to be profoundly affected by the ongoing crisis of COVID-19, and meaningful solutions to improve their outcomes remain uncertain.

Students across the education continuum have also been deeply affected by the transition from classroom to online learning environments. This swift change has had particularly meaningful effects for students in disciplines like nursing, which require students to master kinesthetic clinical skills. Nursing students can offer a unique perspective on the personal and academic needs of pre-licensure students, safe and effective nursing education in the pandemic context, and the role of novice nurses entering the health care work force. In light of ongoing concerns related to a lack of racial and ethnic diversity in the nursing workforce,[6] nursing students from Historically Black Colleges and Universities (HBCUs) have a unique outlook on COVID-19 and the nursing workforce. Nursing students from HBCUs can offer valuable perspective on COVID-19 related health disparities, the diversification of the nursing workforce, and the professional outlook of novice nurses entering the profession during an unprecedented global health crisis. Available publications on the effects of COVID-19 on nursing education are limited, with only eight results returned via a National Library of Medicine PubMed search for "COVID-19 AND nursing students". No articles related to HBCU/Minority-Serving Institution nursing students and COVID-19 were returned. **Therefore, the proposed study would aim to:**

1. **Measure personal, professional, and academic stress and coping related to COVID-19 among HBCU nursing students, and**
2. **Describe the educational experiences, professional outlook, and community concerns of HBCU nursing students during the COVID-19 pandemic.**

This study will combine mixed survey and focus group methods to fulfill these aims. Survey methods will assess stress, coping, and resilience related to COVID-19. Focus group interviews will center on student perceptions regarding the pandemic, their professional outlook, and community concerns, including COVID-19-related health disparities. **Findings from this study would provide valuable evidence on the adaptation of nursing education during the COVID-19 pandemic, as well as the attitudes of novice nurses from an HBCU who are preparing the enter the healthcare workforce during this unprecedented global health crisis.**

Research Strategy

This descriptive exploratory study will use a mixed methods approach to measure and describe the experiences, perspectives, and attitudes of HBCU nursing students during the COVID-19 pandemic. Published research on the experiences of pre-licensure nursing students with regard to COVID-19 is not available, but previous studies indicate that quantitative questionnaire[7] and qualitative journaling[8] methods have been successful for collecting data from nursing students after the mid-2000s Avian influenza and during the 2014 Ebola virus epidemics.

Sample and Setting. Participants in this study will be pre-licensure students who are currently enrolled or newly graduated from the NC Central University (NCCU) Bachelors of Science in Nursing (BSN) degree program. To maximize transferability and diversity of perspectives, participants will be included regardless of age, sex, race/ethnicity, program progression, and degree track (e.g. accelerated vs. traditional BSN program). Participants must be English-speaking. Initial recruitment will be conducted through advertisement via email and Blackboard course management sites. Students will receive one $20 e-gift card for completion of the online survey and an additional $20 e-gift card for completion of the virtual focus group. We aim to recruit at least 60 current and/or recently graduated (May 2020) students for the survey component. All survey respondents will be invited but not required to participate in a virtual focus group discussion. Focus groups will be limited to 8 participants maximum, and focus group data collection will cease when data saturation is reached; five focus groups are anticipated.

Instruments and Measures. Participants will respond to a researcher-developed survey via Qualtrics software. The survey will collect demographic data, including age, race, ethnicity, living environment (e.g. dormitory, apartment, family home), and employment status, as well as information on academic program standing and progress (degree track, semesters completed in nursing program, graduation date) desired area of specialty practice, and post-graduation job placement, as applicable. The Perceived Stress Scale (PSS) and the Coping Behavior Inventory (CBI)[9] will be used to measure stress and coping related to nursing education. The PSS incorporates 29 Likert-type items to assess stress in early clinical education and practice (i.e. "I do not know how to communicate with patients" and "I worry about getting bad grades), and a higher score indicates higher stress. Among 150 nursing students, the PSS demonstrated a Cronbach's alpha of 0.89, one-week test–retest reliability of 0.60 ($p < 0.01$) and a content validity index of 0.94.[9] The CBI comprises 19 Likert-type items to assess diverse coping strategies (i.e. "I try different strategies to solve the problem" and "I eat a lot and take a long sleep"). In the same study, the CBI demonstrated a Cronbach's alpha of 0.76 and one-week test–retest reliabilities of 0.57, 0.57, 0.59, and 0.55 for the four coping dimensions (avoidance, problem-solving, positivity and transference; $p < 0.01$) respectively. Participants will also complete a short-form, 10-item version of the Connor-Davidson Resilience Scale (CD-RISC)[10], which demonstrated a Cronbach's alpha of 0.85 among a sample of 130 respondents and high correlation ($r = 0.92$) with the original 25-item CD-RISC.[11] The original CD-RISC has been used successfully in recent research with nursing students.[12,13] The CD-RISC assesses general resilience in response to adversity and challenges, and is distinct from the CBI, which measures coping in response to stressors in nursing education. Finally, participants will also respond to survey items to assess COVID-19-related personal and professional stressors. These items will be adapted from questionnaires developed during

