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A Pilot Mixed Methods Study Examining Factors Affecting Return to Work Among African American Stroke Survivors

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A PILOT MIXED METHODS STUDY EXAMINING FACTORS AFFECTING RETURN TO WORK AMONG AFRICAN AMERICAN STROKE SURVIVORS

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A DISSERTATION

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ABSTRACT

BACKGROUND: Stroke is a highly prevalent and disabling condition among African Americans. Although there is limited research regarding barriers and facilitators to return to work among stroke survivors, evidence suggests that African American stroke survivors return to work (RTW) less frequently than Caucasians. Most of the research on this topic has been conducted in European countries, leaving significant knowledge gaps on RTW among African Americans in the United States. The purpose of this study was to identify factors that affect RTW for African American stroke survivors and then build upon those results to better understand facilitators and barriers to RTW.

METHODS: Factors affecting RTW were explored using a sequential Quan → QUAL mixed methods design. Data collected included the National Institute for Occupational Safety and Health (NIOSH) Worker Well Being Questionnaire (WellBQ), which examines the five domains of worker well-being (work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society). Quantitative data were analyzed using SPSS v. 28. Univariate analyses were conducted to compare demographics and worker well-being indices between those who were and were not currently working. A subsample of nine participants, who responded to the quantitative questionnaire, subsequently completed a 45-60 minute, semi-structured interview to further explore

facilitators and barriers to RTW. Interviews were transcribed verbatim and analyzed using thematic analysis and NVivo 12.

RESULTS: Thirty-one African American stroke survivors were included in the quantitative analyses. Associations with being employed ($p < 0.05$) included higher education, higher household income, supportive work culture, increased availability of health programs at work, higher levels of work to non-work conflict, increased mental distress, decreased fatigue, and higher levels of productivity**.** The five domains of worker well-being were used as overarching themes in analysis of qualitative interview data to describe facilitators and barriers to RTW. Having meaningful work, support, and access to rehabilitation were reported as contributing factors to RTW, whereas lack of accommodations, discrimination, cognitive and physical impairments were reported as barriers to RTW.

CONCLUSION: Returning to work is a dynamic process that includes personal, societal, and work-related factors.

Keywords: stroke, return to work, employment, mixed methods research

DEDICATION

I would like to dedicate this dissertation to my father, Alfred Frazier, who succumbed to a stroke 10 years ago. Thank you for always pushing me to do my best. I hope I am making you proud. Also, thank you to the stroke survivors who participated in this dissertation study and were willing to share your stories.

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CHAPTER 1

INTRODUCTION

Every minute someone in the United States (U.S.) has a stroke (Benjamin et al., 2019). Each year, approximately 800,000 people experience a new or recurrent stroke (Virani et al., 2020), and in Alabama, 4.6% of adults have suffered a stroke, as compared to 3% of adults in the U.S. as a whole (American Heart Association, 2018). In 2015, the direct and indirect costs of strokes were $45.5 billion, with direct medical costs projected to double from $36.7 billion to $94.3 billion by 2035 (Virani et al., 2020). Approximately 3% of males and 2% of females report resulting disability post-stroke (Virani et al., 2021). The incidence of stroke has been increasing in younger adults ages 20-54 over the last 20 years (Kissela et al., 2012). As compared to other ethnicities, African Americans are more likely to suffer a first-time stroke at younger ages (Kissela et al., 2012). African Americans also have higher rates of high blood pressure, being overweight, and diabetes than Caucasians; these conditions predispose individuals to higher incidences of stroke (Benjamin et al., 2019). Although the risk of having a stroke is twice as high for African Americans, as compared to Caucasians (Benjamin et al., 2019), associations between race/ethnicity and stroke outcomes have not been studied extensively (Ashley et al., 2019; Glader et al., 2017).

Individuals who experience mild to moderate strokes may not exhibit obvious sequelae, such as paralysis or speech impairments. Instead “invisible impairments,” such

as trouble keeping organized, fatigue, and concentration issues may affect productivity of stroke survivors who return to work (Balasooriya-Smeekens et al., 2016; O'Brien & Wolf, 2010). The purpose of this chapter is to discuss (a) the problem statement, (b) background and significance, (c) study purpose, (d) study aims and research questions, (e) conceptual framework, (f) study design and methods, and (g) definitions of terms of the study used for the dissertation.

