



University of Kentucky  
UKnowledge

---

Theses and Dissertations--Nursing

College of Nursing

---


2019

## RACE-BASED DISCRIMINATION, OCCUPATIONAL STRESS, AND DEPRESSION IN BLACK REGISTERED NURSES

Arica A. Brandford

University of Kentucky, nursearica@gmail.com

Author ORCID Identifier:

 <https://orcid.org/0000-0003-2749-2992>

Digital Object Identifier: <https://doi.org/10.13023/etd.2019.353>

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

### Recommended Citation

Brandford, Arica A., "RACE-BASED DISCRIMINATION, OCCUPATIONAL STRESS, AND DEPRESSION IN BLACK REGISTERED NURSES" (2019). *Theses and Dissertations--Nursing*. 46.  
[https://uknowledge.uky.edu/nursing\\_etds/46](https://uknowledge.uky.edu/nursing_etds/46)

This Doctoral Dissertation is brought to you for free and open access by the College of Nursing at UKnowledge. It has been accepted for inclusion in Theses and Dissertations--Nursing by an authorized administrator of UKnowledge. For more information, please contact [UKnowledge@lsv.uky.edu](mailto:UKnowledge@lsv.uky.edu).

## **STUDENT AGREEMENT:**

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained needed written permission statement(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine) which will be submitted to UKnowledge as Additional File.

I hereby grant to The University of Kentucky and its agents the irrevocable, non-exclusive, and royalty-free license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless an embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

## **REVIEW, APPROVAL AND ACCEPTANCE**

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's thesis including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Arica A. Brandford, Student

Dr. Gia Mudd-Martin, Major Professor

Dr. Debra Moser, Director of Graduate Studies

RACE-BASED DISCRIMINATION, OCCUPATIONAL STRESS, AND DEPRESSION  
IN BLACK REGISTERED NURSES

---

DISSERTATION

---

A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy in the  
College of Nursing at the University of Kentucky

By  
Arica A. Brandford

Lexington, Kentucky

Director: Dr. Gia Mudd-Martin, Associate Professor of Nursing

Lexington, Kentucky

2019

Copyright © Arica A. Brandford 2019

<https://orcid.org/0000-0003-2749-2992>

## ABSTRACT OF DISSERTATION

### RACE-BASED DISCRIMINATION, OCCUPATIONAL STRESS, AND DEPRESSION IN BLACK REGISTERED NURSES

The purpose of this dissertation was to examine depression, experiences of work-related racism, and occupational stress among black nurses. Nursing is a highly stressful and demanding profession that can negatively affect health. Underscoring this is the high rate of depression experienced by nurses. In fact, nurses experience depression at a rate twice that of individuals in other occupations. Examining depression in nurses can provide insights that can inform measures addressing the psychological health of this group. This may be particularly important in black nurses who, in addition to the already high occupational stress associated with nursing, may experience additional stress due to experiences of racism in the work environment. To better understand these factors, the specific aims of this dissertation were to: (1) evaluate the current state of the science of depression in registered nurses; (2) examine the psychometric properties of the two racism on the job subscales of the Perceived Racism Scale in black registered nurses; and (3) evaluate whether past-year or lifetime experiences of work-related racism and occupational stress predicted depressive symptoms and whether, controlling for depressive symptoms, past-year and lifetime experiences of work-related racism predicted occupational stress in a cohort of black registered nurses.

For specific aim one a systematic review of the literature on depression in nurses was conducted. This review highlighted factors that underlie the high rates of depression among nurses, and the individual as well as work-related variables that contribute to nurses' susceptibility to depression. For specific aim two the psychometric properties of two subscales of the Perceived Racism Scale in a sample of black registered nurses were evaluated. The two subscales were past year experiences of racism on the job (ROTJ-Y) and lifetime experiences of racism on the job (ROTJ-L). Reliability for each of the subscales was assessed by examining internal consistency. Construct validity was examined using principal components analysis to evaluate the factor structure of each subscale and by testing the hypothesis that job-related racism is predictive of workplace stress. These analyses demonstrated that the ROTJ-Y and ROTJ-L are valid and reliable instruments for the measurement of yearly and lifetime experiences of racism on the job in black registered nurses. Specific aim three was addressed by examining whether past-year or lifetime experiences of racism on the job and occupational stress were predictive

of depression and whether work-related racism predicted occupational stress in a sample of black nurses. Multiple linear regression analyses were conducted to examine if (1) either past-year or lifetime experiences of work-related racism, and occupational stress predicted depression and (2) either past-year or lifetime experiences of racism predicted occupational stress, with control variables depressive symptoms, years of experience as a registered nurse, primary nursing practice position, work setting, work shift, and work status. Results indicated that experiences of work-related racism and occupational stress were not significant predictors of depression but that both past-year and lifetime experiences of racism were significant predictors of occupational stress.

The results of the research conducted for this dissertation highlight the effects of depression on nurses as well as the relationship between race-based discrimination at work and occupational stress among black registered nurses. This evidence can inform the development of future strategies to improve the well-being of nurses in the workplace in general and especially of black nurses.

KEYWORDS: Nurses, Black, Occupational, Stress, Racism, Depression

Arica A. Brandford  
(*Name of Student*)

07/25/2019  
Date

RACE-BASED DISCRIMINATION, OCCUPATIONAL STRESS, AND DEPRESSION  
IN BLACK REGISTERED NURSES

By  
Arica A. Brandford

Gia Mudd-Martin  
\_\_\_\_\_  
Director of Dissertation

Debra Moser  
\_\_\_\_\_  
Director of Graduate Studies

07/25/2019  
\_\_\_\_\_  
Date

## DEDICATION

To my father Darryl Brandford: My Heart, My Hero, My World.

## ACKNOWLEDGMENTS

The following dissertation, while an individual work, benefited from the insights and direction of several people. I want to formally to thank the complete Dissertation Committee, and outside reader, respectively: Drs. Anita Fernander, Ellen Hahn, Gia Mudd Martin, Mary Kay Rayens, J. Darlene Welsh, and Wayne Sanderson. Each individual provided insights that guided and challenged my thinking, substantially improving the finished product. A special thanks to Dean Heath and the staff of the College of Nursing.

Dr. Gia Mudd-Martin thank you for accepting the challenge to chair my committee after the departure of my previous chair. Dr. Mudd-Martin exemplifies the high-quality scholarship to which I aspire providing me timely and instructive comments and evaluation at every stage of the dissertation process thus allowing me to complete this project on schedule. Dr. Fernander, thank you for all of your time and assistance helping me to perfect my research and writing skills and for always providing an ear to listen and words of advice and wisdom. I would like to send a heartfelt thank you to Dr. Mary Kay Rayens for all of the time she spent guiding me through the statistical analysis and for all of her encouragement and support to continue pushing forward. Also, I would like to thank Dr. Hahn for encouraging and supporting as an occupational fellow despite the many obstacles I endured throughout the process. Thank you, Dr. Welsh, for providing me with access to your research on depression in registered nurses. Also, thank you to Dr. Sanderson for supporting me as an occupational fellow of the ERC throughout my tenure as a doctoral student and your patience as I completed my graduation requirements. Finally, a special thank you to Drs. Deborah Reed and Jennifer Hatcher for



encouraging me to enter the doctoral degree program and for serving as my mentors and original chairs.

In addition to the instrumental assistance above, I received equally important assistance from my family and close friends. There are not enough words to thank you for your support and encouragement. I've been faced with so many unexpected obstacles and setbacks over the last three years, but each of you have remained by my side and showered me with love and support. Thank you Saburah for always being a listening ear and pushing me to be the best I could be. I would like to especially thank my sisters Tiffany Cole, Angela Brandford-Stevenson, and Ashley May for your unconditional love and support throughout my life. Words cannot express what you and my other sisters mean to me. A special thank you to my mother, Dianne Brandford, for all those dreaded English and writing lessons he provided to me as a child and young adult. They really paid off. Next, but most importantly, thank you to my dad. I miss you dearly, but you have instilled so much of your heart, love, and intelligence in me. Your presence will forever live on in me. You still are and always will be the most amazing person that I know. Finally, to my love Willie— We did it! Thanks for pushing me to never give up, and always being so proud that I would be a doctor, lawyer, and a nurse!

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	iii
LIST OF TABLES .....	vi
LIST OF FIGURES .....	vii
CHAPTER 1. Introduction.....	1
CHAPTER 2. Depression in Registered Nurses: A State of the Science .....	12
CHAPTER 3: Validity and Reliability Testing of the Perceived Racism Scale - Racism on the Job Subscale .....	44
CHAPTER 4: Examining Race-Based Discrimination, Occupational Stress, and Depression in Black Registered Nurses: A Pilot Study .....	60
CHAPTER 5. Summary of Findings .....	74
REFERENCES .....	81
VITA.....	96

## LIST OF TABLES

Table 2. 1 Predictors and Protective Factors of Depression in Registered Nurses .....	26
Table 2. 2. Comprehensive Examination of Studies Reviewed.....	27
Table 3. 1 Corrected Item-Total Correlation & Alpha if Item Deleted .....	55
Table 3. 2 Results of Principal Component Factor Analysis .....	56
Table 3. 3 Linear Regression Modeling Occupational Stress and Racism on the Job (Yearly and Lifetime) in Black Registered Nurses .....	57
Table 3. 4 Correlations between Variables with Racism on the Job (Past Year) .....	58
Table 3. 5 Correlations between Variables with Racism on the Job (Lifetime).....	58
Table 4. 1 Descriptive Summary of Study Variables .....	72
Table 4. 2 Linear Regression to evaluate whether perceived ROTJ-Y predicts Occupational Stress.....	73
Table 4. 3 Linear Regression to evaluate whether perceived ROTJ-L predicts Occupational Stress.....	73

## LIST OF FIGURES

Figure 1. 1 Conceptual Model – Relationships Among Race-Based Discrimination, Occupational Stress, and Depression.....	11
Figure 2. 1 Methods for Article Selection for Review.....	43
Figure 3. 1 Scree Plot - Racism on the Job During Past Year .....	59
Figure 3. 2 Scree Plot - Racism on the Job During Lifetime .....	59

## CHAPTER 1. Introduction

Registered nurses are the largest profession within the healthcare industry, with more than three million currently employed in the United States.<sup>1,2</sup> Nurses experience depressive symptoms at a rate twice that of individuals in other professions.<sup>3</sup> Depression is linked to work absenteeism, short-term disability, and decreased productivity.<sup>4</sup> Perhaps more alarming is the fact that depression contributes to lapses in judgment in the workplace and can produce serious injuries to nurses and patients.<sup>5</sup> Unidentified and/or untreated depression in registered nurses can lead to decreased morale, lack of trust, increased attrition, poor quality of patient care and safety, all of which have serious consequences for individuals, patients, and organizations.<sup>6</sup>

Nursing is an inherently demanding profession regardless of racial identity,<sup>3,7</sup> but exposure to racial bias and discrimination may create additional stressors for the black nurse.<sup>8,9</sup> Minority nurses report that they face more barriers to advancement and promotion than their non-minority counterparts do. A surprising number of black registered nurses have filed discrimination related grievances or complaints at some point in their career.<sup>10</sup> Researchers have found that nurses frequently base employment discrimination claims on race, and domination of an occupation by a majority group creates an environment that may not be conducive to minority success.<sup>10</sup> Increased stress and perceived race-based discrimination at work place black registered nurses at risk for depression.<sup>11,12</sup> As such, black registered nurses have unique factors that affect their mental health that require investigation.

Despite the importance of depression to the lives of registered nurses, there is limited research in which the mental health of nurses has been examined,<sup>3,7,13-19</sup> and even

less in which the mental health of black nurses has been examined. There also has been little research conducted in which the associations of experiences of discrimination among black registered nurses and depression have been studied.

### **Background**

The nursing profession is one that is extremely stressful and demanding and as such, investigation of the mental health of nurses should be priority. Levtak and colleagues conducted a cross-sectional survey of 2500 registered nurses to examine depression in hospital employed nurses.<sup>3</sup> They found that hospital employed nurses had higher depression symptoms than national norms, and nurses with higher depression scores not only suffer themselves, but their illness may impact the quality of care they provide to patients.<sup>3</sup>

Depression impacts employee and organizational function and creates productivity losses for employers.<sup>5</sup> Depression is linked to increases in work absenteeism, short-term disability, and decreased productivity and presenteeism.<sup>20</sup> It is theorized that presenteeism may have the most impact on worker performance. Presenteeism exists when an employee is present yet unproductive; in the case of depressed workers, these employees continue to come to work but underperform due to their symptoms.<sup>21, 22</sup> Perhaps more alarming is the fact that depressed employees may have impaired judgment in the workplace that can produce serious injuries.<sup>5</sup>

### ***Depression in Black Americans***

Although, mental disorders affect all races, ethnicities and genders, there is evidence that highlights the disproportionate burden it creates for blacks.<sup>23</sup> Researchers investigating depression in the general population note that blacks are more likely to have

higher comorbidities and functional impairments and be more persistently ill once diagnosed with depression.<sup>24</sup>

Black Americans represent 12% of the United States population,<sup>25</sup> but account for 18.7% (7.5 million) of those affected with mental illness.<sup>23, 25</sup> Blacks are 20% more likely to report having psychological distress than whites and are more likely than any other ethnic groups to suffer from major depression.<sup>26</sup> In addition, blacks are more likely to be persistently ill once diagnosed with depression.<sup>24</sup> Chronic depression is substantially higher in blacks. Most recent chronic depression rates were reported as 57% for blacks and 38% for whites.<sup>27</sup> As a result, blacks have more comorbidity burden and worse functional impairment than whites.<sup>24</sup>

### ***Stress and the Mental Health of Black Americans***

Stress contributes to and may trigger episodes of depression.<sup>5</sup> The literature indicates that higher levels of perceived stress are associated with higher depression levels.<sup>7, 17, 28-30</sup> Stress has been referred to as an internal cue in the physical, social, or psychological environment that threatens the stability or equilibrium of an individual.<sup>31</sup> Stressful events elicit a response, and distress arises when an individual is unable to cope with a stressor. These negative emotional states may generate psychological distress.<sup>32</sup>

Stressors can be caused by working environment, interpersonal relationships, the nature of an individual's occupation, and individual characteristics.<sup>33</sup> Although many black people may experience similar and frequent race-related events, the subjective stressfulness of those events will likely differ.<sup>8</sup> Thus, both the occurrence and the individual's perceptions of their stressfulness are important factors that contribute to psychological well-being.<sup>8</sup>

Negative race-related experiences of blacks are associated with negative mental health outcome such as depression.<sup>12, 34-36</sup> A growing body of evidence suggests that experiencing interpersonal discriminatory events can have adverse mental health consequences for blacks.<sup>37-40</sup> Using panel data from the *National Survey of Black Americans*, Jackson and colleagues established that participants' reports of racial mistreatment were linked to higher levels of psychological distress.<sup>37</sup> Indicators of both one-year and lifetime prevalence rates for experiencing racism were related to higher rates of psychiatric symptoms in blacks including anxiety, depression, obsessive-compulsive behavior, interpersonal sensitivity, and somatization.<sup>39</sup> Cumulative encounters with racism and discrimination increase the likelihood that blacks will experience psychological distress.<sup>40</sup> In a meta-analytic review Pascoe and Richmond observed that perceived discrimination was correlated with psychological health, and was positively associated with depressive symptoms, and psychiatric distress.<sup>35</sup>

### ***Race-Based Discrimination at Work and Depression***

Like health disparities in the general population, inequalities exist in the workplace that greatly influence work health status. Blacks represent just 11.6 percent of the United States labor force,<sup>41</sup> but they are more likely than other racial/ethnic groups to report frequent incidences of discrimination in the workplace.<sup>9</sup> Discrimination in the workplace arise as “stereotypes, excessive demands, an absence of mentoring, exclusion from work (office) cliques, being ignored and/or harassed, and assumptions of incompetence”.<sup>11</sup> Workplace discrimination can manifest in subtle forms such as perceived harmless statements or more overt forms such as exclusion.<sup>11</sup> Perceived



discrimination influences the levels of stress, depression, and psychological distress experienced by black workers.<sup>25</sup>

However, the literature is scant on the health effects of racial discrimination on the worker.<sup>42</sup> Utilizing data from the Gradients of Occupational Health in Hospital Workers, Hammond and associates examined the correlation between workplace discrimination and depressive symptoms.<sup>9</sup> They found that blacks reported more discrimination in day-to-day workplace interactions, and measures of workplace discrimination were significantly correlated with higher depression scores.<sup>9</sup> Nunez-Smith and colleagues examined physician experiences of racial discrimination.<sup>43</sup> More than 70% of black physicians reported they had experienced racial discrimination during their careers or in their current work setting.<sup>43</sup> Despite available research examining this phenomenon in physician providers, scant research exists that examines this phenomenon in registered nurses.<sup>6, 44-46</sup>

### ***The Role of Occupational Stress on Depression in Registered Nurses***

In addition to raced-based discrimination at work, there are occupational risk factors that may increase stress in registered nurses. Individual risk factors including age, gender, marital status, and level of education contribute to risk for occupational stress.<sup>47</sup> In addition, job-related characteristics are associated with occupational stress in registered nurses. Factors such as years of experience as a nurse, work shift, workload, and work setting contribute to occupational stress and depression in registered nurses.<sup>47, 48</sup>

### ***Coping Strategies for Stressful Events***

Coping strategies have a major influence on an individual's physical and psychological well-being when they are faced with stressful life events.<sup>49</sup> Lazarus and

Folkman defined coping as “constantly changing cognitive and behavioral efforts to manage specific internal/external demands that are appraised as exceeding the resources of the person”.<sup>32</sup> Although many black people may experience similar and frequent race-related events, the subjective stressfulness of those events will likely differ.<sup>8</sup> Thus, both the occurrence and the individual’s perceptions of their stressfulness are important factors that contribute to the psychological effects of discrimination.<sup>8</sup>

Lazarus and Folkman defined two basic categories of coping strategies: problem-solving coping and emotion-focused coping.<sup>32</sup> Problem-solving coping involves strategies that attempt to solve, reconceptualize, or minimize the effects of a stressful situation. Conversely, emotion focused coping, which attempts to alter stressful feelings, involves strategies of self-preoccupation, fantasy, or other conscious activities related to affect regulation. “Almost all stressors elicit both types of coping, problem focused tends to predominate when people feel that something constructive can be done, whereas emotion-focused coping tends to predominate when people feel that the stressor is something that must be endured”.<sup>50</sup> The focus of this research is dispositional or trait-like coping wherein individuals report the extent to which they usually do the things listed when stressed. The aim of trait-oriented coping is early identification of coping resources and tendencies.<sup>51</sup> Early identification of coping strategies is a critical component for creating an effective primary prevention program.<sup>51</sup>

### ***Perceived Race-Based Discrimination Among Black Registered Nurses***

Consistent with the evidence, one important indicator of stress may be perception of race-based discrimination at work. Race-based discrimination at work is characterized by isolation, alienation, denial of advancement, marginalization (feeling invisible and

voiceless), ineffective or inappropriate communication, and bullying by the dominant racial group.<sup>44</sup> Race-based discrimination at work is an alarming but trending phenomenon in the nursing workplace<sup>52</sup> accounting for more than 40% of employment discrimination claims and grievances filed by registered nurses.<sup>10</sup>

Discrimination at work is a significant source of stress among minority registered nurses that substantially increases the risk for depression.<sup>53</sup> Discrimination not only affects worker's performance but can have serious psychological effects.<sup>6</sup> This is especially true if individuals employ ineffective coping strategies to combat perceived stressful experiences.<sup>8, 54</sup>

Both the occurrence of race-based discrimination and occupational stress as well as the individual's perception of their stressfulness are important factors that may contribute to depression in black registered nurses. Thus, the overall purpose of this dissertation is to examine multiple factors that affect black registered nurses in the work environment including race-based discrimination at work, depression, and occupational stress. This body of work can support awareness of the difficulties facing black registered nurses. Furthermore, it is a crucial step in increasing diversity in the registered nurse workforce and eliminating roadblocks to recruitment and retention of minority nurses by ensuring the psychological well-being of black registered nurses.