Figure 1. Dimensions of Stress & Coping with Measures

previous epidemics—the SARS-Related Stressors Checklist,[14] the SARS Perception of Threat Questionnaire,[15] and general willingness to provide care during the H1N1 influenza pandemic questions.[16] The SARS-Related Stressors Checklist comprises 32 items across six categories (i.e. family stressors, self-related stressors).[14] Likert-type items will be adapted from two previous studies, which measured perceived threat related to SARS (i.e. "I have little control over whether I get infected or not")[15] and willingness to provide care during the H1N1 influenza pandemic (i.e. "I feel knowledgeable enough to safely care for a pandemic flu patient" and "I feel my primary employer will ensure nurse safety").[16]

Focus Group Interviews. Participants will also be invited to take part in virtual focus group discussions. The goal of focus group interviews will be to collect rich, descriptive data on students' educational experiences, professional outlook, and community concerns. Not all participants who complete a survey will attend a focus group because qualitative data collection will end when data saturation is established. Data saturation will be continually assessed using a table to chronologically record emerging themes across focus groups. Data saturation will be defined as the point at which two focus groups have been conducted with no new themes identified; I anticipate five focus groups. Each virtual focus group will be limited to no more than eight participants to ensure adequate time for all participants to contribute meaningfully to the discussion. Discussions will follow a topical guided interview[17] focused on:

- Experiences and satisfaction with virtual nursing education;

- Professional outlook (perceived competency, feelings about entering professional practice);
- Concerns related to practice and workplace and social safety; and,
- Personal and community concerns related to COVID-19 (e.g. health and socioeconomic disparities)

Questions will be aimed at generating descriptions of how COVID-19 has affected students' lives with regard to education, present and future employment, and their concerns regarding health in their families and communities. Previous research examining structural disenfranchisement and violence demonstrated that focus group discussions support participants in "evok[ing] a discourse of collective identity".[18] Therefore, focus groups—in contrast to individual interview—can provide a framework for participants to discuss their education, professional outlook, and community concerns within the complex contexts of student-instructor dynamics, the healthcare delivery system, and health and social inequity.

Data Analysis. Survey data will be imported from Qualtrics software into Microsoft Excel and then into statistical software for analysis. Focus group interviews will be professionally transcribed, and the PI will proof all interview transcripts while listening to digital recordings. The overall goals of data analysis will be to describe satisfaction with education, professional values, resilience, and COVID-19-related fears, stressors, and behaviors among HBCU nursing students, as well as their educational experiences, professional outlook, and community concerns related to the COVID- 19 pandemic. Secondary analysis goals will be to identify and describe opportunities to improve nursing education and socialization for students, as well as local community-based interventions to mitigate COVID-19-related health disparities. Descriptive statistics will be used to summarize demographic data, stress, coping, resilience, and COVID-19-related fear, stressors, and willingness to practice. Initial analysis will examine for relationships between demographic factors, stressors, and coping. Analysis of variance and modeling will be used to assess for relationships and predictors between the stress and coping dimensions (Personal, Professional, and Academic).

Qualitative data analysis will begin after the first focus group discussion has been transcribed to allow ample time and opportunity to evaluate and revise the focus group interview as needed. We will begin data analysis by reading each transcript as a whole and noting a memo summarizing the discussion and any feelings or ideas that surfaced during this initial reading.[19] Field notes from each focus group will be used to contextualize and supplement transcripts during data analysis.[20] Next, we will read the first focus group transcript again with the goal of generating a list of preliminary topical codes.[21,22] These topical codes will be recorded in a code book that includes definitions, exclusion and inclusion criteria, and exemplar quotes for each code.[23] We will then reread the first focus group transcript to assign preliminary topical codes to participant statements and to add interpretive codes, which elucidate the connections between codes and describe the data that emerges during analysis, to the code book.[21] This process will be repeated for each focus group transcript and findings from ongoing data analysis will be used to iteratively refine and expand the codebook. We will check with research mentor(s), community stakeholders, and/or interested participants when unsure how to interpret or code statements and will present preliminary analysis for feedback.