Problem Statement

Resumption of employment is one of the most important factors related to improved quality of life for individuals with acquired brain injury, including stroke (Materne et al., 2018). Stroke is a leading cause of serious long-term disability (Benjamin et al., 2019). As a result, many individuals fail to return to work (RTW). A disparity exists between African American stroke survivors' RTW and RTW of other racial/ethnic groups. Studies demonstrate higher RTW rates for individuals who are Caucasian, have business/professional occupations, and higher levels of education and income compared to individuals from other racial/ethnic groups with manual labor occupations and lower socioeconomic status (Bonner et al., 2016; Busch et al., 2009; Glader et al., 2017; Saeki & Toyonaga, 2010; Schulz et al., 2017; Trygged et al., 2011; Van Patten et al., 2016). Although African Americans are disproportionately affected by stroke, there are few studies exploring RTW rates in this population, representing a significant gap in the research in this area.

Background and Significance

In studies exploring RTW among stroke survivors, the range of RTW varies from 8% to 75%. Definitions of RTW vary across studies and include returning to paid employment, no longer being on sickness benefits (Palstam et al., 2019), and self-supporting or job-seeking (Larsen et al., 2016). Although stroke is prevalent in the U.S., most studies examining RTW were conducted in European countries. According to the available literature, factors affecting RTW can be categorized as physical, socioeconomic, or cognitive.

Physical Factors

Stroke severity has been found to be one of the most consistent predictors of RTW. Individuals who suffer a severe stroke with resulting disabilities (e.g., paralysis) are least likely to RTW, as compared to those with mild to moderate stroke with or without disabilities (Chen et al., 2019; Larsen et al., 2016). Shorter hospital length of stay is positively associated with RTW (Sen et al., 2019), while limitations in performing activities of daily living (ADLs) negatively affect an individual's ability to RTW (Aarnio et al., 2018; Bonner et al., 2016; Larsen et al., 2016; Sen et al., 2019; Wong et al., 2019).

Socioeconomic Factors

Demographic factors also play a role in RTW among stroke survivors. Younger adults are more likely to return to work than older adults (Bonner et al., 2016; Schulz et al., 2017; Sen et al., 2019). Gender is another factor that affects return to work. That is, males are more likely to return to work than their female counterparts (Palstam et al.,

2019; Schulz et al., 2017; Sen et al., 2019). Also, occupation has been identified as a predictor of RTW. Individuals working in manual labor jobs are less likely to return to work than individuals working in business/professional jobs (Aarnio et al., 2018; Bonner et al., 2016; Chen et al., 2019; Palstam et al., 2019; Sen et al., 2019).

Cognitive Factors

Cognitive function is also a determinant of RTW among stroke survivors but is often overlooked in younger individuals (van der Kemp et al., 2017). Higher levels of cognitive function have been associated with successful RTW, as compared to individuals with moderate to severe cognitive impairment (Aas et al., 2018; Fride et al., 2015; Schulz et al., 2017; Tanaka et al., 2011; van der Kemp et al., 2017; Vestling et al., 2003; Wong et al., 2019). Difficulties with communication, cognition, memory, concentration, and perception have been identified by stroke survivors as barriers to RTW (Culler et al., 2011; Gilworth et al., 2009).

Purpose

The purpose of the explanatory sequential mixed methods pilot study was to identify factors that affect return to work for African American stroke survivors. The goal of the quantitative phase was to identify relationships between demographic factors (i.e., age, gender, income, marital status, education, occupation) and worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with current employment status among African American stroke survivors. The goal of the

qualitative phase of the study was to explain quantitative results and explore barriers and facilitators of the return-to-work process by using data from individual interviews with African American stroke survivors. The rationale for integrating quantitative and qualitative methods in this study was to combine results from the two approaches to obtain a more complete understanding of factors affecting RTW for African American stroke survivors than would be gained by using either method alone.

Specific Aims, Hypotheses, and Research Questions

Specific Aim 1 (Quantitative): Determine factors associated with return to work among a sample of African Americans after experiencing a stroke.

> Research Question 1: What is the relationship between demographic factors (i.e., age, gender, income, marital status, education, occupation) with current employment status for African American stroke survivors?
>
> Research Question 2: What is the relationship between worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with current employment status?