### ***Conceptual Framework***

The conceptual framework guiding this study of depression was modified from the Race-Related Stress and Coping Model developed by Outlaw<sup>54</sup> and is grounded in Lazarus and Folkman's transactional stress theory.<sup>55</sup> In the original model, once a stressful event has occurred the person-environment interaction or cognitive appraisal

delivers information to and from the person and environment.<sup>54, 55</sup> An assessment is made by the individual to determine if the event is stressful.<sup>54, 55</sup> If an event is perceived stressful, the evaluation of the proper coping response commences.<sup>54, 55</sup> Next, there is an evaluation of coping effectiveness as determined by an individual's response to stressful stimuli.

In this this model (Figure 1.1), we propose that there is a relationship among perceived experiences of race-based discrimination, depression, and occupational stress.<sup>35</sup> Both occupational stress and racism have been individually identified as major stressors.<sup>54, 56</sup> The literature supports the fact that a variety of individual and workplace characteristics as well as race-related occupational factors influence occupational stress. Individual risk factors for occupational stress include age, marital status, level of educational, and gender.<sup>47</sup> Job-related characteristics influencing occupational stress include factors such as years of experience as a nurse, work shift, workload, and work setting, and primary nursing practice position.<sup>47, 48</sup> In addition, there is evidence that major stressors such as race-based discrimination and occupational stress impact depression.<sup>9, 16, 57, 58</sup>

### **Purpose of the Dissertation and Summary of Subsequent Chapters**

Guided by the conceptual model (Figure 1), the purpose of this pilot study was to examine the relationships among race-based discrimination at work, depression, and occupational stress in a cohort of black nurses.

To this end, in chapter two of this dissertation, the findings of a systematic review of the literature exploring the state of the science of depression in registered nurses was reported. Many studies have been conducted in which depression among

nurses has been examined but results have been varied. There has not been a systematic review of the literature that has focused on examining the full body of work that is available on the topic and synthesizing the findings.

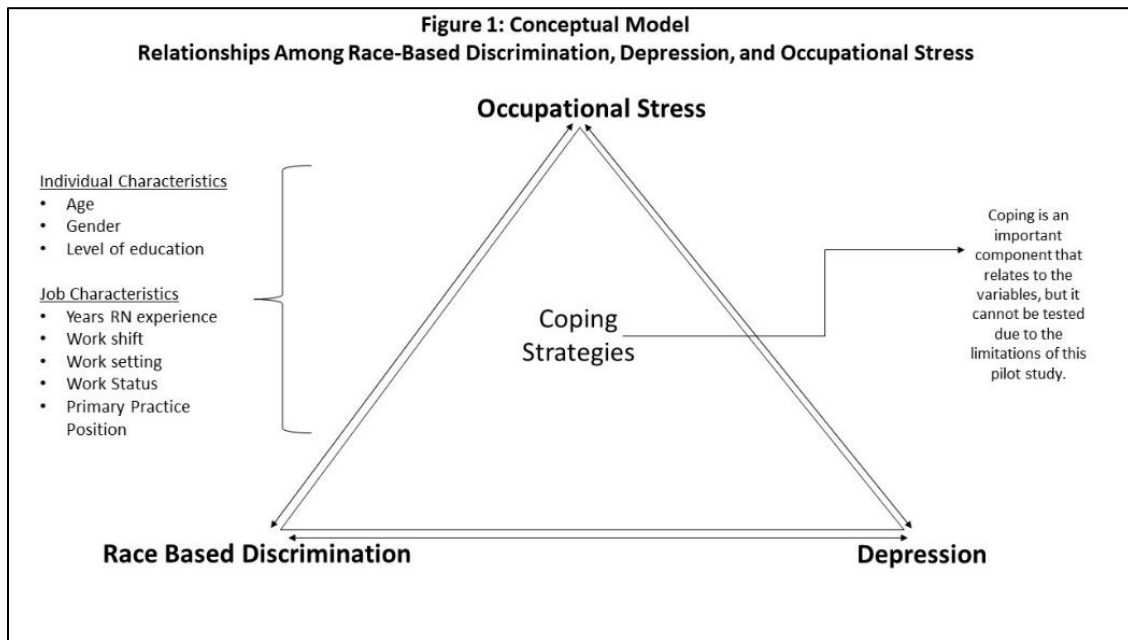
In chapter three a study conducted to evaluate the psychometric properties of the Racism on the Job Subscale of the Perceived Racism Scale used to assess the frequency with which discriminatory events are experienced among black nurses is reported. The Racism on the Job subscale has specifically been used to examine the frequency of exposure and subjective response to racism experienced by minorities in various work settings. Data from a survey administered to black registered nurses across the United States to examine the frequency with which job-related discrimination was experienced were analyzed. Of the 75 that completed the original survey, 53 participants completed both subscales of the Perceived Racism Scale –and were included in this study. To examine the psychometric soundness of the instrument reliability and validity testing was conducted. The psychometric properties of the Perceived Racism Scale subscale, Racism on the Job, have not been established when used to examine the experience of racism among black nurses.

In chapter four, the results of a pilot study conducted to examine race-based discrimination at work, depression, and occupational stress in a sample of black registered nurses were presented. Data for this study were collected to examine race-based discrimination at work, depression, and occupational stress among black registered nurses. The aims of this pilot study were to evaluate (1) whether past-year and lifetime experiences of work-related racism and occupational stress predicted depressive symptoms and (2) whether, when controlling for years RN experience, primary nursing

practice position, work setting, work shift, work status, and depressive symptoms, past-year and lifetime experiences of work-related racism predicted occupational stress in a cohort of black registered nurses. Multiple regression analyses were used to examine the aims of the pilot study. This novel pilot study is the first research to examine the relationship among race-based discrimination at work, depression, and occupational stress in black nurses.

In chapter five, data from this dissertation was synthesized. In this chapter, how the body of work presented in the previous chapters adds to nursing knowledge and addresses gaps in the literature is discussed. Conclusions based on the findings from the studies that have been conducted and the synthesis of study results are discussed. Finally, the implications of this body of work for nursing and nursing policy as well as considerations for future research to enhance our understanding of the scope of racism experienced among black nurses in the workplace, the impact of these experiences on the health of black nurses, and the importance of addressing racism in the nursing profession are discussed.

Figure 1. 1 Conceptual Model – Relationships Among Race-Based Discrimination, Occupational Stress, and Depression.



## CHAPTER 2. Depression in Registered Nurses: A State of the Science

More than 4 million registered nurses are employed in the United States, with females representing 90% of the nursing workforce.<sup>59</sup> Nursing is a stressful, demanding, and taxing profession; job stress is linked to higher rates of depression.<sup>60</sup> Nurses experience depressive symptoms at a rate twice as high as individuals in other professions.<sup>3</sup> In this paper, the authors assess the current state of the science related to depression in registered nurses so that occupational health nurses can identify personal and organizational factors that influence depressive symptoms and create pathways for better mental health for registered nurses. The correlates and predictors of depression in registered nurses discovered in the literature are summarized. Last, the authors identify gaps in the literature that may guide further research.

### **Background**

Depression is estimated to affect more than 350 million individuals.<sup>61</sup> Globally, an estimated 1 in 20 individuals report an episode of depression in the previous year. In the United States, more than 16 million adults have had at least one major depressive episode in the last year.<sup>62, 63</sup> The Centers for Disease Control and Prevention estimate that 1 in 10 adults in the United States will at some point in their lifetimes report suffering from depression.<sup>20</sup>

Major depressive disorder, frequently referred to as depression, is the most common mental disorder in the United States.<sup>64</sup> It is noted that depression and depressive symptoms present in everyone differently. Generally, depression is characterized by persistent sad, anxious, or empty feelings; feelings of hopelessness or pessimism; feelings of guilt, worthlessness, or helplessness; irritability; restlessness; and loss of interest in



activities or hobbies once pleasurable.<sup>62, 65</sup> Additional symptoms include fatigue and loss of energy; difficulty concentrating, remembering details and making decisions; insomnia, early-morning wakefulness, or excessive sleeping; overeating, or appetite loss; thoughts of suicide and suicide attempts; aches or pains; headaches; cramps; or digestive problems that do not ease even with treatment.<sup>62, 65</sup> These problems can become chronic or recurrent and lead to substantial functional impairments.

Major depression affects employee performance as well as organizational productivity.<sup>5, 66, 67</sup> Depression is linked to increases in work absenteeism, short-term disability, and decreased productivity and presenteeism<sup>20</sup>. Depressed employees may have impaired judgment; lapses of judgment in the workplace can produce serious occupational injuries.<sup>5</sup> Depression is estimated to cause 200 million lost workdays each year at a cost to employers of US\$17 billion to US\$44 billion.<sup>67</sup> Depression accounts for as much health care and disability costs as chronic diseases such as hypertension, diabetes, musculoskeletal disorders and heart disease.<sup>67</sup> Nurse-reported productivity loss due to depression is estimated to be US\$14,339 per nurse and US\$876.9 million per state. These costs equate to a nation productivity loss of US\$22.7 billion/year.<sup>66</sup>

However, it is presenteeism that may have the most impact on worker performance.<sup>22, 66</sup> Presenteeism is the productivity loss that occurs when workers are present at work but are not functioning at peak performance because of health problems.<sup>68</sup> Depressed workers continue to work but underperform due to their symptoms.<sup>21, 22</sup> Registered nurses who report presenteeism are more likely to report more medication errors, patient falls, and overall poorer quality of care received by patients.<sup>66</sup>

## Methods

A review of the literature was conducted using the electronic databases CINAHL and PubMed. In addition, the search engine Google Scholar was used to detect other relevant literature sources. The original search was limited to 10 years, articles written in English, and outcome variables related to depression. To refine this topic for a review of the literature, a Population, Intervention, Comparison, and Outcome (PICO) question was generated. The PICO question for this research included the terms *registered nurses*, *predictors*, and *depression*. In CINAHL, the terms depression AND registered nurses were explored using the “major exact subject heading” field generating 15 articles, of which 8 were further examined.

To capture additional articles, a search of the terms *depress\** and *staff nurs\** using the “major exact subject heading” field was completed, yielding another 9 articles, 5 of which were relevant and marked for additional examination. Because few relevant articles were discovered, the researchers eliminated the 10-year time anchor to capture sentinel research articles. A subsequent search of PubMed, employing the search terms “occupational depression nurses, yielded 173 articles; 18 were flagged for further review.

At this step, many articles were rejected because the articles did not focus on depression in registered nurses, the focus of this review. The abstracts of remaining articles were reviewed to ascertain that the remaining research studies matched the purpose of this review. At this point, the search engine Google Scholar with keywords “depression in registered nurses” was explored with no time limitations. This search uncovered a sentinel article from 1990 that had not been previously identified. Next, the

authors conducted a manual citation search using the identified articles; this process yielded 5 additional research articles. See Table 2.1.

After adjusting the search criteria to capture the most significant research articles, 36 articles were retained for this review of the literature. Because of the limited number of articles retrieved from the chosen data bases, the researchers did not evaluate the studies for methodological and theoretical rigor. The remaining 18 studies were then reviewed, analyzed, and organized around the outcome variable of depression. Results of the review were categorized into themes found in the literature including stages of depression research, geographical features, depression measurements, prevalence of depression, and depression correlations. Table 2.2 presents a summary of 36 studies reported between 1983 and 2015 that met the inclusion criteria. The information identified in the table includes the author(s), year, location, purpose/research questions, design, sample size, depression measurements, other measurements, and key findings.

### **Findings**

Of the 36 studies identified for this review, 10 used a descriptive design, 11 used a correlational design, and 15 used a mixed descriptive/correlational design. Sample sizes ranged from 29 to 3474 nurses. Of the 36 studies, 7 were conducted in the United States with the remaining 29 conducted internationally. The time span for the studies ranged from 1983 to 2014. Table 2.2 provides a comprehensive examination of each of the 36 studies reviewed.

### ***Stages of Depression Research***

The investigation of depression in registered nurses spans several decades. The landmark article on the subject was written by Italian researchers in 1983 and examined

depression and anxiety in psychiatric nurses.<sup>69</sup> Between 1985 and 1993 researchers published 4 articles investigating depression in registered nurses. These authors mainly focused on predictors and correlates of depression in registered nurses. Between 1998 and 2003 researchers began to focus on personal factors associated with depression such as secondary trauma, demographic characteristics, and personal protective factors. During this timeframe, investigators published 7 articles that contributed to understanding how depression affects registered nurses. Since 2004, a resurgence of articles examined the prevalence and predictors of depression; the emphasis in these articles was on personal and occupational stress experienced by registered nurses. Between 2004 and 2015, researchers published 25 articles exploring the relationship of these phenomena; research in the last decade accounted for close to 70% of current knowledge on the topic. Table 1 provides a chronological summation of research studies about depression in registered nurses.

### ***Geographical Scope of Depression Research***

Examining and predicting depression in registered nurses is domestically and internationally imperative. Research on the topic in the United States has been published in New York, North Carolina, New Jersey, Tennessee, California, and most recently in Kentucky.<sup>3, 7, 70-73</sup> However, most of research investigating depression in registered nurses has been conducted outside the United States (i.e., Australia, Canada, China, England, Japan, Norway, Taiwan, and the Caribbean countries of St. Vincent, Trinidad and Tobago). Table 2.2 provides a comprehensive list of international depression research and corresponding countries.

### ***Observations of Depression in Registered Nurses***

The research revealed a variety of factors that predicted depression in registered nurses. The highest rates of depression were among young, female registered nurses.<sup>13, 19, 73-76</sup> In addition, depression was cited as more frequent in single and divorced nurses versus married nurses.<sup>14, 19, 30, 74</sup> Nurses working in intensive care units and psychiatric units reported higher levels of depression than nurses working on other types of units.<sup>13, 30, 58, 69, 77-79</sup> Registered nurses reporting higher levels of workplace violence or traumatic events also reported higher levels of depression.<sup>58, 76, 80</sup> Additionally, nurses with positive evaluation and expectation of themselves and others reported lower depression levels.<sup>14</sup>

### ***Depression Correlates***

Depression was positively correlated with female gender, marital status and length of employment.<sup>14, 16, 28, 30</sup> Also, as age increased, the risk for depression decreased.<sup>77, 81</sup> Depression in registered nurses was also correlated with other mood disorders like anxiety, and somatic symptoms such as fatigue, pain, and trouble sleeping.<sup>7, 82</sup> Depression showed significant positive associations with role overload, role conflict, stress, burnout, absenteeism, intention to leave, and turnover.<sup>14, 17, 18, 28, 29, 70, 76, 79</sup> Overcommitment and job strain were also significant correlates of depression.<sup>83</sup> Shift work or working alternating shifts was positively associated with depression.<sup>13, 71, 84-86</sup> Higher job satisfaction, self-efficacy, optimism, learned resourcefulness and positive ideation were negative correlates and significant buffers against depression.<sup>14-16, 30, 82</sup>

### ***Depressive Symptomology***

The most frequently reported depressive symptoms by registered nurses included continual fatigue, trouble sleeping, thoughts about death, depressed mood (2 weeks or

more), and trouble concentrating.<sup>7, 73</sup> In addition to these depressive symptoms and somatic complaints, depression in some instances was accompanied by anxiety or anxious feelings.<sup>29, 69, 71, 74, 77, 82, 87</sup> Depression was often accompanied by report of at least one chronic disease.<sup>16, 75</sup>

### ***Personal Characteristics***

The literature consistently cites age as a main contributor to depression in registered nurses. Unlike the general population, as nurses age, they are less likely to suffer from depression and depressive symptomology.<sup>13, 19, 75</sup> Ohler and colleagues found in their study of 9322 registered nurses that younger nurses had nearly double the odds of depression.<sup>75</sup> This finding is supported by other research that reported increasing age as a protective factor against depression.<sup>76, 81</sup> In addition, marital status was also a strong predictor of depression in registered nurses with the research showing that single and divorced nurses had the highest prevalence of depressive factors.<sup>19, 30, 74</sup>

### ***Work Characteristics***

Acute hospital-based registered nurses reported higher levels of depression; the level of clinical unit acuity was directly related to this finding with psychiatric, intensive care and surgical units' nurses reporting the highest levels of depression or depressive symptomology.<sup>13, 69, 77, 78</sup> Job strain, role overload, role insufficiency, and diminishing role boundaries predicted depressive symptoms in a sample of 1,986 Chinese nurses.<sup>18</sup> Furthermore, according to Ohler and colleagues, nurses experiencing job strain were 80% more likely to suffer from depression.<sup>75</sup> Other factors such as lack of supervisor support, job insecurity, lack of reward, and job-related stress are strongly correlated with depressive symptoms.<sup>19</sup> It is quite plausible that younger nurses have higher rates of

depression due to the work environment. Work satisfaction, shift work, fatigue and fewer years of work experience have been found to be strong correlates of psychological health.<sup>13, 84, 86</sup>

## **Discussion**

This review explored the prevalence and predictors of depression in registered nurses from 36 published studies. Overall, evidence from this review confirmed a troubling prevalence of depressive symptoms in this population. Table 2.2 provides a summary of the results.