Budget & Expected Outcomes

I am requesting $10,000 total to cover expenses as outlined below:

Budget Item	Cost
Participant incentives – Survey ($20 x 80)	$1,600 (internal funds)
Participant incentives – Focus Groups ($20 x 40)	$800 (internal funds)
Transcription ($120/hour for 5 x 2-hour recordings)	$1,200
Statistician Consult	$1,000
Principle Investigator Effort, 1 Summer month plus 35% benefits	$10,800

CARES funding request: 13,000

I expect to successfully recruit at least 60 survey respondents and 20 focus group participants. Findings from this study would provide valuable evidence on the adaptation of nursing education during the COVID-19 pandemic, as well as the attitudes of novice nurses preparing the enter the healthcare workforce during this unprecedented global health crisis. Further, the perspectives of community-based minority nursing students may also provide insights for local interventions to address COVID-19-related community challenges and/or health disparities. Finally, there limited published research available regarding nursing students' pandemic-related perspectives and experiences and no available research on the same for minority/HBCU nursing students. Therefore, we anticipate that findings from this study will be publishable in nursing education and/or community health nursing journals.

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15. Chong MY, Wang WC, Hsieh WC, et al. Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. *The British journal of psychiatry : the journal of mental science.* 2004;185:127-133.
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APPLICANT BIOGRAPHICAL SKETCH

Use only for individual predoctoral and postdoctoral fellowships, dissertation research grants (R36),and Research Supplements to Promote Diversity in Health-Related Research (Admin Suppl). DO NOT EXCEED FIVE PAGES.

NAME OF APPLICANT: Tomlinson, Elizabeth Reeves

eRA COMMONS USER NAME: EAREEVES

POSITION TITLE: Assistant Professor, North Carolina Central University, Department of Nursing

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	START DATE MM/YYYY	END DATE (or expected end date) MM/YYYY	FIELD OF STUDY
University of NC-Chapel Hill (Chapel Hill, NC)	BSN	2007	2011	Nursing
Duke University (Durham, NC)	PhD	2013	2018	Nursing

A. Personal Statement

My long-term research interests focus on understanding the multi-level implications of structural violence, interpersonal violence and traumatic stress in vulnerable communities. A growing foundation of evidence suggests that the global COVID-19 pandemic will have lasting health, political, social, economic, and psychological implications, most significantly impacting healthcare workers and communities that are vulnerable with regard to systemic discrimination, socioeconomic disadvantage, and lack of access to quality healthcare. The proposed study will examine the intersection between vulnerable communities and healthcare workers by measuring and describing COVID-19-related stress, coping, resilience, professional outlook and community concerns among nursing students at a Historically Black University (HBCU). I aim to describe the layered and cumulative effects of structural violence (e.g. racism and discrimination) on the personal, professional, and academic experiences of nursing students during the COVID-19 pandemic. I am interested in using mixed methods of inquiry that incorporate validated psychometric measures and rich qualitative description. The proposed study will be the first, to my knowledge, to explore the complex perceptions and experiences of HBCU nursing students, who are poised to enter the healthcare workforce during an unprecedented health crisis. Findings from this study would provide valuable evidence on the adaptation of nursing education during the COVID-19 pandemic, as well as the attitudes of novice nurses preparing the enter the healthcare workforce during this unprecedented global health crisis.

In my previous public health nursing experience, I provided care for pregnant women and children under five years old through two state-wide programs, including conducting home visits, providing education on pregnancy, birth, health, and child development, administering medications, and coordinating care for complicated pregnancies and children with special health care needs. In this work, I frequently observed the disparities in health outcomes and access to care experienced by patients from low social positions with regard to race, ethnicity, immigration status, rurality, education, and socioeconomic status. My previous clinical research experience at the National Institute on Alcohol Abuse and Alcoholism provided me with a more expansive understanding of violence, trauma, and post-traumatic stress and their relationships with health and addiction. My undergraduate honors thesis on disparities in rates of breastfeeding among Black American women also provided me with a foundational understanding of health disparities and structural inequity. Through my undergraduate and doctoral research education, I have learned how to formulate research questions and design studies, how to obtain IRB approval, and how to assure the protection of participants. These skills have given me a strong foundation from which to conduct for the proposed research study.