Specific Aim 2 (Qualitative): Explore the experiences of African American stroke survivors to identify facilitators and barriers to return to work.

> Research Question 3: How do the selected RTW factors identified in the quantitative phase contribute to or impede return to work for African American stroke survivors?

Assumptions: 1) Participants will have experience with returning to work following stroke and are willing to participate in the study. 2) Participants will voluntarily share their experiences.

Specific Aim 3 (Mixed Methods): Integrate findings from quantitative and qualitative phases to better understand factors affecting return to work among a sample of African Americans after experiencing a stroke.

Research Question 4: How do quantitative questionnaire results and qualitative interviews jointly explain factors associated with current employment status for African American stroke survivors?

Conceptual Framework

The Total Worker Health (TWH) Worker Well-Being Framework developed by the National Institute for Occupational Safety and Health (NIOSH) was used to guide the study (Chari et al., 2018). The framework consists of five domains: (a) workplace physical environment and safety climate; (b) workplace policies and culture; (c) health status; (d) work evaluation and experience; and (e) home, community, and society. Returning to work is a dynamic process that includes personal, societal, and work-related factors; therefore, the TWH framework was adequate to guide the design and conduct of the study.

Research Design and Methods

Setting and Sample

Participants were recruited from an outpatient stroke rehabilitation clinic in Birmingham, Alabama, stroke survivor support groups, community organizations, and through social media. To participate in the study, participants were African American, ages 18-65, able to read and write in English, and able to provide consent, and they had suffered a first-time stroke and been employed prior to stroke. Sample size for the quantitative phase was 31. For the qualitative phase, sample size was 9. Potential participants were excluded from the study if they were unemployed prior to stroke and severely disabled because of stroke (Modified Rankin Scale score >3).

Design

The study used an explanatory sequential mixed methods design (Creswell & Plano Clark, 2011). The purpose of using this design was to gain a general understanding of factors affecting RTW using the quantitative data and results, while the qualitative data and its analysis refined and explained those statistical results by exploring participants' views in more depth (Creswell & Plano Clark, 2018). Quantitative data were collected first, followed by qualitative data. Priority was placed on the qualitative phase, because it provided explanation of the results obtained in the quantitative phase. Integration occurred at two points: first between the quantitative data analysis and qualitative data collection, and then once the qualitative phase was complete. Results were then integrated, and conclusions drawn about how qualitative results explained quantitative results.

The rationale for integrating quantitative and qualitative methods in this study was to gain more insight into factors affecting RTW for African American stroke survivors to inform current rehabilitation practices. The quantitative phase consisted of a descriptive, correlational design. This design was chosen because the goal of the study was to identify relationships among variables rather than to infer causality (Polit & Beck, 2017). The qualitative phase used a qualitative descriptive design. The naturalistic inquiry approach of qualitative descriptive design was instrumental in the study since little is known about the experiences of African American stroke survivors (Sandelowski, 2000).

Data Collection

Data were collected using different methods. Stroke survivors completed the NIOSH Worker Well-Being Questionnaire (WellBQ) (National Institute for Occupational Safety and Health [NIOSH], 2021) following consent (see Appendix A). The WellBQ collected information across the five domains of worker well-being outlined in the TWH Worker Well-Being Framework. It also included employment and demographic information. Stroke survivors were interviewed either on the telephone or via Zoom, using an interview guide (Appendix B). Interviews lasted approximately 45-60 minutes. Interviews were audio recorded with the consent of the participants and were transcribed verbatim.

Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. Measures of central tendency (mean, median, mode) were used to examine worker well-

being, demographics, and employment status. Differences between variables were compared among RTW and non-RTW groups. Univariate analysis (*t*-tests and chi-square) was performed on aforementioned variables to identify relationships with employment status. Employment status was categorized as either unemployed or employed. Variables deemed significant were placed in a logistic regression analysis. Qualitative data from interviews were transcribed verbatim. Transcription was shared with participants to ensure accuracy. Qualitative data were then coded, and themes were identified using conventional content analysis (Colorafi & Evans, 2016).

Definitions of Key Terms

For the purposes of this study, the following terms are defined:

Stroke

Stroke is "a clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin" (World Health Organization, 1998, p. 108).