Currently, insufficient rigorous research studies using randomized samples or longitudinal analyses have examined this issue. Research is scattered globally with limited study designs and samples. Additional research is needed that will further guide and define depression in registered nurses.

Although nursing is predominantly a female profession, the review revealed that when gender was included, female registered nurses experienced higher rates of depression. In the United States population, women experience depression at a rate twice that of men with an estimated 7 million women diagnosed with major depression each year.<sup>64</sup> This excessive rate is often attributed to additional stressors and challenges faced by women at home and work.<sup>24, 88, 89</sup> This review of the literature noted mixed results for the role of social and family support and depression among nurses. More research should be conducted to provide foundational knowledge about the complexities of interactions between work, and family and community roles among registered nurses, particularly among female nurses who have increased risk for depression.

In addition to gender, the review revealed that younger nurses had higher rates of depression than older nurses. This finding is inconsistent with general literature on the topic that suggests that as one ages the risk for depression increases.<sup>20</sup> In the general population, older individuals are at risk for persistent and recurring (chronic) depression, which may exacerbate health conditions or cause new issues.<sup>90</sup> Findings of this study may be partially explained by the healthy worker survivor effect which describes a continuing selection process such that those who remain employed tend to be healthier than those who leave employment.<sup>91</sup> Due to the possibility of the healthy worker effect in registered nurses, some caution regarding this finding and a need for further research should be understood.

In addition to age, it is worth noting that length of employment is also strongly correlated to depression. Therefore, specific measures should be used to ensure that early psychosocial interventions for these nurses are introduced upon initial hire and not only when nurses first begin to exhibit symptoms of depression or concurrent syndromes like anxiety or fatigue. Peer support systems may assist new nurses as they enter the workforce.<sup>92</sup> The complexity of young registered nurses' work may include additional pressures for advanced education, new family roles, and launching their careers which may combine to elevate the risk of depression.<sup>92, 93</sup>

The Centers for Disease Control and Prevention's Total Worker Health Model may be used by occupational health nurses to more fully assess the risk of depression among vulnerable employees.<sup>94</sup> A Total Worker Health approach is defined as "policies, programs, and practices that integrate protection from work-related safety and health



hazards with promotion of injury and illness prevention efforts to advance worker well-being”.<sup>94</sup>

Registered nurses at risk for depression should be monitored for somatic symptoms and chronic illnesses. Fatigue can be a somatic complaint related to depression; however, nurse fatigue can also result from shift work disorder.<sup>30, 84</sup> Much of the depression risk in younger nurses may be attributed to these nurses being immediately assigned to non-traditional shifts when they begin practice. Although younger nurses experience depression at higher rates than older nurses, older nurses should still be monitored for chronic illnesses that may increase their risk for depression.<sup>16, 75</sup> The average age of the nursing workforce is steadily increasing; the average age of registered nurses working in the United States is 50; more than 53% of registered nurses work past the age of 50. With increased age comes increased risk for chronic illness. Older nurses tend to have greater body mass indexes (BMI), higher pain scores, and less health-related productivity than younger nurses.<sup>95</sup>

In this review, studies could be better characterized as a patchwork quilt than a well-established, consistent examination of depression in registered nurses. Across studies, the research question and specific aims were broad, and no gold standard depression instrument was used across studies; instead, researchers used a variety of instruments. One of the ways to combat this problem is to have a clear conceptual picture and theoretical framework to guide research and practice. Based on the psychosocial risk management literature, this conceptual framework should include components that pose the greatest risk to worker health including personal characteristics, job content, workload and work pace, control, environment and equipment, organization culture and

function, interpersonal relationship at work, role in organization, and home and work interface.<sup>96</sup>

### **Implications**

These findings have far reaching implications for occupational health nurses. Registered nurses must be healthy and focused to function at optimal capacity. One practical starting point to address depression in registered nurses is to examine organizational structure and support. An essential role of occupational health nurses is to ensure that program policies support, encourage, emphasize, and prioritize worker health.<sup>97</sup> As the review indicated, work environment is a major predictor of depression in registered nurses. Improving work environments for registered nurses might, in turn, improve their psychological health and decrease their risk for depression. As such, it is critical that occupational health nurses create workplaces that value and support health workers.<sup>97</sup>

From an occupational health and safety perspective, it is critical that occupational health nurses are advocates for health promotion and management. A well-planned needs assessment that measures workforce health risks, identified needs, employee productivity, and program costs and benefits may assist in the development of targeted interventions.<sup>97</sup> Occupational health nurses have a unique ability as front-line provider to collect data, analyze trends, and report research findings on depression in registered nurses. Occupational health nurses can provide case management, clinical support, education, advocacy, and support for registered nurses experiencing depression.<sup>97</sup>

In addition to clinical and management interventions, collaboration with primary care providers and mental health professionals to screen, diagnose, and treat depression in

registered nurses is imperative. To achieve optimal health in registered nurses, it is crucial that occupational health nurses properly identify depression and additional risk factors for this disease. Because depression is complex and often associated with other chronic conditions, it may also be advantageous for occupational health nurses to form interdisciplinary health care management teams to strengthen early identification and treatment. It is vital for occupational health nurses to understand the implications behind these findings and create pathways to better health and workplace wellness.

### **Limitations**

Currently, no accepted theoretical framework addresses personal and workplace concepts impacting depression in registered nurses. A comprehensive theoretical model is needed to fully conceptualize many of the variables identified in this review of the literature and understand their impact on depression. The bulk of the articles reviewed were descriptive or correlational in design and used cross-sectional data from convenience samples. None of these design methods can definitively determine causality. Future research should incorporate more rigorous designs including experimental and longitudinal studies.

In addition to study design, the psychometric measures and instrumentation should be consistent across studies. This review identified a multitude of instruments that were used to assess the concept of depression including the Beck Depression Inventory I and II, Center for Epidemiologic Studies Depression Scale, Depression and Anxiety Stress Scale, General Health Questionnaire-28, Hospital and Anxiety Depression Scale, Patient Health Questionnaire-9, and Zung Self-Rating Depression Scale. The Beck Depression Inventory I and II and the Center for Epidemiologic Studies Depression Scale

were used in more than half of the research articles. However, a standard measurement for depression across research studies is a needed step in establishing consistency across future research studies.

Lastly, although the international burden of depression has been explored, the prevalence and correlates of depression in America's two largest and fastest growing minority populations is not at the forefront of this literature. It is well established that individuals of diverse racial and ethnic backgrounds experience disproportionately higher rates of selected diseases and health conditions than the general population.<sup>98</sup> Researchers have found that even though black Americans have a lower lifetime risk for depression than White Americans, this population is more likely to be persistently ill once diagnosed with depression,<sup>24</sup> chronic depression is substantially higher in black Americans. Most recent chronic depression rates have been reported as 57% for black Americans and 38% for white Americans.<sup>27</sup> In latinos, being US born, or second or higher generation immigrant, was associated with higher levels of depression.<sup>99</sup> In addition, Puerto Ricans experience higher prevalence of depression than Mexican Americans, women higher than men, those with less than a high school education higher than those with a high school diploma or higher, and those aged 45 to 64 years than those older or younger.<sup>99</sup> With the increasing diversity of the United States population and the emphasis on cultural concordance for health care providers, understanding the impact of depression on minority workers is a crucial step in addressing depression in ethnic minority registered nurses. However, to date, no researchers have studied depression in ethnic minority registered nurses working in the United States. Thus, additional research investigating the mental health of nurses from racial and gender minority groups is needed.

## **Conclusion**

Depression experienced by registered nurses may not be fully preventable but realizing its presence and prevalence in the workplace is of vital importance. It is essential that the US have a healthy, vibrant, and present registered nurse workforce to ensure that quality patient outcomes are achieved. Occupational health nurses are essential participants in improving the mental health of registered nurses. To fully comprehend the magnitude and impact of depression among registered nurses, occupational health nurses working in all settings must be cognizant of the role they play in assessing, recognizing, referring, collaborating, researching, and managing the care of this unique occupational group.

Table 2. 1 Predictors and Protective Factors of Depression in Registered Nurses

<i>Predictors of Depression Registered Nurses</i>	<i>Protective Factors for Registered Nurses</i>
<ul style="list-style-type: none"> <li>• Female gender</li> <li>• Younger age</li> <li>• Single and/or divorced</li> <li>• Fewer years of work experience</li> <li>• Work setting</li> <li>• Unit acuity</li> <li>• Shift work</li> <li>• Workplace violence or trauma</li> <li>• Job strain</li> <li>• Role overload</li> <li>• Role insufficiency</li> <li>• Diminished role boundaries</li> <li>• Lack of supervisor support</li> <li>• Job insecurity</li> <li>• Lack of reward</li> <li>• Lower job satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Older age</li> <li>• Married</li> <li>• More years of work experience</li> <li>• Positive evaluation and expectations toward self and others</li> <li>• Higher job satisfaction</li> <li>• Self-efficacy</li> <li>• Optimism</li> <li>• Learned resourcefulness</li> <li>• Positive ideation</li> </ul>

Table 2. 2. Comprehensive Examination of Studies Reviewed

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Baba, Galperin, and Lituchy	1999	St. Vincent and Trinidad and Tobago	Address certain aspects of occupational and mental health of nurses; to understand the relationship between work and depression, identify work-related antecedents and consequences of depression, and investigate the portability of Western models to the developing world.	Correlation	119	CES-D	Absenteeism, Turnover Intention, Role Overload, Role Conflict, Decision Latitude, Social Support, Stress, Burnout.	Depression showed significant positive correlations with gender, role overload, role conflict, stress, burnout, absenteeism, and turnover. Depression showed significant negative correlations with social support.
Bjorvatn et al.	2012	Norway	Investigate sleep, sleepiness, fatigue, subjective health complaints, anxiety and depression in a sample of ICU nurses. Also, to investigate the associations between age, experience, shift work, marital status, and having children with the outcome measurements.	Correlation	267	HADS	Sleep was assessed using the PSQI 19 items. Other aspects of sleep were assessed using the KSQ. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale. Fatigue was assessed with the 11-item Fatigue Questionnaire. Health complaints were measured by the SHC, and anxiety and depression were measured using the 14-item HADS.	Nurses working in intensive care units reported poorer sleep, more sleepiness, more fatigue, more anxiety, and more depression compared with Norwegian norm groups. Age was positively related to these complaints.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Chang, Wang, Li, and Liu	2011	Taiwan	Provide an examination of the relationships among self-efficacy, optimism, and depression.	Correlational	314	CES-D	GSES—10 items on 4-point Likert-type scale. LOT-R—six-item scale used to assess individualized differences in generalized optimism.	More than 52% of nurses reported mild to moderate depressive symptoms. Self-efficacy and optimism were significant buffers against depression and were negatively correlated with depression. Nurses with positive evaluations and expectations toward themselves and others reported lower depression levels. Also, a correlation between depressive symptoms and marital status was found; divorcees have a higher rate of depressive symptoms.
Chiang and Chang	2012	Taiwan	Explore the relationships among demographic characteristics, hospital units, stress, depression, and intent to leave. Investigate the differences among nurses in various departments in regard to levels of depression, stress, and intention to leave. Examine whether demographic characteristics have significant influence on depression, stress, and intention to leave among nurses employed on various units.	Descriptive correlation	314	CES-D	Stress was measured via the PSS-10. Intention to leave was assessed using the Intention to Leave Scale - 5 items.	A nurse's perception of stress was positively correlated with marital status and education and was negatively correlated with work tenure. Depression and intention to leave were positively correlated with marital status but negatively related to work tenure and age. The intention to leave had significant positive correlations with stress and depression. In terms of depression, internal medical ward nurses had higher scores than emergency room nurses and nurse practitioners. External medical ward nurses experienced more severe depression than ER nurses. Tenure had a negative influence on stress, depression, and intention to leave.



Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Chung et al.	2012	Taiwan	Explore the association between severity of depression symptoms and positive ideation in hospital nurses to determine whether learned resourcefulness was a mediator and/or moderator in that relationship.	Correlation	658	BDI-II	Positive Ideation portion of the PANSI-PI and SCS to assess learned resourcefulness.	Depressive symptoms were negatively related to learned resourcefulness and positive ideation. Higher levels of depressive symptoms were related to lower levels of learned resourcefulness and positive ideation. Also, higher levels of learned resourcefulness correlated with higher levels of positive ideation.
De Leo, Magni, Vallerini, and Dal Palu	1983	Italy	Assess symptoms of anxiety and depression in two groups of nurses	Descriptive	125	Zung Self-Rating Depression Scale	Taylor Manifest Anxiety Scale	Significant differences between the two groups of nurses were found with psychiatric nurses having higher depression and to a lesser extent higher anxiety scores than general hospital nurses.
Eldevik, Flo, Moen, Pallesen, and Bjorvatn	2013	Norway	Assess whether insomnia, excessive sleepiness, excessive fatigue, anxiety, depression, and shift work disorder were associated with quick returns among shift workers.	Correlation	1,900	HADS	Shift work disorder was assessed using three questions adhering to the international classification for sleep disorders. Sleepiness assessed using the eight-item Epworth Sleepiness Scale. Fatigue was measured using the Chadler Fatigue Scale. Anxiety and depression were measured using the HADS consisting of 14 items (7 depression and 7 anxiety).	Significant positive associations found between quick returns, excessive sleepiness, excessive and shift work disorder. Anxiety and depression were not related to working quick returns.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/ instruments	Key findings
Flo et al.	2012	Norway	Investigate the prevalence of symptoms of shift work disorder in nurses and its association to individual, health, and work variables	Descriptive correlation	1,968	HADS	BIS. Shift work disorder was assessed using three questions adhering to the international classification for sleep disorders. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale. Fatigue questionnaire. Anxiety and depression were measured using the HADS consisting of 14 items (7 depression and 7 anxiety). 15-item Dispositional Resilience Hardiness Scale–Revised. Diurnal Scale to measure morningness, Revised Circadian Type Inventory to assess circadian phase, Short form of AUDIT-C to assess alcohol consumption, caffeine consumption questionnaire, use of sleep medications, and bright lights questionnaires.	Logistic regression showed relationship between shift work disorder and depressive symptoms.
Flo, Pallesen, Moen, WBlacksge, and Bjorvatn	2014	Norway	Investigate whether the number of work shifts separated by less than 11 hours (quick returns) could predict shift work disorder, fatigue, anxiety, and depression at 1-year follow-up.	Correlation	1,224	HADS	Shift work disorder was assessed using three questions adhering to the international classification for sleep disorders. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale. Fatigue was measured using the Chadler Fatigue Scale. Anxiety and depression were measured using the HADS consisting of 14 items (7 depression and 7 anxiety).	Depression was not related to quick returns or the number of night shifts. However, a significant positive association was found between quick returns, insomnia, excessive sleepiness, excessive fatigue, and shift work disorder.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Gao et al.	2012	China	Explore the distribution of depressive symptoms in Chinese nurses and explore the factors that may contribute to the depressive symptoms	Descriptive correlation	1,592	CES-D	JCQ assesses work stressors and related work environment. It is a 22-item questionnaire with 3 scales. ERI measures stress at work.	Nearly 62% of nurses had depressive symptoms. Age, length of employment, education, chronic disease, and life events were significantly related to depressive symptoms. Marital status was not significantly related to depressive symptoms. Regular meals, physical exercise, job rank, monthly salary, nurse-patient relationship, job satisfaction, and turnover intentions were significantly related to depressive symptoms. Nurses with higher education levels were at increased risk for developing depressive symptoms. Higher job satisfaction was the highest protective factor against depressive symptoms.
Glass, McKnight, and Valdimarsdottir	1993	The United States (New York)	Assess the relationship between depression and burnout separately for each of the three subscales of the MBI.	Descriptive correlation	162	BDI	Burnout was assessed using MBI. Perceived job control was measured via questionnaire developed by McDermott. Actual job control was assessed by objective raters using an actual job control questionnaire.	Approximately 29% of the sample was classified as depressed. Depression accounts for a substantial portion of the variance in burnout as measured by emotional exhaustion. Burnout may be a precursor to job-related depression.
Gong et al.	2014	China	Assess the prevalence of depressive symptoms among Chinese nurses. To identify the relationship between work-related risk factors and depressive problems in Chinese nurses.	Descriptive correlation	3,474	Zung Self-Rating Depression Scale	None	An estimated 38% of nurses had depressive symptoms. More than 10% of the nurses often experienced workplace violence, and 64.22% experienced it occasionally. Depressive symptoms were associated with frequent workplace violence, long work hours (more than 45 per week), and specific departments.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Hegney et al.	2014	Australia	Are risk profiles delineated by different levels of compassion satisfaction, secondary trauma syndrome, and burnout associated with specific patterns of depression, anxiety, and stress levels? Are higher levels of compassion fatigue associated with higher levels of anxiety, depression, and lower compassion satisfaction? Is higher compassion satisfaction associated with lower levels of anxiety, depression, and stress?	Correlation	132	DASS	Professional Quality of Life Scale, Version 5, is a 30-question Likert-type questionnaire measuring compassion satisfaction and compassion fatigue.	Significant positive correlations for burnout, with stress and depression symptoms, and a medium correlation with anxiety. Compassion satisfaction had a significant negative correlation with depression, although the magnitude of this effect was small.
Iacovides, Fountoulakis, Moysidou, and Ierodiakonou	1999	Greece	Investigate the relationship between burnout and depression.	Descriptive	368	Zung Self-Rating Depression Scale	MBI to assess burnout, Eysenck Personality Questionnaire to assess personality traits.	Many of the subjects that suffered from burnout syndrome did not suffer from depressive symptomatology. Younger subjects with burnout have a larger percentage of mild depression cases in this sample.
Kawano	2008	Central Japan	Examine degrees of job-related stress factors as well as mental and physical symptoms and associations of department and job-related stress factors with those symptoms.	Correlation	1,551	Brief Job Stress Questionnaire	n/a	Less job control, lower job fitness, and poorer interpersonal relationships and supervisor support were most obviously associated with depression. The depression scores of outpatient nurses were significantly lower than nurses in any other department. Working in the operating room was significantly associated with higher scores of depression.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Lam, Ross, Cass, Quine, and Lazarus	1999	Australia	Document the extent of trauma exposure among nursing staff and investigate the effects of trauma exposure on the psychological health of nursing staff.	Descriptive	314	GHQ-28, BDI-R	Seven-item HTEC. Modified Stressful Life Event Scale	Nearly 82% of the sample indicated exposure to one of seven traumatic events. The results of the GHQ indicated that 39% of the nurses in the study could be identified as psychologically distressed. The results of the BDI-R suggested that nearly 20% of those surveyed were mildly depressed, 8% experienced moderate depression, and 1.6% were severely depressed. The risk for depression increased as the length of service at the current hospital increased.
Letvak, Ruhm, and McCoy	2012	The United States (North Carolina)	Examine specific variables that may contribute to depression in hospital-employed nurses and the effect on patient care quality and safety	Descriptive		PHQ-9	None	41% TDS = 0-4, 25% TDS = 5-9, 12% TDS = 10-14, 4% TDS = 15-19, 2% TDS = 20-27. Linear regression demonstrated that BMI, job satisfaction, number of health problems, mental well-being, and health-related job productivity were significantly related to TDS.
Lin, Probst, and Hsu	2010	Taiwan	Examine correlation between job stress, coping behaviors, and social support with depression	Correlation	154	BDI-II	Taiwanese Nurse Stress Checklist for job stress, Jalowiec Coping Scale to examine coping behaviors, and Interpersonal Support Evaluation List to study social support.	Almost 28% of nurses studied experienced severe, moderate, or mild depression. Job stress significantly correlated with depression. Social support not significantly correlated with depression.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Mark and Smith	2012	England	Is positive coping associated with depression and anxiety in nurses? Is job demand associated with anxiety and depression in nurses? Are extrinsic effort and over commitment associated with depression and anxiety in nurses? Does coping moderate the effect of negative job characteristics on mental health outcomes? Does coping, effort, rewards, demands, control, and support explain the variance in anxiety and depression scores in registered nurses?	Correlation	870	HADS	ERI—21 items. JCQ—27 items. WCCL—42 item.	Descriptive statistics showed that 27.3% of the sample were above the self-reported levels of anxiety or depression. The absence of negative coping behaviors is more strongly associated with positive mental health outcomes than the presence of positive coping behaviors. Job demands were positively associated with depression. Over commitment was the most important predictor of depression. ERI accounted for 43.5% of the variance in depression scores.
Morrissy, Boman, and Mergler	2013	Australia	Determine what individual factors influence job-related affective well-being in graduate nurses?	Correlation	70	CES-D	Anxiety Subscale of HADS was used to measure generalized anxiety—a seven- item self-report scale measuring the presence and severity of psychological anxiety symptoms. LOT-R—a 10-item self-report tool to measure optimism. JAWS—30-item self-report scale measuring the range of emotional reactions toward work.	Higher scores on the depression scale were correlated with associated low levels of job-related affective well-being. Higher scores on the anxiety measure were associated with lower levels of job-related affective well-being. Nurses with higher optimism scores reported fewer depression and anxiety symptoms. Individuals reporting more depression also reported more symptoms of anxiety.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Ohler, Kerr, and Forbes	2010	Canada	Secondary analysis of National Survey of Work and Health of Nurses for examining associations between depression and work-related variables.	Descriptive correlation	9,322	CIDI	Work Stress was assessed using a modified version of the Job Content Questionnaire—12 questions survey. Role overload was measured using five statements based on the Occupational Stress Inventory. Respect was measured using three statements on effort–reward imbalance scale.	More than 89% of nurses reporting depression had one chronic disease. No significant association between depression and full-time/part-time status, educational level, or age. Those nurses experiencing a higher degree of job strain had 80% odds of suffering from depression, and those experiencing role overload had slightly increased odds of having depression in the previous year. Nurse’s perceptions of care given, employer support, social support, and staffing were not statistically significant in the relation to the odds of being depressed.
Oyane, Pallesen, Moen, Akerstedt, and Bjorvatn	2013	Norway	To compare the levels of anxiety, depression, insomnia, sleepiness, and fatigue between nurses, and to investigate the cumulative effect of night shift work.	Descriptive correlation	2,035	HADS	Bergen Insomnia Scale was used to measure insomnia symptoms. Sleepiness was assessed using the eight-item Epworth Sleepiness Scale, Fatigue was assessed with the 11-item Fatigue Questionnaire. Health complaints were measured by the SHC.	Nurses with current night work were more often categorized with insomnia and chronic fatigue. Anxiety and depression were not associated with night work.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Ruggiero	2003	The United States (New Jersey)	Do critical care nurses who work night shifts report more chronic fatigue, poorer global sleep quality, and more anxiety and depression than critical care nurses who do not work night shifts?	Descriptive	142	BDI-II	Chronic shift-worker fatigue was measured with the SSICFS. Global sleep quality was measured via the PSQI, and anxiety was measured via the BAI.	Permanent night shift nurses had significantly more depression and poorer global sleep quality than did permanent day shift nurses. Chronic fatigue was found to have significant relationships with global sleep quality, depression, and anxiety. Depression was the most important variable in the explanation of chronic fatigue.
Skinner and Scott	1993	The United States (Tennessee)	What is the prevalence of perceived depression among hospital-employed female staff nurses? Is there a difference in the prevalence of depression in hospital-employed female nurses and non- females? Are self-esteem, assertiveness, and anxiety related to depression in female registered nurses?	Descriptive correlation	29	BDI	CSEI—25 items. STAI—20 items, ASES—48 items.	Twenty-seven percent of the registered nurses were experiencing depression. A negative correlation existed between depression and age—the older a nurse was the less likely to be depressed. There was negative correlation between self-expression (assertiveness) and depression—with higher depression scores associated with lower self-expression scores. No significant differences were found between male and female registered nurses.



Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Skipper, Jung, and Coffey	1990	The United States (North Carolina)	Examine whether shift work influences the physical health and mental depression in nurses, which in turn may affect other aspects of their lives. Does shift work affect social and work-related variables which in turn affect the physical health and state of depression?	Descriptive correlation	463	CES-D	Physical health was measured using items from the Mott Study. A three-item scale was used to measure informal social participation. Job performance was measured using the Six-Dimension Scale of Nursing Performance. Job stress was measured by the tool developed by Swiercz.	Neither overall physical health nor mental depression was correlated with shift work.
Taghinejad, Suhrabi, Kikhavani, JBlacksfarpour, and Azadi	2014	Iran	Investigate the association between mental health and demographic characteristics of registered nurses, and examine the mental health status based on physical, anxiety, social function, and depression items.	Descriptive	86	GHQ-28	None	More than 43% of the samples were suspected to suffer from a mental disorder—of those, 12.3% showed physical symptoms, 16% anxiety symptoms, 42% social dysfunction, and 6.2% depressive symptoms. No significant difference in mental health was found between male and female registered nurses. Significant differences were found among nurses based on their workplaces in hospitals and marital status.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Tourigny, Baba, and Wang	2010	Japan and China	Analyze the relationship between emotional exhaustion and depersonalization, diminished personal accomplishment, and symptoms of depression. Investigate how nurses in China and Japan use coping strategies aimed at alleviating the detrimental effect of emotional exhaustion.	Correlation	789	CES-D	MBI, Sense of Coherence Questionnaire, Kerr Job Satisfaction Scale, self-report of absence.	Job satisfaction had a significant main effect on depersonalization, diminished personal accomplishment, and depression in both Japanese and Chinese nurses.
Tselebis, Moulou, and Ilias	2001	Greece	Assess the relationship between burnout, depression, and sense of coherence in Greek nurses.	Correlation	79	BDI	MBI, Sense of Coherence Questionnaire	Women scored higher on the BDI. Sense of coherence was negatively and strongly correlated with depressive symptoms. Depression was positively correlated with sentimental exhaustion and negatively with personal achievements as measured via MBI.
van Servellen, Soccorso, Palermo, and Faude	1985	The United States (California)	What is the prevalence of depressive illness in this sample of hospital nurses? What type of depressive illness is more prevalent in this sample? What are the critical symptoms most frequently exhibited by these nurses? What is the prevalence of current subclinical depressive phenomena? How do these rates of depressive illness and depressive features compare with community samples using the same research instruments?	Descriptive	64	CES-D, DIS, and SCL-90R	None	The prevalence of clinical depression in the sample was significantly higher than that found in females in the population at large. Major depressive illness was more prevalent than dysthymic disorder. The most frequently reported expressed symptoms were continual tiredness, trouble sleeping, thoughts about death, depressed mood (2 weeks or more), and trouble concentrating.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
S. M. Wang et al.	2015	Taiwan	Is work stress correlated with depression in psychiatric nurses? What is the relationship between work stress and resourcefulness in psychiatric nurses? Are work stress and resourcefulness predictors of depression in psychiatric nurses?	Correlation	154	TDQ	Nursing Stress Checklist, Resourcefulness Scale.	Single psychiatric nurses had significantly higher depression levels than married nurses. The depression levels of nurses working in acute units were significantly higher than those working in non-acute units. A significant positive correlation was found between work stress and depression—implying that the higher the work stress the more depression they experienced. Personal resourcefulness and depression in psychiatric nurses were negatively correlated. In summation, psychiatric nurses who were single, who worked in acute units, and undertook shift work had significantly higher depression levels than married psychiatric nurses who worked in non-acute units and did not undertake shift work.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Welsh	2009	The United States (Kentucky)	Describe the prevalence of depressive symptoms and their predictors in female medical surgical nurses.	Descriptive correlative	150	CES-D	Nursing Stress scale: a list of 34 potentially stressful situations attached to a Likert- type response. Social Readjustment Rating Scale: a 43-item scale with stressful events assigned higher points. Higher scores indicate major stressful life events and higher risk for illness. The PHQ-15 was used to measure somatic complaints.	Thirty-five percent of nurses score 16 on the CES-D, the cutoff point for mild to moderate depressive symptoms. Depressive symptoms were positively correlated with somatic symptoms, major life events, and occupational stress. There were no differences between depressive symptoms, major life events, or occupational stress levels by academic degree. Fatigue, pain, and trouble sleeping were the most frequently cited somatic complaints.
Wu, Ge, Sun, Wang, and Wang	2011	China	Investigate the relationship between depressive symptoms and occupational stress.	Descriptive correlative	1,986	CES-D	10-item OSI-R to measure occupational stress.	Role overload, role insufficiency, and role boundary predicted depressive symptoms. Increasing social support and rational coping may reduce depressive symptoms and improve quality of life.

Table 2.2 (continued)

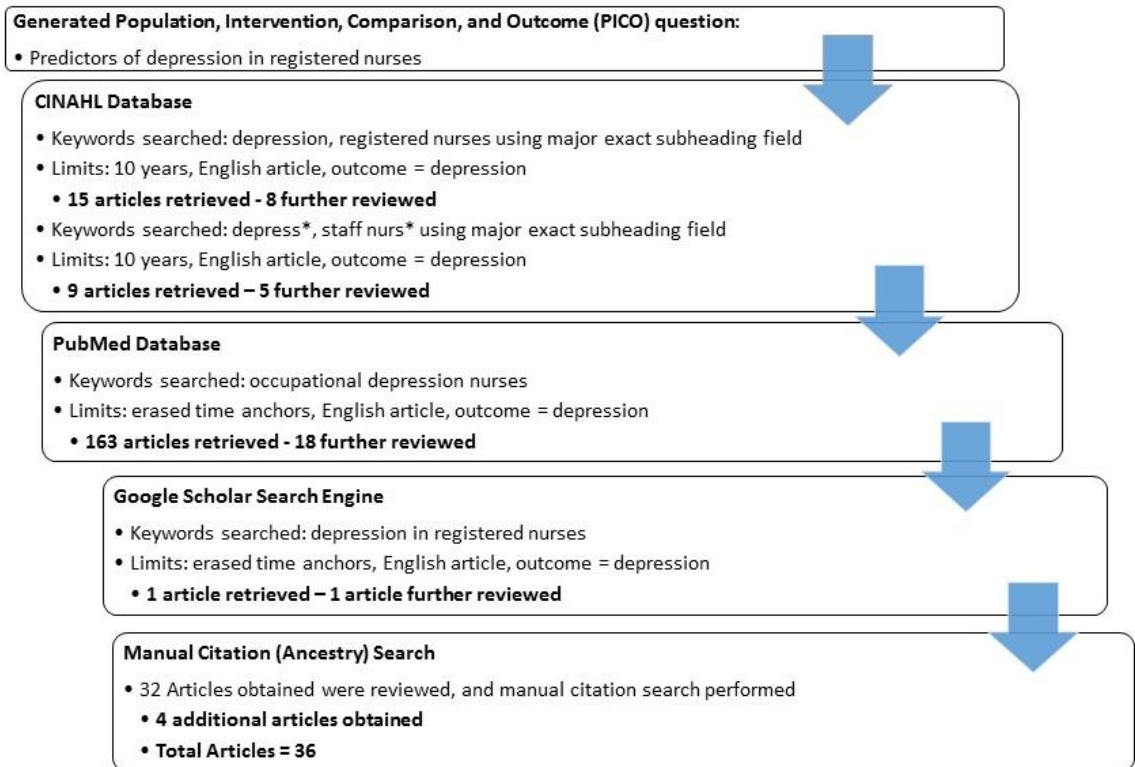
Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Yoon and Kim	2013	Korea	Examine the relationship between job-related stress, emotional labor, and depressive symptoms in South Korean Nurses.	Descriptive	441	CES-D	Korean Occupational Stress Scale—a 24-item short scale to measure level and sources of job-related stress. ELS—a six-item scale to measure surface acting and deep acting regarding emotional expression.	Thirty-eight percent of Korean nurses experience depressive symptoms, and participants in this study suffered from depressive symptoms far more than Western nurses or employees working in other occupations in South Korea. Marital status, surface acting, job insecurity, and lack of reward are strongly related to depressive symptoms that result from job-related stress. Marital status has the strongest relationship with depressive symptoms—young or single nurses have high levels of depressive symptoms.

Table 2.2 (continued)

Author(s)	Publication year	Location	Purpose/research questions	Design	Sample size	Depression instrument	Other measures/instruments	Key findings
Yoshizawa et al.	2016	Japan	What is the prevalence of depression in Japanese psychiatric nurses? Do sociodemographic and occupational factors relate to depression among psychiatric nurses in Japan?	Descriptive	238	CES-D	NIOSH GJSC, questionnaire for lifestyle factors	Frequency of clinical depression was 36.4% for males and 37.2% for females. Participants with higher scores for role conflict, role ambiguity, quantitative workload, variance in workload, and occupational hazards were more likely to display depressive symptoms. Also, those with lower scores for job control, social support from supervisors and coworkers was more likely to display depressive symptoms. After adjusting for all the variables, older age, higher HPI score, job control, and social support from a supervisor were found to be significant protective factors against depressive symptoms. Quantitative workload scores were revealed as a risk for having probable depression.

Note. GHQ-30 = General Health Questionnaire; JDI = Job Descriptive Index; ICU = intensive care unit; IM = internal medicine; PSR = Provision of Social Relations; BDI-R = Beck Depression Inventory– Revised; CES-D = Center for Epidemiologic Studies Depression Scale; ER = emergency room; HADS = Hospital Anxiety and Depression Scale; PSQI = Pittsburgh Sleep Quality Index; KSQ = Karolinska Sleep Questionnaire; SHC = Subjective Health Complaints Inventory; GSES = General Self-Efficacy Scale; PSS-10 = Perceived Stress Scale–10 items; PANSI-PI = Positive and Negative Suicide Ideation [Positive Ideation]; SCS = Self-Control Schedule; BIS = Bergen Insomnia Scale; AUDIT-C = Alcohol Use Disorders Identification Test; JCQ = Job Content Questionnaire; ERI = effort reward imbalance; BDI = Beck Depression Inventory; MBI = Maslach Burnout Inventory; DASS = Depression Anxiety Stress Scale; HTEC = Hospital Trauma Exposure Checklist; PHQ-9 = Patient Health Questionnaire–9; TDS = total depression score; BMI = body mass index; ERI = Effort Reward Imbalance; JCQ = Job Content Questionnaire; WCCL = Ways of Coping Checklist; LOT-R = Life Orientation Test–Revised; JAWS = Job-Related Affective Well-being Scale; CIDI = Composite International Diagnostic Interview; SSICFS = Standard Shiftwork Index Chronic Fatigue Scale; BAI = Beck Anxiety Inventory; CSEI = Coopersmith Self-Esteem Inventory; STAI = Strait-Trait Anxiety Inventory; ASES = Adult Self-Expression Scale; DIS = Diagnostic Interview Schedule; SCL-90R = Symptom Checklist–90 Revised; TDQ = Taiwanese Depression Questionnaire; OSI-R = Occupational Stress Inventory revised edition; ELS = Emotional Labor Scales; NIOSH = The National Institute for Occupational Safety and Health; GJSC = Generic Job Stress Questionnaire; HPI = Health Practice Index.

Figure 2. 1 Methods for Article Selection for Review



### CHAPTER 3: Validity and Reliability Testing of the Perceived Racism Scale - Racism on the Job Subscale

Being black in America, despite educational, professional, and economic standing, can have psychological, emotional, and somatic costs.<sup>100</sup> Race-related stress is defined conceptually as culturally specific, negative life events or stressors that are comparable to generic stressful life events.<sup>101</sup>

The stress paradigm has long guided research on racial discrimination.<sup>102</sup> Over time, the impact of taxing events aggregate and increases the risk for stress-related disorders.<sup>103</sup> The literature is clear that race-related stress has ramifications, and those consequences can be severe and far-reaching.<sup>35, 100, 104-107</sup> Constant and continued exposure to racism and discrimination has linkages to the development of mental and physical disorders.<sup>12, 35, 37, 102, 103, 108-110</sup>

The theoretical framework for race-related stress is rooted in the concept of stress and integrated with the concept of everyday racism occurring within the domains of life.<sup>32, 111</sup> The stress paradigm is the underlying premise for research on racial discrimination.<sup>102</sup> The evaluation of general stress events focuses not only on frequency but also cognitive appraisal or evaluation.<sup>32, 101</sup> Race-related stress is the occurrence and perceived magnitude of specific events of racism and discrimination that blacks experience in their daily lives.<sup>111</sup> These race-related transactions between individuals or groups and their environment emerge from the dynamics of racism and are perceived to tax or exceed existing individual coping resources and threaten well-being.<sup>112</sup> The objectives of race related discrimination measures are to assess exposure to racist events



and measures multiple dimensions of emotions, coping behaviors, and cognitive responses to those events.<sup>113</sup>

Given the high stress environment in which nurses work, it could be hypothesized that they may be particularly vulnerable to the harmful effects of experiences of discrimination in the work environment. Interestingly, although approximately 5% of nurses are black, little research has been conducted to examine the effects of workplace discrimination in this population of workers. This may in part be due to the lack of valid and reliable measures of experiences of racism in nurses' work environments. In fact, while there are 28 measures of racism/discrimination identified in the literature<sup>114</sup>, only a few, including the Perceived Racism Scale<sup>113</sup> have been developed to assess perceived racism in specific environments such as the work environment.