B. Positions and Honors

Occupation	Beginning Date	Ending Date	Field	Institution/Company	Supervisor/ Employer
Student Nurse Intern	06/10	07/10	Nursing	National Institutes on Alcohol Abuse & Alcoholism	Dell Wright, RN
Public Health Nurse	06/11	07/13	Nursing	Chatham County Public Health Department	Debbie Garrett, RN, BSN, MPH
Program Supervisor	03/13	07/13			
Assistant Professor	07/18	Present	Nursing	North Carolina Central University, Dept. of Nursing	Wanda Lawrence, RN, PhD

Honors:

Academic Honors
Bachelors of Nursing with Highest Honors, UNC-Chapel Hill, May 2011

Memberships in Professional Societies
Sigma Theta Tau International, 2011-Present
Nursing Network on Violence Against Women International, 2015 - Present
    Student Representative to the Advisory Board, October 2016 – September 2018
    Advisory Board Member-at-Large, September 2018 - Present

C. Contributions to Science

Publications:

Tomlinson, E.R. & Humphreys, J. (2020). Using Photovoice to Understand Survivors' Healthcare Experiences and Strategies. Manuscript submitted for publication. Submitted for publication.

Tomlinson, E.R., Humphreys, J. & Biederman, D. (2020) Using Collaborative Process Analysis to Understand Women Survivors' Healthcare Experiences. Manuscript in preparation.

Reeves, E., Bernal de Pheils, P., Silva, S., Jaramillo, D., Uribe, T., Tiwari, A.,…Humphreys, J. (2018). Trauma-Related Symptoms and Severity among Women in the Pacific Rim. *Health Care for Women International.* Advance online publication. DOI: 10.1080/07399332.2018.1531004. PMID: 30676889.

Reeves E. & Humphreys J. (2017). Describing the healthcare experiences and strategies of women survivors of violence. *Journal of Clinical Nursing,27(5-6),* 1170-118. DOI: 10.1111/jocn.14152. PMID: 29098784.

Reeves, E., Silva, S. G., Jaramillo, D., Uribe, T., Tiwari, A., Canaval, G. E., ... & Humphreys, J. C. (2017). Trauma exposure among women in the Pacific Rim. *Journal of Nursing Scholarship. 49*(3), 286-293.

Reeves, E. (2015). A synthesis of the literature on trauma-informed care. *Issues in Mental Health Nursing*, *36*(9), 698-709. DOI: 10.1111/jnu.12291. PMID: 28388838

Reeves, E. & Woods-Giscombé, C. L. (2014). Infant-Feeding Practices Among African American Women Social-Ecological Analysis and Implications for Practice. *Journal of Transcultural Nursing.* 26(3), 219-226. DOI: 10.1177/1043659614526244. PMID: 24810518

Presentations:

Reeves, E. & Humphreys, J.C. (2018, September). *Using Photovoice to Explore the Healthcare Experiences and Strategies of Survivors of Violence.* Podium presentation presented at the Nursing Network on Violence Against Women International (NNVAWI) Conference, Niagra-On-The-Lake, Ontario,

Canada.

Reeves, E., Bernal de Pheils, P., Silva, S.G., Jaramillo, D., Uribe, T., Tiwari, A.,…Humphreys, J.C. (2017, April). *Trauma-Related Symptoms and Severity Among Women in the Pacific Rim*. Poster session presented at the Academy of Women's Health Annual Congress, Washington, D.C.

Reeves, E. & Humphreys, J.C. (2016, October). *Trauma Exposure Among Women in the Pacific Rim*. Podium presentation presented at the Nursing Network on Violence Against Women International (NNVAWI) Conference, Melbourne, Australia.

Reeves, E. & Humphreys, J.C. (2016, October). *Healthcare Experiences of Trauma-Exposed Women.* Poster session presented at the Nursing Network on Violence Against Women International (NNVAWI) Annual Conference, Melbourne, Australia.

Reeves, E. & Humphreys, J.C. (2015, April). *Healthcare Experiences of Trauma-Exposed Women: A Qualitative Pilot Study.* Poster session presented at the Nursing Network on Violence Against Women International (NNVAWI) Annual Conference, Atlanta, GA.

D. Research Support
Innovation Grant, awarded by North Carolina Central University, 2019
"Health & Healthcare Disparities for African American Woman Survivors of Violence"
$18,684

Virginia Kelley, CRNA Award, awarded by the American Nurses Foundation, 2016
"Health Care Experiences and Strategies of Survivors of Violence"
$8,370

Pilot study support awarded by Duke University School of Nursing, 2015
"Describing the Health Care Experiences and Strategies of Female Survivors of Violence"
$500