Work

To perform tasks or duties regularly for an external entity; can be paid or unpaid

Mixed Methods Research

"Research in which the investigator collects and analyzes data, integrates findings, and draws inferences using both quantitative and qualitative methods in a single study" (Tashakkori & Creswell, 2007, p. 4)

Independent Variables

Worker Well-Being

"An integrative concept that characterizes quality of life with respect to an individual's health and work-related environmental, organizational, and psychosocial factors" (Chari et al., 2018, p. 590)

Demographics

Consists of age, gender, race/ethnicity, marital status, education, and income level

Occupation

Type of work; classified as manual or business/professional

Dependent Variable

Return to Work

Refers to an individual's ability to obtain and maintain employment (full-time, part-time, or temporary) following a sickness. Can include return to previous job, similar or modified job, or starting a new job.

Chapter Summary

There is a gap in the literature that examines RTW for African American stroke survivors. Return to work after stroke is influenced by biological, psychological, and socioeconomic factors that are difficult to quantify and are relatively unexplored (Edwards et al., 2018). This study examined factors that influenced RTW among a sample of African American stroke survivors. The specific aims of the study were: (1) Determine factors associated with return to work among a sample of African Americans after experiencing a stroke; (2) explore the experiences of African American stroke

survivors to identify facilitators and barriers to return to work; and (3) integrate findings from quantitative and qualitative phases to better understand factors affecting return to work among a sample of African Americans after experiencing a stroke. To address these aims, an explanatory sequential mixed methods design was used. The NIOSH TWH Worker Well-Being Framework was used to guide this study. This study addresses gaps in the literature exploring race/ethnicity and RTW following stroke. In the following chapter, an integrative review of literature will be presented. Literature regarding concepts of interest, conceptual framework, and study design and methods will be discussed in detail.

CHAPTER 2

LITERATURE REVIEW

The purpose of the literature review was to gain an understanding of the state of the science of RTW among stroke survivors and to guide the development of the dissertation study. The conceptual framework of the study guided the literature review through the five domains related to worker well-being. The review of literature provided a rationale for the study. Specifically, the purpose of this chapter is to discuss: (a) the epidemiologic basis and concepts of interest, (b) conceptual framework, (c) literature search strategy, (d) analysis of the literature relative to concepts, (e) study design and methods, and (f) ethical issues related to the population/sample of the dissertation study.

Epidemiologic Basis and Concepts of Interest

Stroke

As defined by the World Health Organization (1988), stroke is "a clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin" (p. 108). Stroke is the fifth leading cause of death and a leading cause of disability in the U.S. (Centers for Disease Control and Prevention [CDC], 2020). On average, stroke mortality is 30% higher in the "stroke belt": North Carolina, South Carolina, Georgia, Tennessee, Mississippi, Alabama, Louisiana, and Arkansas (Lackland

et al., 2014). Each year, approximately 800,000 people experience a new or recurrent stroke, with 87% being of ischemic origin (Virani et al., 2020). Hemorrhagic stroke results from bleeding into the brain tissue. Ischemic stroke occurs as a result of inadequate blood flow to the brain from occlusion of an artery. According to the National Health and Nutrition Examination Survey (NHANES) 2013-2016 data, an estimated 7 million Americans over the age of 20 self-reported having a stroke (Virani et al., 2020). Ten percent of strokes occur in individuals aged 18 to 50 (Nedeltchev et al., 2005). It is predicted that by 2030, 3 million U.S. adults over the age of 18 will have had a stroke, which is a 20.5% increase from 2012 (Virani et al., 2020). Over the lifespan, women have a higher risk of stroke than men (Virani et al., 2020). Between 74%-90% of stroke risk can be attributed to modifiable factors such as high blood pressure, obesity, high blood sugar, high cholesterol, smoking, sedentary lifestyle, and an unhealthy diet (Virani et al., 2020). Adverse work conditions, including job loss, unemployment, and long work hours, have also been linked to stroke risk (Virani et al., 2020).

African Americans and stroke. The most common conditions that increase the risk of stroke are high blood pressure, obesity, and diabetes (American Heart Association [AHA], 2015). The prevalence of high blood pressure is between 42%-44% among African Americans (Carnethon et al., 2017). African Americans are disproportionately affected by obesity, with 63% of men and 77% of women classified as overweight or obese (AHA, 2015). Approximately 22% of African Americans have diagnosed or undiagnosed type 2 diabetes mellitus (Carnethon et al., 2017).