The Perceived Racism instrument developed by McNeilly and colleagues operationalized racial discrimination as a complex, multidimensional subjective experience that provokes unique emotional and behavioral responses. The Perceived Racism Scale consists of 51-items that are used to measure the frequency of both subtle and overt experiences of racism as well as emotional and behavioral coping responses to these experiences<sup>113</sup>. It is composed of subscales used to assess how frequently a person has experienced racism both in the past year and throughout their lifetime. Racism specific to each of five settings is assessed: (1) on the job; (2) in academic settings; (3) overt racism in public settings; (4) subtle racism in public settings; (5) general exposure to racist statements. Items include such statements as: "How often have you been treated with less courtesy or respect?" and "How often have you experienced situations with people being afraid of you or thinking you were dishonest?" In addition, for each setting,

respondents are asked to identify their emotional response to the experience of racism with options being: anger, frustration, hurt, sadness, powerlessness, hopelessness, shame, or strength. They are also asked to identify their coping responses such as speaking up, ignoring it, praying, avoiding it, working harder to prove people wrong.

While the Perceived Racism Scale has several subscales, of particular interest is black nurses' experience of racism in the work environment to better understand the effect on health. The purpose of this study therefore was to evaluate the psychometric properties of the two Racism on the Job (ROTJ) subscales of the Perceived Racism Scale among black registered nurses (RNs) including past year (ROTJ-Y) and lifetime (ROTJ-L) experiences of racism. The subscales asks questions related to perceived racism on the job within the past year and over the lifetime. Questions include statements such as: because I am black, I feel as if I have to work twice as hard, whites often assume I work in a lower status job than I do and treat me as such, and I am treated with less dignity and respect than I would be if I were white. Thus, the specific aims of the study were to:

1. Assess the reliability of the ROTJ-Y and the ROTJ-L by evaluating the internal consistency of each subscale; and
2. Assess construct validity by examining the factor structure of each subscale and testing the hypothesis that job-related racism will predict workplace stress.

## **Methods**

### ***Design and Sample***

The data for the psychometric analyses of the ROTJ subscale of the Perceived Racism Scale were collected as part of a larger cross-sectional study conducted to

examine how race-based discrimination and occupational stress influence depression among black registered nurses. Inclusion criteria were registered nurses (RNs) who self-identified as black and were practicing as nurses at least 20 hours per week. The RNs were recruited through the National Black Nurses Association and Black Nurses Rock. The full sample included 75 black RNs; 53 participants who completed both versions of the ROTJ subscale (i.e., in the past year and lifetime) were retained for psychometric analysis.

### ***Procedure***

Institutional Review Board approval was obtained from the University of Kentucky. Participants were recruited using face-to-face and web-based methods. After providing informed consent, participants completed an electronic survey administered via Qualtrics survey software (Provo, Utah; [www.qualtrics.com](http://www.qualtrics.com)).

### ***Measures***

*Demographic items.* Demographic information was collected via self-report and included age, years of experience as a RN, primary nursing practice position, type of nursing unit, primary nursing practice facility, working status, and current work shift.

*Racism on the Job.* The ROTJ-Y and ROTJ-L each consist of the same 10 items used to assess the frequency with which blacks have been exposed to discriminatory and racist events on the job. Each item addresses a discriminatory event to which respondents indicate how often they have experienced the event over the past year and over their work lifetime, respectively. Item responses are on a 6-point Likert scale with response options: 0 = not applicable, 1 = almost never, 2 = several times a year, 3 = several times a month, 4 = several times a week, 5 = several times per day. For racism on the job, the

total score is calculated for each of the timeframes (i.e., in the last year and during the lifetime of work) by adding up the items in the scale. The total possible score for both the ROTJ-Y and the ROTJ-L ranges from 0 to 50. These subscales of perceived discrimination at work have been used to assess experiences of racism in other occupations, and the Cronbach's alpha for each subscale was previously reported to be .91.<sup>113, 115</sup>

### **Data Analysis**

Data were analyzed using Statistical Package for the Social Sciences Version 25 (SPSS Inc., Chicago, IL). Demographic data were summarized using descriptive analyses, including means, standard deviations and frequency distributions. For each version of the subscale (ROTJ-Y and ROTJ-L), internal consistency reliability was assessed using Cronbach's alphas. Item-total and inter-item correlations were evaluated to examine the homogeneity of the items included in the ROTJ-Y and ROTJ-L. To examine construct validity, exploratory factor analysis (EFA) was conducted using principal component analysis with varimax rotation. The number of factors was determined using the eigenvalues and corresponding scree plots. An EFA was appropriate for this study given that the instrument had previously been determined to be valid and reliable when used in settings other than nursing.<sup>113</sup> The Kaiser–Meyer–Olkin measure of sampling adequacy and the Bartlett's test of sphericity were evaluated to determine the appropriateness of using this methodology with this sample. Next, a careful examination of the primary loadings on the intended dimensions as well as any cross loadings >0.3 was conducted. Finally, multiple regression analyses were used to examine if ROTJ-Y and ROTJ-L predicted occupational stress, controlling for gender, years of nursing

experience, and work setting. The threshold of statistical significance for inferential testing was  $P < 0.05$ .

## **Results**

### ***Participant Characteristics***

Of the 53 participants in our study, the average age was 44 years ( $SD \pm 12$  years), and the majority were female (94%) and married (70%). The average years of RN experience for the participants was 16 years ( $SD \pm 13$ ). About half had post-baccalaureate education (51%) and the majority had an income at or above \$75,000 (75%). The majority worked full-time (87%) during the day shift (74%). More than half worked in a primary practice position (64%). The majority worked in a hospital/health care position (72%). For those that worked in a hospital/health care facility, more than half worked in a non-specialty unit (53%) with the remaining working in a specialty unit (47%). The ROTJ-Y and ROTJ-L total scores (mean  $\pm$  SD) were  $24 \pm 10$  and  $21 \pm 9$  respectively, indicating past year and lifetime experiences of racism were not uncommon in the workplace, relative to the potential range for each from 0 to 50. With 50 being the highest score, the scores for this study fall within the mid-range.

### ***Reliability (Internal Consistency and Inter-item Correlations)***

The Cronbach's alpha values for the ROTJ-Y and ROTJ-L were 0.93 and 0.91 respectively, indicating a high level of internal consistency in this sample. Coefficient values for the ROTJ-L ranged from .27 to .88 and for the ROTJ-Y ranged from .23 to .80. The item-item correlations ranged from .52 to .88 for the ROTJ-Y and .44 to .79 for the ROTJ-L. The corrected item-total correlations for each item in both subscales were

greater than .30. For each subscale, the overall alpha did not improve with deletion of any item. (See Table 3.1).

### ***Factor Structure***

Prior to performing principal component analysis (PCA), suitability of the data for exploratory factor analysis (EFA) was assessed. In addition, this is a different population than previously evaluated, and the prior analysis focused on the entire Perceived Racism Scale not just the subscales. A preliminary evaluation of the ROTJ-Y and ROTJ-L subscales using a KMO correlation was performed to determine the adequacy of items for inclusion in the EFA. The KMO correlation of .90 (ROTJ-Y) and .83 (ROTJ-L) exceeded the recommended threshold of .60 required for acceptability of data. A factor inspection of the correlation matrix for both subscales revealed the presence of coefficients of .30 and above. The Bartlett test of sphericity for both subscales was also significant ( $p < .001$ ) suggesting correlation exists among the questions to warrant an EFA based on independence across items and supporting the factorability of the correlation matrix.

The PCA extraction method was used to examine the dimensionality of the ROTJ-Y and ROTJ-L. Principal component analysis revealed that there were 1 components in the both the ROTJ-Y and ROTJ-L subscales, when considering the number of eigenvalues greater than 1. The first component for each PCA solution captured the majority of the variance in responses, with each of the remaining components explaining little additional variance (Figures 3.1 and 3.2). Our analysis showed that the first component accounted for 64% of the variance for the ROTJ-Y and 59% of the variance for the ROTJ-L. In Table 3.2 the results of the components extraction are presented. The

factor loadings for all 10 items on each version of the scale exceeded 0.50 suggesting they all contributed to the single-factor solution identified by PCA.

### ***Construct Validity***

The results of the multiple regression analyses demonstrated that there is a significant relationship between occupational stress and race-based discrimination at work for both the ROTJ-Y and ROTJ-L. The fit of the overall linear regression model for past year perceived racism on the job was  $F = 6.2$ ,  $p = <.001$ ;  $R^2 = .34$ . The fit of the model for lifetime perceived racism on the job was  $F = 11.4$ ,  $p < .001$ ;  $R^2 = .49$ . After, controlling for gender, years of RN experience, hospital setting, ROTJ-Y and ROTJ-L were significant predictors of occupational stress (see Table 3.3). No other variables were significantly associated with occupational stress.

### ***Correlations***

Table 3.4 displays correlations among occupational stress, gender, years of RN experience, hospital setting, and ROTJ-Y. A significant positive correlation was identified between ROTJ-Y and occupational stress; participants with higher perceived ROTJ during the past year also had higher occupational scores ( $r = .58$ ;  $p = <.001$ ). Table 3.5 displays correlations among occupational stress, gender, years of RN experience, hospital setting, and ROTJ-L. A significant positive correlation was identified between ROTJ-L and occupational stress; participants with higher perceived ROT-L during their lifetime also had higher occupational scores ( $r = .70$ ;  $p < .001$ ).

## **Discussion and Implications**

Overall, the results from the psychometric testing conducted demonstrated that the ROTJ-Y and ROTJ-L subscales of the Perceived Racism Scale are valid and reliable

when used to examine both current year and lifetime experience of job-related racism among black nurses. Results of psychometric testing of the ROTJ-Y and ROTJ-L subscales demonstrated acceptable internal consistency reliability as well as construct validity and factor structure.

The results of the PCA revealed one factors for both the ROTJ-Y and the ROTJ-L. The percent of variance explained in the EFA for the 10-item ROTJ-Y and ROTJ-L, namely 64% and 59% respectively, supports the one-factor structure for both. These findings also suggest that the conceptualization of the survey as an internally consistent measure of perceived racism at work is valid. However, in the original study the Perceived Racism Scale instrument and all subscales were purported to be multidimensional<sup>113</sup> while the findings from this research suggested that both ROTJ subscales are unidimensional.

The Cronbach's alpha for the ROTJ-Y and ROTJ-L were .94 and .92, respectively. Generally, a Cronbach's alpha of .80 or greater is considered desirable but a Cronbach's alpha  $>.90$  may indicate item redundancy. These findings concur with the findings reported from the original study of the ROTJ subscale. In this study, the authors reported the Cronbach's alpha as .90.<sup>113</sup> Other studies in which the psychometric properties of the Perceived Racism Scale have been examine have also found Cronbach's alphas to be high.<sup>113, 115</sup> This suggests that there may be redundancy among items. However, through close examination of each item it is clear that the perspective on racism each contributes is relevant and important to capture. Therefore, removing any item may not improve the instrument. This qualitative evaluation is supported by the finding that the overall Cronbach's alpha did not improve with deletion of any item.



The regression models indicated that the experience of work-related racism as measured by the ROTJ-Y and the ROTJ-L are each predictive of occupational stress with more experiences of racism predicting greater stress. These findings are consistent with other studies indicating that there is a significant positive relationship between occupational stress and perceived racism.<sup>52, 116</sup> For registered nurses, an important indicator of occupational stress is perception of race-based discrimination at work.<sup>10, 53</sup> Race-based discrimination at work is characterized by isolation, alienation, denial of advancement, marginalization (feeling invisible and voiceless), ineffective or inappropriate communication, and bullying by the dominant racial group.<sup>44</sup> Race-based discrimination at work is an alarming but trending phenomenon in the nursing workplace<sup>52</sup> accounting for more than 40% of employment discrimination claims and grievances filed by registered nurses.<sup>10</sup>

### **Limitations**

The main limitation of our study is that it was a small sample. However, given that the instrument has not been widely tested, the evidence of validity and reliability even when evaluated with a small sample of black RNs, supports the psychometric soundness of the ROTJ subscales.

### **Conclusion**

The ROTJ subscales of the Perceived Racism Scale are valid and reliable survey instruments that strives to measure race-based discrimination at work in black nurses. The testing of this instrument is the first of many steps in understanding the complex relationship between perceptions race-based discrimination, occupational stress, and depression. Currently, blacks comprise a mere 10% of the registered nurse population

despite representing over 13% of the United States population.<sup>117</sup> Race, occurrences of discrimination and occupational factors all impact the stressors of black registered nurses. Race-based discrimination towards black registered nurses is a significant problem. As such, it is important to measure and address the perceptions of this minority group within the nursing profession to ensure that we retain a healthy nursing workforce.

Table 3. 1 Corrected Item-Total Correlation & Alpha if Item Deleted

Table 3.1: Corrected Item-Total Correlation & Alpha if Item Deleted

Item	ROTJ-Y Corrected item-total correlation	ROTJ-Y Cronbach's alpha if item deleted	ROTJ-L Corrected item-total correlation	ROTJ-L Cronbach's alpha if item deleted
Because I am black, I'm assigned the jobs no one else wants to do.	.78	.93	.78	.90
At work, when different opinions would be helpful, my opinion is not asked for because of my race.	.88	.92	.77	.90
I am treated with less dignity and respect than I would be if I were white.	.80	.93	.71	.90
I am watched more closely than other workers because of my race.	.81	.93	.77	.90
Racial jokes or harassment are directed at me at work.	.52	.94	.44	.92
Because I am black, I feel as if I have to work twice as hard.	.62	.94	.55	.92
Tasks that require intelligence are usually given to Whites, while blacks get those that don't require much thought.	.78	.93	.79	.90
I am often ignored or not taken seriously by my boss because of my race.	.85	.92	.79	.90
Whites often assume I work in a lower status job than I do and treat me as such.	.74	.93	.71	.90
A white co-worker with less experience and qualifications got promoted before me.	.66	.93	.71	.90

Table 3. 2 Results of Principal Component Factor Analysis

Table 3.2: Results of principal component factor analysis		
Item	ROTJ-Y Factor 1	ROTJ-L Factor 1
At work, when different opinions would be helpful, my opinion is not asked for because of my race.	.91	.84
I am often ignored or not taken seriously by my boss because of my race.	.90	.76
I am watched more closely than other workers because of my race.	.85	.83
I am treated with less dignity and respect than I would be if I were white.	.84	.84
Because I am black, I'm assigned the jobs no one else wants to do.	.84	.85
Tasks that require intelligence are usually given to Whites, while blacks get those that don't require much thought.	.83	.76
Whites often assume I work in a lower status job than I do and treat me as such.	.79	.62
A white co-worker with less experience and qualifications got promoted before me.	.73	.52
Because I am black, I feel as if I have to work twice as hard.	.69	.77
Racial jokes or harassment are directed at me at work.	.59	.82

Table 3. 3 Linear Regression Modeling Occupational Stress and Racism on the Job  
(Yearly and Lifetime) in Black Registered Nurses

Table 3.3: Linear Regression Modeling Occupational Stress in Black Registered Nurses (N=53)

	Occupational Stress (ROTJ-Y)				Occupational Stress (ROTJ-L)			
	b	SE	Standardized $\beta$	p	b	SE	Standardized $\beta$	p
Gender	-3.5	7.4	-.06	.64	-3.3	6.5	-.05	.61
Years RN Experience	-.11	.15	-.10	.44	-.07	.13	-.06	.60
Hospital Setting	1.7	4.3	.05	.70	-1.5	3.9	-.05	.71
ROTJ	.77	.17	.54	<.001	1.1	.18	.69	<.001

Table 3. 4 Correlations between Variables with Racism on the Job (Past Year)

Table 3.4: Correlations Between Variables with ROTJ-Y (N=53)					
	Occupational Stress	Gender	Years of RN Experience	Hospital Setting	ROTJ-Y
Occupational Stress	-				
Gender	-.077	-			
Years of RN Experience	-.19	-.07	-		
Hospital Setting	.20	.15	-.46	-	
ROTJ-Y	.57	-.06	-.13	.20	-

Table 3. 5 Correlations between Variables with Racism on the Job (Lifetime)

Table 3.5: Correlations Between Variables with ROTJ-L (N=53)					
	Occupational Stress	Gender	Years RN Experience	Hospital Setting	ROTJ-L
Occupational Stress	-				
Gender	-.08	-			
Years RN Experience	-.20	-.07	-		
Hospital Setting	.20	.15	-.47	-	
ROTJ-L	.69	-.03	-.23	.32	-

Figure 3. 1 Scree Plot - Racism on the Job During Past Year

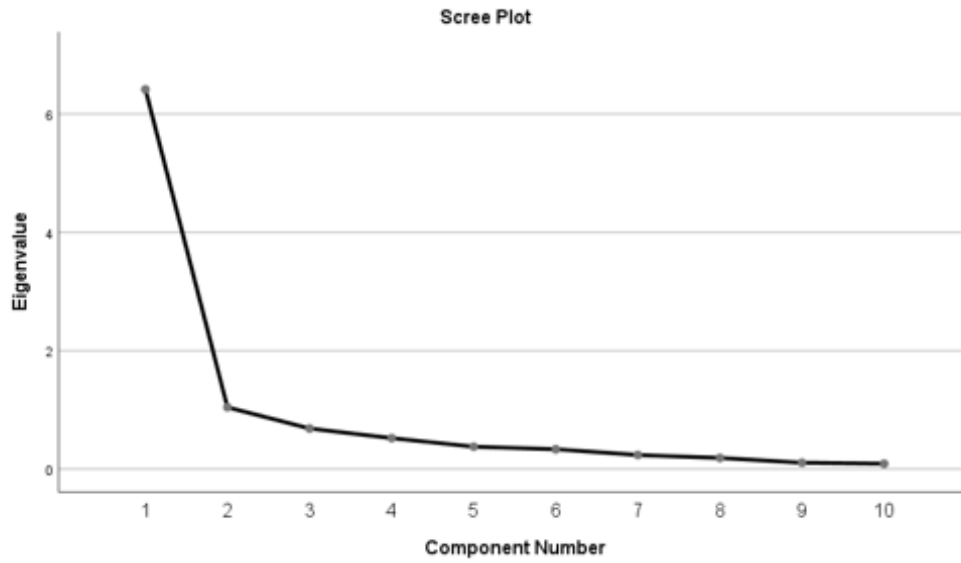
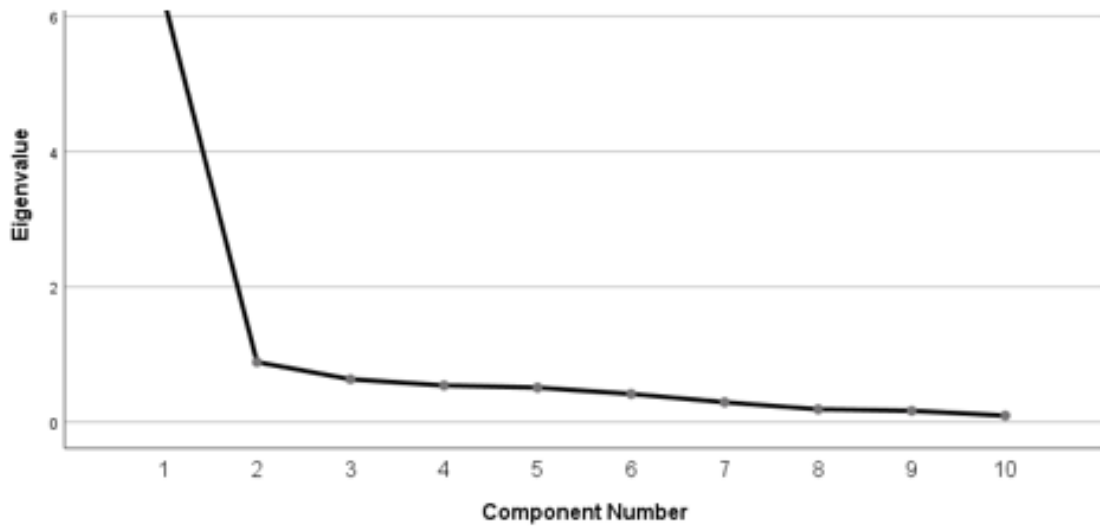


Figure 3. 2 Scree Plot - Racism on the Job During Lifetime



## CHAPTER 4: Examining Race-Based Discrimination, Occupational Stress, and Depression in Black Registered Nurses: A Pilot Study

The United States is rapidly becoming a more diverse nation, demonstrated by the fact that non-white racial and ethnic groups will constitute a majority of the American population later in this century.<sup>118</sup> It is projected that by 2060 there will be more than 77 million black Americans in the United States nearing 20% of the total population.<sup>119</sup> Despite this growth trend, individuals of diverse racial and ethnic background experience disproportionately higher rates of selected diseases and health conditions than the general population.<sup>120</sup> Diversification of the health care workforce is an important step toward responding to racial and ethnic disparities in the health care.<sup>121, 122</sup>

To meet the health needs of an increasingly diverse population, there must be a deliberate effort to increase the proportion of underrepresented racial minorities among health professionals. There is overwhelming evidence that health outcomes are improved when there is cultural concordance with providers making it imperative to hire and retain nurses from diverse backgrounds.<sup>123</sup> Because nursing comprises the leading proportion of the healthcare workforce, nurses are a crucial contributor to reducing health disparities. Influencing the racial/ethnic diversity of nurses has the potential to effect changes to the face of health care.<sup>122</sup> Despite the demonstrated importance of a diverse nursing workforce, less than 10% of the three million registered nurses in the United States are black.<sup>117</sup> One possible way to promote diversity and improve recruitment and retention of blacks within the nursing profession is to focus on the health of those within this workforce.



In this exploratory study, we will bring together several important themes by examining the complex relationships among race-based discrimination at work, occupational stress, and depression in black registered nurses. Understanding these relationships is foundational to designing interventions that promote health in black registered nurses. Ultimately, the findings from this study may lend support to the recruitment and retention of a more diverse nursing workforce.

### **Background**

Nursing is a highly stressful, demanding, and taxing profession. Certain individual risk factors such as age, gender, marital status, and level of education contribute to an increased risk for occupational stress in registered nurses.<sup>47</sup> In addition, certain nursing job-related characteristics are associated with increased occupational stress including years of experience as a nurse, work shift, workload, and work setting.<sup>47, 48</sup> Consequently, increased occupational stress is linked to poor health outcomes such as depression.<sup>7, 124</sup> The evidence clearly supports that higher levels of perceived stress are associated with higher depression levels.<sup>7, 17, 28-30</sup>

Nurses experience depressive symptoms at a rate twice that of individuals in non-health care professions.<sup>3</sup> Evidence supports associations between depressive symptoms in registered nurses with age, marital status, and educational levels. Other major contributors to depressive symptoms are occupational characteristics and stressors, such as work setting and satisfaction, salary, shift work, and length of employment.<sup>3, 7, 13, 16</sup>

Despite the relevance of stress and depression in the lives of registered nurses, there is a scarcity of research examining their health.<sup>3, 7, 13-19</sup> There is even less research solely examining the health of the black nursing workforce. Black registered nurses

comprise 10% of the nursing workforce despite representing over 14% of the United States population.<sup>117</sup> Race, discrimination, and occupational stressors each influence the health of black registered nurses.

Not only do black registered nurses experience the inherent stress of being a nurse, but they are often subjected to additional personal and workplace experiences that may negatively affect their health. Perceived discrimination influences the levels of stress, depression, and psychological distress experienced by black workers, and exposure to racial bias and discrimination may certainly create additional stressors for the black registered nurse.<sup>11, 35</sup>

Race-related stress and discrimination are documented contributors to the mental health of black Americans.<sup>35</sup> Over time discriminatory experiences increase the risk for stress leading to emotional responses such as depression.<sup>125</sup> Therefore, it is vital that we understand the complex relationship between discriminatory factors that may increase race-based discrimination as well as depression and occupational stress among black registered nurses.

Despite the substantial cohort of black registered nurses and the known risk factors, there is a paucity of research examining race-based discrimination at work, occupational stress, and depression in this population. The specific aims guiding this research were to examine whether: (1) past-year or lifetime experiences of work-related racism and occupational stress predict depressive symptoms and (2) past-year and lifetime experiences of work-related racism predict occupational stress, controlling for depressive symptoms in a cohort of black registered nurses.

## **Methods**

### ***Design***

For this pilot research study, a cross-sectional survey design was used.

### ***Sample and Setting***

Participants were recruited from the National Black Nurses Association (NBNA) and the organization, Black Nurses Rock (BNR). To participate, respondents had to self-identify as a black registered nurse. Due to the unique experiences of the black population, registered nurses of other ethnicities were excluded. Registered nurses from all settings and shifts were eligible to complete the study. However, in order to accurately assess occupational stress and depressive symptoms in black nurses, the respondents had to be practicing nurses who were working at least 20 hours per week to be included in the study to properly assess occupational stress. The ability to read and write English was also a requirement.

### ***Procedure***

To ensure a representative sample of Black registered nurses, a variety of recruitment strategies were used including face-to-face and email recruitment. For face-to-face recruitment, exhibitor space was purchased at the NBNA Annual Conference. During the conference, study information was provided to attendees who were then given the option to complete the online survey immediately or to have a link sent to them via email that would allow for completion of the survey at a later time at their convenience. For email recruitment, all members of BNR received an email invitation. An initial email was sent followed by a second email one month later to serve as a reminder. All participants completed an electronic survey that was administered via Qualtrics survey

software (Provo, Utah; www.qualtrics.com). The survey took approximately 15 minutes to complete. For all recruitment methods (electronic and printed), information was provided at the beginning of the survey explaining the study's purpose, inclusion and exclusion criteria, survey web link, and the researcher's telephone number and address. Participants gave consent by completing the survey.

### ***Measures***

**Demographic Characteristics:** Demographic variables measured included: age, years of experience as a registered nurse, primary work setting/facility, position, work shift, length of employment.

**Race-Based Discrimination at Work:** Race-based discrimination at work is the behavioral enactment of superiority over another.<sup>52</sup> The Perceived Racism Scale was developed by McNeilly. According to the authors, racism is operationalized as a complex, multidimensional subjective experience that provokes unique responses to such events. The Perceived Racism Scale is composed of 51 items that measure subtle and overt experiences of racism in employment, academic, and public settings.<sup>113</sup> The PRS is composed of five factors for frequency: (1) on the job; (2) in academic settings; (3) overt racism in public settings; (4) subtle racism in public settings; (5) exposure to racist statements. This instrument is used to assess the frequency with which blacks have been exposed to discriminatory and racist events in four domains: job, academic, public, and emotional response to racist statements. Two subscales of the Perceived Racism Scale were developed to capture work-related experiences of racism, one to measure past-year racism on the job (ROTJ-Y), the other to measure lifetime racism on the job (ROTJ-L). Each of the subscales has 10-items that address work-related discriminatory behaviors.

The subscales asks questions related to perceived racism on the job within the past year and over the lifetime. Questions include statements such as: because I am black, I feel as if I have to work twice as hard, whites often assume I work in a lower status job than I do and treat me as such, and I am treated with less dignity and respect than I would be if I were white.. Item responses for the ROTJ subscales are based on a 6-point Likert scale in which respondents indicate the frequency with which they have experienced discriminatory events, with response options ranging from 0 = not applicable, 1 = almost never, 2 = several times a year, 3 = several times a month, 4 = several times a week, 5 = several times per day. For the ROTJ-Y, responses are based on past year experiences; for the ROTJ-L, they are based on experiences across all years of work. The sum score is calculated for both subscales separately and scores for each range from 0-50.<sup>113</sup> The Perceived Racism scale has been used in other populations<sup>113, 115</sup> and a Cronbach's alpha as high as .95 has been reported. The Cronbach's alpha for the ROTJ subscale is reported as .91.<sup>113</sup>

**Depression:** Depression is an adverse mental health outcome characterized by a depressed mood, diminished interest and pleasure in doing things, changes in weight or appetite, sleep disturbances, fatigue, and excessive feelings of worthlessness or guilt. The Perceived Health Questionnaire- 9 (PHQ-9)<sup>126</sup> was used to measure presence and severity of depressive symptoms. The PHQ-9 items were developed based upon the DSM-IV depression criteria. Responses are on a 4-point Likert scale indicating the frequency over the past 2 weeks with which respondents experienced depressive symptoms such as loss of appetite, difficulty sleeping, having little interest in activities and range during the past two weeks. The responses range from 0 = not at all to 3 =nearly every day.

**Occupational Stress:** Occupational stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker.<sup>127</sup> Occupational stress was measured via The Health Professions Stress Inventory (HPSI)<sup>128</sup> is a 30-item scale with 5-point Likert scale response options. The HPSI is used to assess the levels and sources of stress experienced by health professionals. For each item, participants rate on a scale from 0 (never) to 4 (very often) how often they have found each situation to be stressful in their current position. Scores for the HPSI range from 0 to 120.<sup>128</sup> This measure of occupational stress has been used to evaluate stress of nurses and pharmacists, and they reported the Cronbach's alpha as .89 for nurses and .87 for pharmacists.<sup>129</sup> This measure has also been used to evaluate stress in physicians and the Cronbach's alpha for the instrument was .88.<sup>128</sup>

### **Data Analysis**

Data was analyzed using Statistical Package for the Social Sciences Version 25 (SPSS Inc., Chicago, IL). Demographic data were summarized using descriptive analyses, including means, standard deviations and frequency distributions. Multiple regression analysis was used to examine race-based discrimination at work and occupational stress as predictors of depressive symptoms. This same strategy was used to examine whether past-year and lifetime experiences of work-related racism predicted occupational stress, controlling for depressive symptoms and job-related characteristics including: years RN experience, primary nursing practice position, work setting, work shift, and work status. Variance inflation factors were evaluated to check for multicollinearity.

## Results

### *Participant Characteristics*

The average age of participants was  $44 \pm 12$  years, and most were female and married. The average years of RN experience for the participants was  $16 \pm 12$  years. More than half had post-baccalaureate education and the majority had an income at or above \$75,000. The majority worked full-time during the day shift. More than half worked in a primary practice position. The majority worked in a hospital or health care facility. For those that worked in a hospital or health care facility, more than half worked in a non-specialty unit. The ROTJ-Y and ROTJ-L total scores were  $34 \pm 10$  and  $31 \pm 10$  respectively. The HPSI score for participants was  $88 \pm 17$ . The PHQ-9 score for participants was  $14 \pm 4$ . The characteristics of the sample are presented in Table 4.I.

### *Regression Analyses*

The results of the linear regression models to examine whether past-year or lifetime experiences of racism and occupational stress predicted depressive symptoms were non-significant ( $p = .06$  and  $p = .15$ , respectively). The overall linear regression model to examine if perceived racism on the job in the past year and in the lifetime predicted occupational stress while controlling for depressive symptoms and job-related characteristics was significant ( $F = 3.6$ ,  $p = .003$ ;  $R^2 = .33$ ).

Of the variables in the model (years RN experience, primary nursing practice position, work setting, work shift, work status, and depressive symptoms, and past-year experiences of racism) the only variable significantly associated with occupational stress was past-year experiences of racism on the job ( $p = .001$ ). For every unit increase in the score on past-year experiences of racism on the job, the estimated occupational stress

score increased by 0.7 points ( $b = -.70$ ;  $SE = 0.20$ ), or for every 10-unit increase in ROTJ-Y would be associated with a 7-unit increase in occupational stress. For this model, all variance inflation factors were less than 2, indicating that multicollinearity was not distorting parameter estimates.

The overall linear regression model for occupational stress in the model with lifetime experiences of racism on the job was also significant ( $F = 7.7$ ,  $p < .001$ ;  $R^2 = .54$ ). When controlling for the variables: years RN experience, primary nursing practice position, work setting, work shift, work status, and depressive symptoms, none were significant predictors of occupational stress (see Tables 4.2 and 4.3). The only variable significantly associated with occupational stress was perceived racism on the job during the lifetime ( $p < .001$ ). For each one unit increase in perceived racism on the job during the lifetime, the estimated occupational stress score increased by almost 1.2 points ( $b = 1.2$ ;  $SE = .19$ ), or for a 10-unit increase in ROTJ-L, the associated increase in occ stress is 12 points, on average. For this model, all variance inflation factors were less than 2, indicating that multicollinearity was not distorting parameter estimates.

## **Discussion**

Perceived racism and occupational stress were not predictive of depression. While perceived racism at work was a significant predictor of occupational stress, depression was not in this cohort of black registered nurses. Since both perceived racism on the job during the past year and during the lifetime were significant predictors of occupational stress, it is important to discuss the impact of both phenomena on this subset of the nursing workforce. The inherent occupational stress associated with being a registered nurse coupled with experiences of race-based discrimination creates additional stressors



for the black registered nurse. Workplace discrimination can manifest in subtle forms such as perceived harmless statements or more overt forms such as exclusion<sup>11</sup>.

Discrimination in the workplace arises as “stereotypes, excessive demands, an absence of mentoring, exclusion from work (office) cliques, being ignored and/or harassed, and assumptions of incompetence”.<sup>11</sup> Discrimination and negative comments about race or ethnicity have been found to influence workplace stress and nurse’s intention on how long to remain on the job.<sup>53</sup> Thus, it is reasonable and probable that the findings from this study concluded that perceived racism on the job was a predictor of occupational stress, and as rates of perceived racism on the job increase so do rates of occupational stress.

Although depression was not predictive of occupational stress in this pilot study, the high depressive symptoms mean score in this sample of black nurses highlights the importance of examining depression and its consequences in this population. The findings in our study are consistent with the literature in which it has been reported that women, black Americans, and nurses have disproportionately higher rates of depression than males, members of other ethnic or racial groups, and people who work in other occupations.<sup>68 130</sup> Researchers have also found that members of this population are more likely to be persistently ill once diagnosed with depression.<sup>24</sup> Chronic depression rates were reported as 57% for black Americans and 38% for white Americans.<sup>27</sup> Researchers have shown that the most consistently described negative mental health consequence of discrimination is increased depressive symptomology.<sup>11</sup> The research aligns with the findings in the sample of black registered nurses in this pilot study.

Women experience twice the rate of depression as men, and an estimated one in eight women will suffer from depression in their lifetime.<sup>131</sup> Rates of depression among

black American women are twice that of white women.<sup>132</sup> Race related stress due to perceived discrimination are documented contributors to the mental health of black women.<sup>11</sup> In this pilot study, black women accounted for 96% of the study participants. This may explain some of the depression prevalence and severity included in the findings. Thus, this evidence may be a crucial first step in the development of support and management strategies to improve the health and professional experiences for this unique group of registered nurses.

### **Strengths and Limitations**

In the study design we attempted to use a variety of nursing professional organization including the two largest professional registries of black registered nurses. The primary limitation of this pilot study was the self-selection of respondents. In addition, the sample is a relatively small subgroup of the black registered nurse workforce. Given this and the method of participant recruitment, these findings may not be generalizable to the population of all black registered nurses.

### **Conclusion**

Since diversification of the nursing workforce is a key component to improving patient health outcomes, it is important to examine the factors that influence nurse retention in the workplace as well as implications and costs to employers. Nurses who experience high levels of work-related discrimination have shorter tenures at their places of employment.<sup>53</sup> Perceived discrimination and subsequent occupational stress at work experienced by black nurses contributes to the inability of organizations to retain minority nurses.<sup>53</sup> Research such as this is vital in designing programs to support and

increase diversity in the workforce and eliminating roadblocks in recruitment and retention minority nurses.

Of equal importance, is the opportunity this research has to generate sensitivity and raise awareness of everyday racism and the adverse consequences it has in the workplace. From this research, additional qualitative studies that explore the lived workplace experiences of black registered nurses may be necessary to gain an understanding of the experiences of these registered nurses in the workplace. The common experience of racism among black registered nurses is an indicator that this is a problem that must be addressed. Retention of black registered nurses, experiences of racism at work, occupational stress, and depression are intertwined. Increasing retention of and reducing stress and depression among black registered nurses will require the development and implementation of administrative and organizational policies that address race-based discrimination in healthcare settings.