The prevalence of stroke is 3.5% among African Americans, as compared to 2.5% for Caucasians, 2.2% for Hispanics, and 1.6% for Asians (Virani et al., 2020). According

to the U.S. Department of Health and Human Services Office of Minority Health (2020), African American men are 60% more likely to die from a stroke and African American women are twice as likely to have a stroke as compared to their Caucasian counterparts. The age for first-ever stroke was also higher in African Americans than Caucasians (Virani et al., 2020). Additionally, African Americans are less likely to report independence in ADLs than whites one year after stroke (Ellis et al., 2015).

Return to Work

RTW is one of the primary goals of the rehabilitation process (Coole et al., 2013). It has been associated with improved well-being and life satisfaction (Aarnio et al., 2018). Return to work is varied across studies, and ranges from 0% to 100% (Aarnio et al., 2018). RTW in post-stroke patients varies, with some patients not being able to return to work at all while others return successfully. Definitions of RTW also vary and can make it a difficult concept to operationalize. RTW has been defined as returning to employment; no longer receiving sickness benefits (Palstam et al., 2019); and actively job-seeking (Larsen et al., 2016).

Summary

Stroke affects approximately 800,000 individuals annually. It is also a leading cause of disability in the United States. African Americans suffer from strokes at higher percentages compared to other racial/ethnic groups. Because of the prevalence of stroke and resulting disability, it is important to study how return to employment is affected post-stroke for African Americans.

Conceptual Framework

The Worker Well-Being Framework developed by the National Institute for Occupational Safety and Health (NIOSH) guided the dissertation study (Chari et al., 2018). It is a newer conceptual framework that was developed to address both work-related and non-work-related factors that may influence the well-being of a worker. Chari et al. (2018) define worker well-being as:

> […] an integrative concept that characterizes quality of life with respect to an individual's health and work-related environmental, organizational, and psychosocial factors. Well-being is the experience of positive perceptions and the presence of constructive conditions at work and beyond that enables workers to thrive and achieve their full potential. (p. 590)

The framework includes both subjective (perceptions and beliefs) and objective (environmental conditions or standards) domains (Chari et al., 2018). The framework consists of five domains: (a) workplace physical environment and safety climate; (b) workplace policies and culture; (c) health status; (d) work evaluation and experience; and (e) home, community, and society. Each domain consists of three to five subdomains. Workplace physical environment and safety climate comprises physical and safety features of the work environment, including workplace design and conflict (Chari et al., 2018). Workplace policies and culture addresses organizational policies and programs, including salary, benefits, and work-life balance (Chari et al., 2018). Health status includes both physical and mental health, as well as health behaviors, injuries, and disabilities (Chari et al., 2018). Work evaluation and experience refers to an individual's overall job satisfaction, meaning of work, and affect (positive and negative emotions at

work) (Chari et al., 2018). Home, community, and society includes the external factors outside of work that may influence well-being, such as life satisfaction, social relationships, financial health, and community engagement (Chari et al., 2018). The Worker Well-Being Framework is displayed in Figure 1.

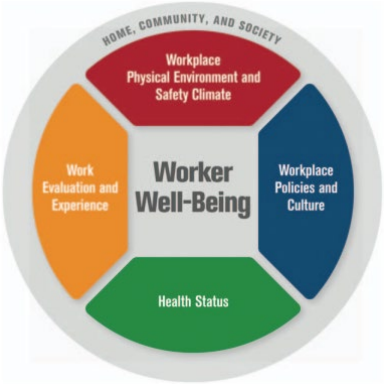

Figure 1. *Worker Well-Being Framework*

The conceptual framework has been used in a previous study to describe manufacturing workers' perceptions of the effect of shift work (McHugh et al., 2020). It was found that shift work was detrimental to worker well-being across four of the five domains, with the exception of workplace policies and culture (McHugh et al., 2020). The study demonstrated how shift work can affect workers' lives holistically, including their physical, mental, and social well-being (McHugh et al., 2020).

For the purposes of this study, the domains of the Worker Well-Being Framework were used to categorize factors influencing RTW among African American stroke survivors and to inform development of interview questions and overarching themes for qualitative analysis. Returning to work is a dynamic process that includes personal,

societal, and work-related factors. The return-to-work process after stroke aligns well with the Worker Well-Being Framework.

Literature Review

The purpose of this literature review was to explore RTW among stroke survivors to develop a foundation for the study. Return to work was explored across all racial/ethnic groups due to the limited studies regarding RTW among African American stroke survivors. The findings of this literature review will be discussed using the five domains of the Worker Well-Being Framework.

Search Strategy

An electronic literature search was conducted using the databases PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and SCOPUS. Articles published between 2005-2021, written in English, and available in full text at the University of Alabama at Birmingham were reviewed. Inclusion criteria included studies with: (a) working age adults with diagnosis of stroke and (b) RTW evaluated as outcome. Study protocols, review papers, and studies focusing on traumatic brain injury were excluded. No restrictions were placed on geographic location or study design. The terms "stroke," "cerebrovascular disease," "cerebrovascular disorders," "stroke rehabilitation," "return to work," "back to work," and "job re-entry" were searched in the title, abstract, and keywords of articles. The database search yielded 534 articles. Ten additional articles were identified using an ancestry approach. Duplicates were removed (n = 44), and titles and abstracts were reviewed for inclusion and exclusion criteria. After screening titles

and abstracts, 355 articles were excluded. Ninety-five articles were excluded after reviewing full text. A total of 50 research articles were included in this review, as illustrated in Figure 2.

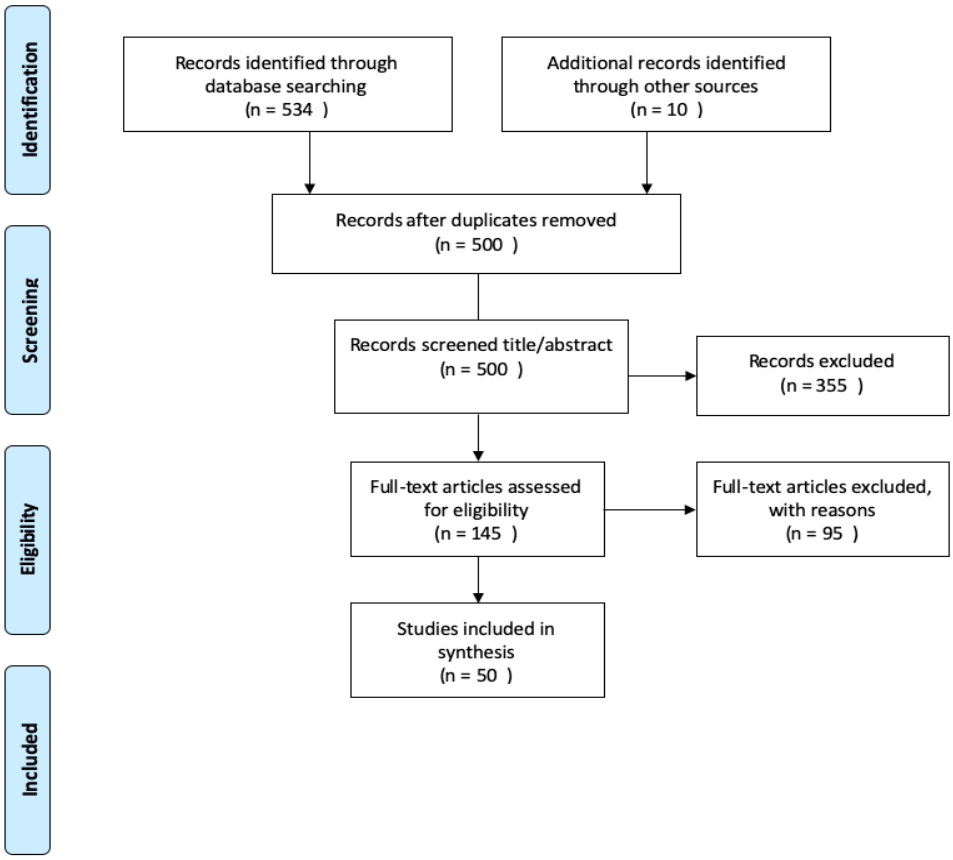

Figure 2. *Literature Search Process*

Analysis of the Literature

The review presents findings from the literature related to factors affecting RTW among stroke survivors. The literature will be discussed in the context of the five domains of the Worker Well-Being Framework: workplace physical environment and

safety climate; workplace policies and culture; health status; work evaluation and experience; and home, community, and society. Identified gaps will also be discussed.