Table 4. 1 Descriptive Summary of Study Variables

Table 4.1: Descriptive Summary of Study Variables (N=75)	
Demographic or personal characteristic	Mean (SD) n (%)
Age, years (mean $\pm$ SD)	44 $\pm$ 12
<i>Years of Experience as RN</i> (mean $\pm$ SD)	16 $\pm$ 12
<i>Gender</i>	
Female	72 (96%)
Male	3 (4%)
<i>Marital Status</i>	
Married	56 (75%)
Other	19 (25%)
<i>Highest Nursing Degree</i>	
Baccalaureate or Less	34 (45%)
Post Baccalaureate	41 (55%)
<i>Total Household Income</i>	
<75,000	16 (21%)
$\geq$ 75,000	59 (79%)
<i>Primary Nursing Practice Position</i>	
Practice Position	47 (63%)
Non-Practice Position	27 (37%)
<i>Type of Nursing unit</i>	
Non-specialty Unit	42 (56%)
Specialty Unit	33 (44%)
<i>Primary Nursing Practice Facility</i>	
Hospital/Health Care Facility	49 (65%)
Non-Hospital/Health Care Facility	26 (35%)
<i>Working Status</i>	
Full-time	67 (89%)
Other	8 (11%)
<i>Current Work Shift</i>	
Day Shift	58 (77%)
Other	17 (23%)
Race-Based Discrimination at Work	
Past Year	34 $\pm$ 10
Lifetime	31 $\pm$ 10
Depression	14 $\pm$ 4
Occupational Stress	88 $\pm$ 17

Table 4. 2 Linear Regression to evaluate whether perceived ROTJ-Y predicts Occupational Stress

Table 4.2: Linear Regression Modeling Occupational Stress (N=60)					
Predictors	<i>Model with Perceived Racism on the Job in the Last Year</i>				
	<b>b</b>	<b>SE</b>	<b>t</b>	<b>Standardized <math>\beta</math></b>	<b>p-value</b>
Years RN Experience	-.02	.17	-.14	-.02	.89
Primary Nursing Practice Position	6.2	4.9	1.3	.19	.21
Work Setting	-.40	5.5	-.07	-.01	.94
Work Shift	-7.7	4.6	-1.7	-.20	.10
Work Status	.67	6.0	.11	.01	.92
Depression	.68	.42	1.6	.20	.11
Racism on the Job (last year)	.70	.20	3.5	.44	.001

Table 4. 3 Linear Regression to evaluate whether perceived ROTJ-L predicts Occupational Stress

Table 4.3: Linear Regression Modeling Occupational Stress (N=56)					
Predictors	<i>Model with Perceived Racism on the Job During Lifetime</i>				
	<b>b</b>	<b>SE</b>	<b>t</b>	<b>Standardized <math>\beta</math></b>	<b>p-value</b>
Years RN Experience	-.03	.13	-.25	-.03	.80
Primary Nursing Practice Position	5.0	3.6	1.4	.17	.17
Work Setting	-5.4	4.1	-1.3	-.18	.19
Work Shift	-4.8	3.5	-1.4	-.15	.17
Work Status	.69	4.6	.15	.02	.88
Depression	-.06	.35	-.17	-.02	.87
Racism on the Job (lifetime)	1.2	.19	6.2	.72	<.001

## CHAPTER 5. Summary of Findings

### **Background and Purpose**

The overall purpose of this dissertation was to examine depression, experiences of work-related racism, and occupational stress among black nurses. Nursing is a highly stressful and demanding profession that can negatively affect health. Underscoring this is the high rate of depression experienced by nurses. In fact, nurses experience depression at a rate twice that of individuals in other occupations. Examining depression in nurses can provide insights that can inform measures addressing the psychological health of this group. This may be particularly important in black nurses who, in addition to the already high occupational stress associated with nursing, may experience additional stress due to experiences of racism in the work environment.

### **Summary of Findings**

Chapter two was the report of a systematic review of the literature on depression in nurses. This review of 36 articles was conducted to assess the current state of the science related to depression in registered nurses. In this review, factors were highlighted that underlie the high rates of depression among nurses, and the individual as well as work-related variables that contribute to nurses' susceptibility to depression. Nurses experience depressive symptoms at a rate twice as high as individuals in other professions.<sup>3</sup> The research revealed a variety of factors that predicted depression in registered nurses. The highest rates of depression were among young, female registered nurses.<sup>13, 19, 73-76</sup> In addition, depression was more frequent in single and divorced nurses than in married nurses.<sup>14, 19, 30, 74</sup> Nurses working in intensive care units and psychiatric units reported higher levels of depression than nurses working on other types of units.<sup>13,</sup>

30, 58, 69, 77-79 Registered nurses reporting higher levels of workplace violence or traumatic events also reported higher levels of depression.<sup>58, 76, 80</sup> Additionally, nurses with positive evaluation and expectation of themselves and others reported lower depression levels<sup>14</sup>. Depression was positively correlated with female gender, marital status and length of employment.<sup>14, 16, 28, 30</sup> Also, as age increased, the risk for depression decreased.<sup>77, 81</sup> The most frequently reported depressive symptoms by registered nurses included continual fatigue, trouble sleeping, thoughts about death, depressed mood (2 weeks or more), and trouble concentrating.<sup>7, 73</sup> Unlike the general population, as nurses age, they are less likely to suffer from depression and depressive symptomology.<sup>13, 19, 75</sup> Marital status was also a strong predictor of depression in registered nurses with the research showing that single and divorced nurses had the highest prevalence of depressive factors.<sup>19, 30, 74</sup> Acute hospital-based registered nurses reported higher levels of depression; the level of clinical unit acuity was directly related to this finding with psychiatric, intensive care and surgical units' nurses reporting the highest levels of depression or depressive symptomology.<sup>13, 69, 77, 78</sup> However, to date, no researchers have studied depression in ethnic minority registered nurses working in the United States. Thus, additional research investigating the mental health of nurses from racial and gender minority groups is needed.

Chapter three was the report of the psychometric properties of two subscales of the Perceived Racism Scale (1) past year experiences of racism on the job (ROTJ-Y) and (2) lifetime experiences of racism on the job (ROTJ-L). Data for this study were collected as part of a larger study examining occupational stress, race-based discrimination at work, coping, and depression among black registered nurses. The total sample for the original study was 75. Of these, 53 participants completed both the ROTJ-Y and ROTJ-L

subscales of the Perceived Racism Scale –and were included in this study. Each Racism on the Job subscale consists of 10-items used to measure perceived racism at work, one specific to experiences within the past year, the other to lifetime experiences of race-related racism. Overall, the results from the psychometric testing conducted demonstrated that the ROTJ-Y and ROTJ-L subscales of the Perceived Racism Scale are valid and reliable when used to examine both current year and lifetime experience of job-related racism among black nurses. Results of psychometric testing of the ROTJ-Y and ROTJ-L subscales demonstrated acceptable internal consistency reliability as well as construct validity and factor structure. The Cronbach's alpha for the ROTJ-Y and ROTJ-L were .94;  $\alpha = .92$ . respectively. Generally, a Cronbach's alpha of .80 or greater is considered desirable but a Cronbach's alpha  $>.90$  may indicate item redundancy. This signifies that there may be redundancy among items. However, through close examination of each item it is clear that the perspective on racism each contributes is relevant and important to capture. Therefore, removing any item may not improve the instrument. This is supported by the finding that the overall Cronbach's alpha did not improve with deletion of any item. The regression model indicated that the experience of work-related racism as measured by the ROTJ-Y and the ROTJ-L are predictive of occupational stress with more experiences of racism predicting greater stress.

Chapter four was the report of discussed the findings of a cross-sectional pilot study examining whether (1) past-year or lifetime experiences of work-related racism and occupational stress predicted depressive symptoms and (2) past-year and lifetime experiences of work-related racism predicted occupational stress, controlling for depressive symptoms in a cohort of black registered nurses. Participants for the pilot



study were recruited from the National Black Nurses Association (NBNA) and the organization, Black Nurses Rock (BNR). While perceived racism at work was a significant predictor of occupational stress, depression was not in this cohort of black registered nurses. The results of the linear regression analyses to examine whether past-year or lifetime experiences of racism and occupational stress predicted depressive symptoms were non-significant. The overall linear regression model to examine if perceived racism on the job in the past year predicted of occupational stress while controlling for depressive symptoms and job-related characteristics was significant ( $F = 3.6, p = .003; R^2 = .33$ ). The overall linear regression model for occupational stress in the model with lifetime experiences of racism on the job was also significant ( $F = 7.7, p = .000; R^2 = .54$ ). However, in both models when controlling for the variables: years RN experience, primary nursing practice position, work setting, work shift, work status, and depressive symptoms, none were significant predictors of occupational stress.

### **Impact of Dissertation on the State of Science**

This dissertation represents an important contribution to the literature. First, the synthesis of the literature highlights the importance of addressing work-related factors that underlie the high rates of depression in nurses. The study conducted to examine the psychometric soundness of the two work-related subscales of the Perceived Racism instrument provides evidence that the ROTJ-Y and ROTJ-L can be used to validly and reliably measure work-related past-year and lifetime experiences of racism among black nurses. These important tools can be used in future research to more fully examine and address racism in the workplace. The third study was among the first conducted in which relationships between work-related racism, occupational stress, and depression in

black registered nurses were examined. The significant associations found between both past-year and lifetime experiences of racism and occupational stress underscore the importance of addressing racism among nurses in the workplace to reduce stress among black nurses and to support a healthy nursing workforce.

### **Recommendations for Nursing Practice and Research**

1. One practical starting point to address depression in registered nurses is to examine the role organizational structure and support play in identifying, preventing, and intervening rates of depression in registered nurses.
2. Although race-related work discrimination and occupational stress were not predictive of depression in this pilot study, the high depressive symptoms mean score in this sample of black nurses highlights the importance of examining depression and its consequences in this population.
3. Race-based discrimination towards black registered nurses is a significant problem. Therefore, understanding race-related depression at work and its impact on occupational stress is priority for promoting the psychological well-being and guiding recruitment and retention of black registered nurses.
4. The findings of the studies reported in this dissertation that race-based discrimination is a common experience among black registered nurses strongly suggest that there is an urgent need for administrators in healthcare settings to evaluate and address race-based discrimination.

### **Strengths and Limitations**

The sample is a relatively small subgroup of the black registered nurse workforce and, as such, may not fully represent this population. In the pilot study design we

collaborated with a variety of nursing professional organizations including the two largest professional registries of black registered nurses but had limited participant response. Even with these limitations, the dissertation exhibits major strengths. Regarding the psychometric testing, given that the instrument has not been widely tested, the evidence of validity and reliability even when evaluated with a small sample of black RNs, supports the psychometric soundness of the ROTJ subscales. In addition, although experiences of work-related racism and occupational stress were not predictive of depression, both past-year and lifetime racism were significant predictor of occupational stress. This research highlights the implications for systems change and worksite policies and practices.

### **Conclusion and Future Research Plans**

The results of the research conducted for this dissertation highlight the effects of depression on nurses as well as the relationship between race-based discrimination at work and occupational stress among black registered nurses. This research raises awareness of the adverse consequence of these variables in the workplace. This evidence can inform the development of future strategies to improve the well-being of nurses in the workplace in general and especially of black registered nurses.

#### **Future Research Plans Include:**

1. Further examine the factors that influence black and other minority nurse retention in the workplace. Diversification of the nursing workforce is a key component to improving patient health outcomes. As such, it is important to further examine the factors that influence nurse retention in the workplace

particularly race-related discrimination in work in black and other minority registered nurses.

2. Explore qualitative experiences of black registered nurses. From this research, additional qualitative studies that explore the lived workplace experiences of black registered nurses may be necessary to gain an understanding of the experiences of these registered nurses in the workplace.
3. Coping strategies have a major influence on an individual's physical and psychological well-being when they are faced with stressful life events. The occurrence and the individual's perceptions of their stressfulness are important factors that contribute to the psychological effects of discrimination. Thus, future research should explore the role of coping and in black registered nurses.

## REFERENCES

1. US Department of Health and Human Services. The Registered Nurse Population: Findings from the 2008 National Sample Survey of Registered Nurses. . 2010.
2. United States Department of Labor Statistics. Occupational Outlook Handbook, 2016-17 Edition, Registered Nurses. Available at:  
<http://www.bls.gov/ooh/healthcare/registered-nurses.htm#tab-3>.
3. Letvak S, Ruhm CJ, McCoy T. Depression in hospital-employed nurses. *Clin Nurse Spec*. May-Jun 2012;26(3):177-182.
4. Chung CC, Lin MF, Ching YC, et al. Mediating and moderating effects of learned resourcefulness on depressive symptoms and positive ideation in hospital nurses in Taiwan. *Res Nurs Health*. Dec 2012;35(6):576-588.
5. Langlieb AM, DePaulo JR, Jr. Etiology of depression and implications on work environment. *J Occup Environ Med*. Apr 2008;50(4):391-395.
6. Wheeler RM, Foster JW, Hepburn KW. The experience of discrimination by US and Internationally educated nurses in hospital practice in the USA: a qualitative study. *J Adv Nurs*. Feb 2014;70(2):350-359.
7. Welsh D. Predictors of depressive symptoms in female medical-surgical hospital nurses. *Issues Ment Health Nurs*. May 2009;30(5):320-326.
8. Greer TM. Coping Strategies as Moderators of the Relation Between Individual Race-Related Stress and Mental Health Symptoms for African American Women. *Psychol Women Q*. Jun 2011;35(2):215-226.

9. Hammond WP, Gillen M, Yen IH. Workplace Discrimination and Depressive Symptoms: A Study of Multi-Ethnic Hospital Employees. *Race and social problems*. Mar 1 2010;2(1):19-30.
10. Swart JC, Wendt AC, Slonaker WM. Employment discrimination experiences of registered nurses. *J Nurs Adm*. Jul-Aug 1996;26(7-8):37-43.
11. Hall JC, Everett JE, Hamilton-Mason J. Black women talk about workplace stress and how they cope. *Journal of black studies*. 2012;43(2):207-226.
12. Williams DR, Williams-Morris R. Racism and mental health: the African American experience. *Ethn Health*. Aug-Nov 2000;5(3-4):243-268.
13. Arafa MA, Nazel MW, Ibrahim NK, Attia A. Predictors of psychological well-being of nurses in Alexandria, Egypt. *Int J Nurs Pract*. Oct 2003;9(5):313-320.
14. Chang Y, Wang P-C, Li H-H, Liu Y-C. Relations among depression, self-efficacy and optimism in a sample of nurses in Taiwan. *Journal of Nursing Management*. 2011;19(6):769-776.
15. Chung C-C, Lin M-F, Ching Y-C, et al. Mediating and moderating effects of learned resourcefulness on depressive symptoms and positive ideation in hospital nurses in Taiwan. *Research in nursing & health*. 2012;35(6):576-588.
16. Gao YQ, Pan BC, Sun W, Wu H, Wang JN, Wang L. Depressive symptoms among Chinese nurses: prevalence and the associated factors. *J Adv Nurs*. May 2012;68(5):1166-1175.
17. Lin H, Probst JC, Hsu Y. Depression among female psychiatric nurses in southern Taiwan: main and moderating effects of job stress, coping behaviour and social support. *Journal of Clinical Nursing*. 2010;19(15-16):2342-2354.

18. Wu H, Ge CX, Sun W, Wang JN, Wang L. Depressive symptoms and occupational stress among Chinese female nurses: the mediating effects of social support and rational coping. *Res Nurs Health*. Oct 2011;34(5):401-407.
19. Yoon SL, Kim JH. Job-related stress, emotional labor, and depressive symptoms among Korean nurses. *J Nurs Scholarsh*. Jun 2013;45(2):169-176.
20. Centers for Disease Control and Prevention. An Estimated 1 in 10 U.S. Adults Report Depression. 2012.
21. Putnam K, McKibbin L. Managing workplace depression: an untapped opportunity for occupational health professionals. *AAOHN J*. Mar 2004;52(3):122-129; quiz 130-121.
22. Wang J, Schmitz N, Smailes E, Sareen J, Patten S. Workplace characteristics, depression, and health-related presenteeism in a general population sample. *J Occup Environ Med*. Aug 2010;52(8):836-842.
23. Ward EC, Wiltshire JC, Detry MA, Brown RL. African American men and women's attitude toward mental illness, perceptions of stigma, and preferred coping behaviors. *Nurs Res*. May-Jun 2013;62(3):185-194.
24. Williams DR, Gonzalez HM, Neighbors H, et al. Prevalence and distribution of major depressive disorder in African Americans, Caribbean blacks, and non-Hispanic whites: results from the National Survey of American Life. *Arch Gen Psychiatry*. Mar 2007;64(3):305-315.
25. National Mental Health Association. African American Communities and Mental Health 2013.

26. Centers for Disease Control and Prevention. An Estimated 1 in 10 U.S. Adults Report Depression. 2011.
27. Kim M. Racial/Ethnic disparities in depression and its theoretical perspectives. *Psychiatr Q*. Mar 2014;85(1):1-8.
28. Baba VV, Galperin BL, Lituchy TR. Occupational mental health: a study of work-related depression among nurses in the Caribbean. *Int J Nurs Stud*. Apr 1999;36(2):163-169.
29. Hegney DG, Craigie M, Hemsworth D, et al. Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. *J Nurs Manag*. May 2014;22(4):506-518.
30. Wang SM, Lai CY, Chang YY, Huang CY, Zauszniewski JA, Yu CY. The relationships among work stress, resourcefulness, and depression level in psychiatric nurses. *Arch Psychiatr Nurs*. Feb 2015;29(1):64-70.
31. Gray-Toft P, Anderson JG. The Nursing Stress Scale: Development of an instrument. *J Behav Assess*. 1981;3(1):11-23.
32. Lazarus RS. Puzzles in the study of daily hassles. *J Behav Med*. Dec 1984;7(4):375-389.
33. Moustaka E, Constantinidis TC. Sources and effects of work-related stress in nursing. *Health Sciences Journal*. 2010;4(4):210-216.
34. Krieger N. Embodying inequality: a review of concepts, measures, and methods for studying health consequences of discrimination. *Int J Health Serv*. 1999;29(2):295-352.



35. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. *Psychol Bull.* Jul 2009;135(4):531-554.
36. Pieterse AL, Todd NR, Neville HA, Carter RT. Perceived racism and mental health among Black American adults: a meta-analytic review. *J Couns Psychol.* Jan 2012;59(1):1-9.
37. Jackson JS, Brown TN, Williams DR, Torres M, Sellers SL, Brown K. Racism and the physical and mental health status of African Americans: a thirteen year national panel study. *Ethn Dis.* Winter-Spring 1996;6(1-2):132-147.
38. Kessler RC, Mickelson KD, Williams DR. The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *J Health Soc Behav.* Sep 1999;40(3):208-230.
39. Landrine HK, E. A. . The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences. q. *The Journal of Black Psychology* 1996;22:144-168.
40. Sellers RM, Shelton JN. The role of racial identity in perceived racial discrimination. *J Pers Soc Psychol.* May 2003;84(5):1079-1092.
41. United States Department of Labor. The African-American Labor Force in Recovery. . Available at: [http://www.dol.gov/\\_sec/media/reports/BlackLaborForce/BlackLaborForce.pdf](http://www.dol.gov/_sec/media/reports/BlackLaborForce/BlackLaborForce.pdf).
42. National Institute for Occupational Safety and Health CfDCaP. Expanding Our Understanding of the Psychosocial Work Environment. 2008.

43. Nunez-Smith M, Pilgrim N, Wynia M, et al. Race/ethnicity and workplace discrimination: results of a national survey of physicians. *J Gen Intern Med.* Nov 2009;24(11):1198-1204.
44. Robinson OV. Telling the story of role conflict among Black nurses and Black nursing students: a literature review. *J Nurs Educ.* Sep 2013;52(9):517-524.
45. Xue Y. Racial and ethnic minority nurses' job satisfaction in the U.S. *Int J Nurs Stud.* Jan 2015;52(1):280-287.
46. Seago JA, Spetz J. Minority nurses' experiences on the job. *J Cult Divers.* Spring 2008;15(1):16-23.
47. Oyama Y, Fukahori H. A literature review of factors related to hospital nurses' health-related quality of life. *J Nurs Manag.* Dec 20 2013.
48. Clegg A. Occupational stress in nursing: a review of the literature. *J Nurs Manag.* Mar 2001;9(2):101-106.
49. Endler NS, Parker JD. Multidimensional assessment of coping: a critical evaluation. *J Pers Soc Psychol.* May 1990;58(5):844-854.
50. Folkman S, Lazarus RS. An analysis of coping in a middle-aged community sample. *J Health Soc Behav.* Sep 1980;21(3):219-239.
51. Krohne HW. Stress and coping theories. *The international encyclopedia of the social and behavioral sciences.* 2001;22:15163-15170.
52. Din-Dzietham R, Nembhard WN, Collins R, Davis SK. Perceived stress following race-based discrimination at work is associated with hypertension in African-Americans. The metro Atlanta heart disease study, 1999-2001. *Soc Sci Med.* Feb 2004;58(3):449-461.

53. Mocerri JT. Bias in the nursing workplace: implications for Latino(a) nurses. *J Cult Divers*. Fall 2012;19(3):94-101.
54. Outlaw FH. Stress and coping: the influence of racism on the cognitive appraisal processing of African Americans. *Issues Ment Health Nurs*. Oct-Dec 1993;14(4):399-409.
55. Lazarus RS, Folkman S. *Stress, appraisal, and coping*: Springer Publishing Company LLC; 1984.
56. Pieterse AL, Carter RT. An examination of the relationship between general life stress, racism-related stress, and psychological health among Black men. *J Couns Psychol*. Jan 2007;54(1):101-109.
57. Chae DH, Lincoln KD, Jackson JS. Discrimination, attribution, and racial group identification: implications for psychological distress among Black Americans in the National Survey of American Life (2001-2003). *Am J Orthopsychiatry*. Oct 2011;81(4):498-506.
58. Gong Y, Han T, Yin X, et al. Prevalence of depressive symptoms and work-related risk factors among nurses in public hospitals in southern China: a cross-sectional study. *Sci Rep*. 2014;4:7109.
59. Budden JS, Zhong EH, Moulton P, Cimiotti J. The National Council of State Boards of Nursing and The Forum of State Nursing Workforce Centers 2013 National Workforce Survey of Registered Nurses *Journal of Nursing Regulation*. 2013;4(2):1-74.
60. National Institute for Occupational Safety and Health. Women's Safety and Health Issues at Work. 2013.
61. Organization WH. Depression: A Global Public Health Concern. 2012: 1-3.

62. National Association of Mental Illness. Depression. 2015.
63. National Association of Mental Illness. What is depression? 2014.
64. National Association of Mental Illness. Women and depression: What you need to know about this medical illness. Arlington, VA; 2008.
65. National Institute of Health. What is Depression? ; 2014.
66. Letvak SA, Ruhm CJ, Gupta SN. Nurses' presenteeism and its effects on self-reported quality of care and costs. *Am J Nurs*. Feb 2012;112(2):30-38; quiz 48, 39.
67. Partnership for Workplace Mental Health APF. A mentally health workforce- it's good for business. Available at: <http://www.workplacementalhealth.org/Business-Case.aspx>.
68. Letvak S. We cannot ignore nurses' health anymore: a synthesis of the literature on evidence-based strategies to improve nurse health. *Nurs Adm Q*. Oct-Dec 2013;37(4):295-308.
69. De Leo D, Magni G, Vallerini A, Dal Palu C. Assessment of anxiety and depression in general and psychiatric nurses. *Psychol Rep*. Feb 1983;52(1):335-337.
70. Glass DC, McKnight JD, Valdimarsdottir H. Depression, burnout, and perceptions of control in hospital nurses. *J Consult Clin Psychol*. Feb 1993;61(1):147-155.
71. Ruggiero JS. Correlates of fatigue in critical care nurses. *Res Nurs Health*. Dec 2003;26(6):434-444.
72. Skipper JK, Jr., Jung FD, Coffey LC. Nurses and shiftwork: effects on physical health and mental depression. *J Adv Nurs*. Jul 1990;15(7):835-842.

73. van Servellen GM, Soccorso EA, Palermo K, Faude K. Depression in hospital nurses: implications for nurse managers. *Nurs Adm Q*. Spring 1985;9(3):74-84.
74. Ardekani ZZ, Kakooei H, Ayattollahi SM, Choobineh A, Seraji GN. Prevalence of mental disorders among shift work hospital nurses in Shiraz, Iran. *Pak J Biol Sci*. Jun 15 2008;11(12):1605-1609.
75. Ohler MC, Kerr MS, Forbes DA. Depression in nurses. *Can J Nurs Res*. Sep 2010;42(3):66-82.
76. Yoshizawa K, Sugawara N, Yasui-Furukori N, et al. Relationship between occupational stress and depression among psychiatric nurses in Japan. *Arch Environ Occup Health*. Aug 22 2014:0.
77. Bjorvatn B, Dale S, Hogstad-Erikstein R, Fiske E, Pallesen S, Waage S. Self-reported sleep and health among Norwegian hospital nurses in intensive care units. *Nurs Crit Care*. Jul-Aug 2012;17(4):180-188.
78. Chiang YM, Chang Y. Stress, depression, and intention to leave among nurses in different medical units: implications for healthcare management/nursing practice. *Health Policy*. Dec 2012;108(2-3):149-157.
79. Kawano Y. Association of job-related stress factors with psychological and somatic symptoms among Japanese hospital nurses: effect of departmental environment in acute care hospitals. *J Occup Health*. 2008;50(1):79-85.
80. Lam LT, Ross FI, Cass DT, Quine S, Lazarus R. The impact of work related trauma on the psychological health of nursing staff: a cross sectional study. *Aust J Adv Nurs*. Mar-May 1999;16(3):14-20.

81. Skinner K, Scott RD. Depression among female registered nurses. *Nurs Manage*. Aug 1993;24(8):42-45.
82. Morrissy L, Boman P, Mergler A. Nursing a case of the blues: an examination of the role of depression in predicting job-related affective well-being in nurses. *Issues Ment Health Nurs*. Mar 2013;34(3):158-168.
83. Mark G, Smith AP. Occupational stress, job characteristics, coping, and the mental health of nurses. *Br J Health Psychol*. Sep 2012;17(3):505-521.
84. Flo E, Pallesen S, Mageroy N, et al. Shift work disorder in nurses--assessment, prevalence and related health problems. *PLoS One*. 2012;7(4):e33981.
85. Eldevik MF, Flo E, Moen BE, Pallesen S, Bjorvatn B. Insomnia, excessive sleepiness, excessive fatigue, anxiety, depression and shift work disorder in nurses having less than 11 hours in-between shifts. *PLoS One*. 2013;8(8):e70882.
86. Flo E, Pallesen S, Moen BE, Waage S, Bjorvatn B. Short rest periods between work shifts predict sleep and health problems in nurses at 1-year follow-up. *Occup Environ Med*. Aug 2014;71(8):555-561.
87. Oyane NM, Pallesen S, Moen BE, Akerstedt T, Bjorvatn B. Associations between night work and anxiety, depression, insomnia, sleepiness and fatigue in a sample of Norwegian nurses. *PLoS One*. 2013;8(8):e70228.
88. Bronder EC, Speight, K. M., Witherspoon, K. M., & Thomas A. J. . John Henryism, depression, and perceived social support in Black women. *Journal of Black Psychology*. 2014;40(2):115-137.
89. National Institute of Mental Health. What is Depression? 2014.
90. American Psychological Association. Aging and Depression. 2015.

91. Arrighi HM, Hertz-Picciotto I. The evolving concept of the healthy worker survivor effect. *Epidemiology*. Mar 1994;5(2):189-196.
92. Harrison-White K, Simons J. Preceptorship: ensuring the best possible start for new nurses. *Nurs Child Young People*. 2013;25(1):24-27 24p.
93. Charnley E. Occupational stress in the newly qualified staff nurse. *Nurs Stand*. Apr 7-13 1999;13(29):33-36.
94. Centers for Disease Control and Prevention. Total Worker Health Available at: <http://www.cdc.gov/niosh/TWH/>.
95. Letvak S, Ruhm C, Gupta S. Differences in health, productivity and quality of care in younger and older nurses. *J Nurs Manag*. Oct 2013;21(7):914-921.
96. World Health Organization. PRIMA-EF; guidance on the European framework for psychosocial risk management: a resource for employers and work representatives. Protecting Worker's Health 2008.
97. Campbell K, Hanna JC. *Individual and Organizational Health and Well-Being*. Pensacola, FL: American Association of Occupational Health Nurses, Inc; 2014.
98. American Public Health Association. Health Disparities: The Basics. 2014.
99. Wassertheil-Smoller S, Arredondo EM, Cai J, et al. Depression, anxiety, antidepressant use, and cardiovascular disease among Hispanic men and women of different national backgrounds: results from the Hispanic Community Health Study/Study of Latinos. *Ann Epidemiol*. Nov 2014;24(11):822-830.
100. Utsey. Assessing the stressful effects of racism: A review of instrumentation. *J Black Psychol*. 1998;24(3):269-288.

101. Landrine H, Klonoff EA. The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences. *J Black Psychol.* 1996;22(2):144-168.
102. Williams DR, Mohammed SA. Discrimination and racial disparities in health: evidence and needed research. *J Behav Med.* Feb 2009;32(1):20-47.
103. Brondolo E, Gallo LC, Myers HF. Race, racism and health: disparities, mechanisms, and interventions. *J Behav Med.* Feb 2009;32(1):1-8.
104. Nelson AR, Smedley BD, Stith AY. *Unequal Treatment:: Confronting Racial and Ethnic Disparities in Health Care (with CD)*. Vol 1: National Academies Press; 2009.
105. Paradies Y. A systematic review of empirical research on self-reported racism and health. *Int J Epidemiol.* Aug 2006;35(4):888-901.
106. Pieterse AL, Todd NR, Neville HA, Carter RT. Perceived racism and mental health among Black American adults: a meta-analytic review. *J Couns Psychol.* 2012;59(1):1.
107. Williams DR, Mohammed SA. Racism and Health I: Pathways and Scientific Evidence. *Am Behav Sci.* Aug 1 2013;57(8).
108. Mays VM, Cochran SD, Barnes NW. Race, race-based discrimination, and health outcomes among African Americans. *Annu Rev Psychol.* 2007;58:201-225.
109. Thomas AJ, Witherspoon KM, Speight SL. Gendered racism, psychological distress, and coping styles of African American women. *Cultur Divers Ethnic Minor Psychol.* Oct 2008;14(4):307-314.
110. Vinson LD, Crowther, M. R., Austin, A. D., & Guin, S. M. . African Americans, mental health, and aging *Clin Gerontol.* 2014;37:4-17.



111. Utsey SO, Ponterotto JG. Development and validation of the Index of Race-Related Stress (IRRS). *J Couns Psychol.* 1996;43(4):490.
112. Harrell SP. A multidimensional conceptualization of racism-related stress: implications for the well-being of people of color. *Am J Orthopsychiatry.* Jan 2000;70(1):42-57.
113. McNeilly MD, Anderson NB, Armstead CA, et al. The perceived racism scale: a multidimensional assessment of the experience of white racism among African Americans. *Ethn Dis.* Winter-Spring 1996;6(1-2):154-166.
114. Bastos JL, Celeste RK, Faerstein E, Barros AJ. Racial discrimination and health: a systematic review of scales with a focus on their psychometric properties. *Soc Sci Med.* Apr 2010;70(7):1091-1099.
115. Moody-Ayers SY, Stewart AL, Covinsky KE, Inouye SK. Prevalence and correlates of perceived societal racism in older African-American adults with type 2 diabetes mellitus. *J Am Geriatr Soc.* Dec 2005;53(12):2202-2208.
116. Mays VM, Coleman LM, Jackson JS. Perceived race-based discrimination, employment status, and job stress in a national sample of black women: implications for health outcomes. *J Occup Health Psychol.* Jul 1996;1(3):319-329.
117. Phillips JM, Malone B. Increasing racial/ethnic diversity in nursing to reduce health disparities and achieve health equity. *Public Health Rep.* Jan-Feb 2014;129 Suppl 2:45-50.
118. United States Census Bureau. An Older and More Diverse Nation by Midcentury. 2008.
119. United States Census Bureau. USA Quick Facts. 2014.

120. American Public Health Association . Health Disparities: The Basics. 2014.
121. Institute of Medicine (IOM). *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington DC: National Academies Press; 2003.
122. Institute of Medicine (IOM). The Future of Nursing 2010.
123. Professions USDoHaHSHRaSBoH. The Rationale for Diversity in Health Professions: A Review of the Evidence. 2006:42.
124. National Institute for Occupational Safety and Health CfDCaP. Stress...at Work! ; 1999.
125. Abbott A. *Repetitive Life Patterns and Coping with the Crisis of Unemployment*. . New York Sage; 1995.
126. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9 - Validity of a brief depression severity measure. *J Gen Intern Med*. Sep 2001;16(9):606-613.
127. National Institute for Occupational Safety and Health. Stress...at Work. 1999.
128. Wolfgang AP. The Health Professions Stress Inventory. *Psychol Rep*. Feb 1988;62(1):220-222.
129. Wolfgang AP. Job Stress, Coping, and Dissatisfaction In The Health-Professions - A Comparison of Nurses And Pharmacists. *Journal Of Social Behavior And Personality*. 1991;6(7):213-226.
130. Centers for Disease Control and Prevention. An Estimated 1 in 10 U.S. Adults Report Depression. 2012.
131. National Association of Mental Illness. Women and depression: What you need to know about this medical illness. Arlington, VA; 2008.

132. Carrington CH. Clinical depression in African American women: diagnoses, treatment, and research. *J Clin Psychol.* Jul 2006;62(7):779-791.

VITA  
Arica Brandford

<u>Institution</u>	<u>Degree</u>	<u>Date Conferred</u>	<u>Field(s) of Study</u>
Purdue University	BSN	2001	Nursing
Texas Southern University	JD	2006	Law
University of Cincinnati	MSN	2012	Nursing
University of Kentucky	PhD	2019 (expected)	Nursing

**Professional Positions**

Dates	Institution and Location	Position
07/2018 – Present	Inovalon, Inc. Bowie, MD	Clinical Trainer & Coach
05/2017 – 07/2018	Kentucky Board of Nursing Louisville, KY	Nursing Practice Consultant
8/2015 – Present	Clarion University Clarion, PA	RN to BSN Nursing Instructor
8/2014 – Present	Eastern Kentucky University Richmond, KY	MSN Nursing Instructor
8/2014 – 6/2017	University of Kentucky Lexington, KY	Teaching Assistant
1/2013 – 12/2016	University of Kentucky Lexington, KY	Graduate Research Assistant
8/2011 – 8/2014	Bluegrass Community & Technical College Lexington, Kentucky	ADN Nursing Instructor
7/2009 – 2/2012	Baptist Health, Lexington Lexington, KY	Critical Care RN
1/2007 – 5/2008	EAS, Inc. Lexington, Kentucky	Attorney
10/2004 – 12/2006	Institute for Legal and Social Policy Houston, Texas	Attorney
6/2002 – 8/2003	Marion County Health Department Indianapolis, IN	Public Health Nurse
1/2002 – 6/2002	Indiana University Hospital Indianapolis, Indiana	Critical Care RN

**Scholastic and Professional Honors**

- 2013-2019: Occupational Health Nursing Fellow, University of Kentucky
- 2014 -2016: National Elizabeth Carnegie Scholar

- 2014-2016: University of Kentucky Graduate School Academic Fellow
- 2012-2014: Jonas Scholar for Nurse Leadership – Recipient for State of Kentucky
- 2004-2006: Collegiate All-American Scholar & Chancellor’s Award Recipient, Thurgood Marshall School of Law

**Publications**

- Brandford, A. & Gary, M. (2018). The Role of Nurses in Social Media. KBN Connection
- Brandford, A., Adegboyega, A., Combs, B., & Hatcher, J. (2018). Training Community Health Workers in Motivational Interviewing to Promote Cancer Screening. *Journal of Health Promotion Practice*. doi: 10.1177/1524839918761384
- Brandford, A. & Goldman, M. (2018). Customer Satisfaction Survey Results. KBN Connection
- Brandford, A. & Reed, D. (2016). Depression in Registered Nurses: A State of the Science. *Workplace Health & Safety*, 64(10): 485-511. doi: 10.1177/2165079916653415
- Warshawsky, N., Brandford, A., Barnum, N., & Westneat, S. (2015). Achieving 80% BSN by 2020: Lessons Learned from Kentucky. *Journal of Nursing Administration* 5(9):449-56. doi: 10.1097/NNA.0000000000000231.
- Warshawsky, N., Lake, S., & Brandford, A. (2013). Nurse Managers and their Practice Environments. *Nursing Administration Quarterly* (37)4: 317-325. doi: 10.1097/NAQ.0b013e3182a2f9c3.

Arica A. Brandford