Workplace Physical Environment and Safety Climate

The workplace physical environment and safety climate domain includes environmental conditions, physical surroundings, safety climate, disability accommodations, and experience with incivility or discrimination (Chari et al., 2018).

Workplace safety conditions/design. White collar workers had higher rates of RTW, as compared to blue collar workers (Aarnio et al., 2018; Bonner et al., 2016; Brey & Wolf, 2015; Catalina-Romero et al., 2015; Chang et al., 2016; Doucet et al., 2012; Hannerz et al., 2011; Sen et al., 2019; Van Patten et al., 2016). Most studies did not identify specific occupations, but classified workers as either white collar (skilled, professional) or blue collar (unskilled, manual). Skilled workers also tended to have a shorter time period to RTW as compared to unskilled workers (Endo et al., 2016). Unskilled workers reported less favorable work environments than skilled workers (Brey & Wolf, 2015). However, occupation type is not a consistent predictor of RTW (Lindstrom et al., 2009). Hellman et al. (2016) found in interviews with stroke survivors, employers, and rehabilitation professionals that there is a need for assessment of work ability during the RTW process. Incongruence between functional abilities and job duties may lead stroke survivors to modify their jobs, change jobs completely, or retire (Koch et al., 2005).

Workplace conflict and civility. Individuals who were successful in returning to work often felt bullied or made fun of once they returned to work (Balasooriya-Smeekens

et al., 2016). It was not mentioned whether these individuals stayed in their current job or switched employment because of incivility.

Workplace Policies and Culture

The domain of workplace policies and culture includes benefits provided, recognition, advancement potential, perceived organizational support, flexibility, and resources/programs (Chari et al., 2018).

Workplace policies. Workplace policies that affected RTW were not identified in the reviewed articles.

Workplace culture. Employers are important to the return to and retention of work following stroke (Coole et al., 2013). Employer support has been identified as a primary facilitator of RTW (Culler et al., 2011; Hartke et al., 2011). A perceived barrier for stroke survivors returning to work is employers' lack of awareness or education on stroke-related impairments (Balasooriya-Smeekens et al., 2016). Many employers lack awareness in obtaining information related to stroke, support services, and disability management (Coole et al., 2013). Stroke survivors may be unwilling to communicate their needs or limitations in fear of losing their job or burdening their coworkers (Coole et al., 2013). As a result, employers may not be able to adequately support the individual with appropriate work accommodations (Coole et al., 2013). Hellman et al. (2016) found that employers having specific knowledge concerning stroke-related disabilities may influence the RTW process.

Unskilled workers perceived less supervisor support and work autonomy following stroke as compared to skilled workers (Brey & Wolf, 2015). Endo et al. (2018)

found that employees working for smaller organizations seemed to have less protection in terms of reasonable work accommodations to support RTW. Gard et al. (2019) identified insufficient communication with employers, lack of support, having to return to work too quickly, and lack of transportation to work as barriers to RTW. They also found the ability to use a stepwise approach (i.e., increasing work hours gradually) was a facilitator to RTW (Gard et al., 2019). The experience of returning to work is not generally well supported or guided (Gilworth et al., 2009). Individuals may have the desire to return to work but may not feel supported by employers or healthcare professionals.

Health Status

Health status includes general/overall physical and mental health; presence of specific conditions, disabilities, or injuries; and health-related behaviors such as smoking, diet, and physical exercise (Chari et al., 2018).

Physical health. One of the most common predictors of RTW is stroke severity (Kauranen et al., 2013; Saeki et al., 2016; Van Patten et al., 2016; Westerlind et al., 2017). Individuals with severe strokes, as measured by the National Institute of Health Stroke Scale (NIHSS), are less likely to return to work than those with mild to moderate strokes (Kauranen et al., 2013; Larsen et al., 2016). Individuals with ischemic strokes are more likely to RTW than those with hemorrhagic strokes (Aarnio et al., 2018; Chen et al., 2019; Garland et al., 2019; Hannerz et al., 2011; Kauranen et al., 2013). Hemorrhagic stroke often causes more severe deficits (Chen et al., 2019). Endo et al. (2016) found that individuals with hemorrhagic stroke, as compared to those with ischemic stroke, had longer time periods before they returned to full employment. However, some studies have

not shown a relationship between type of stroke and RTW (Doucet et al., 2012; Saeki & Toyonaga, 2010; Van Patten et al., 2016). Length of hospitalization may be related to stroke severity or complications post-stroke. In several studies, the RTW group was hospitalized for a shorter duration than the non-RTW group (Arwert et al., 2017; Chang et al., 2016; Garland et al., 2019; Sen et al., 2019; Trygged et al., 2011).

Unskilled workers report a significantly higher number of chronic health conditions than individuals in skilled employment (Brey & Wolf, 2015). Males less than 65 years of age showed higher rates of RTW than younger males across all racial/ethnic groups (Catalina-Romero et al., 2015; Chang et al., 2016; Endo et al., 2018; Han et al., 2019; Hannerz et al., 2011; Kauranen et al., 2013; Langhammer et al., 2018; Sen et al., 2019). However, older age was not a consistent predictor in non-RTW groups (Arwert et al., 2017; Doucet et al., 2012; Larsen et al., 2016; Westerlind et al., 2017). Gender has also not been a consistent influencing factor for RTW (Fukuzawa et al., 2018; Schulz et al., 2017), although some studies report that women are less likely to RTW as compared to men (Busch et al., 2009; Hannerz et al., 2011; Saeki & Toyonaga, 2010; Trygged et al., 2011). In contrast, Aas et al. (2018) found that women had higher RTW rates. Post-stroke fatigue occurs frequently in stroke survivors and has been reported as a barrier to resuming work (Andersen et al., 2012; Bonner et al., 2016; Doucet et al., 2012; Gilworth et al., 2009).

Mental health. Depression and anxiety are emerging as predictive factors for difficulty with RTW (Arwert et al., 2017; Glader et al., 2017; van der Kemp et al., 2017). While RTW groups had lower rates of depression and anxiety (Arwert et al., 2017), post-stroke depression was associated with decreased rates of RTW in the long term (Arwert et

al., 2017; van der Kemp et al., 2017). Endo et al. (2018) found that 21% of recurrent sick absences among stroke survivors were due to mental health disorders. Insomnia post-stroke is associated with greater disability and a decreased likelihood of returning to work (Glozier et al., 2017). It was found that 50% of individuals with chronic insomnia returned to work at 1 year, as compared to 80% of those without insomnia (Glozier et al., 2017). Higher levels of depression and anxiety were also associated with individuals who reported having insomnia (Glozier et al., 2017). A strong correlation was noted between low levels of psychosocial stress and successful RTW (Han et al., 2019).

Health-related behaviors and lifestyle. Larsen et al. (2016) found that better self-rated health was associated with a higher chance of RTW. Individuals who perceived themselves to be both physically and mentally healthy had success with returning to employment. In addition, the absence of cardiovascular disease prior to stroke and minimal tobacco consumption were associated with increased rates of RTW (Catalina-Romero et al., 2015).

Functionality/disabilities. Individuals with moderate to severe limb paralysis did not RTW (Aarnio et al., 2018; Doucet et al., 2012). The presence of moderate to severe aphasia was also associated with non-RTW (Aarnio et al., 2018; Doucet et al., 2012). However, independence in performing activities of daily living (ADLs) was positively associated with RTW (Bonner et al., 2016; Doucet et al., 2012; Fride et al., 2015; Glader et al., 2017; Hackett et al., 2012; Langhammer et al., 2018; Larsen et al., 2016; Sen et al., 2019). In fact, individuals who independently performed ADLs were three times more likely to RTW to work, as compared to those who were dependent on others (Saeki & Toyonaga, 2010). Jarvis et al. (2019) found that walking speed was a predictor for RTW.

That is, individuals who walked slower than 0.93 m/s were less likely to RTW (Jarvis et al., 2019). Cognitive impairment is also associated with RTW; individuals without cognitive impairment are more likely to RTW than those with cognitive impairments (Fride et al., 2015; Schulz et al., 2017; Westerlind et al., 2017). It is important to note individuals may still RTW despite the presence of cognitive deficits (O'Brien & Wolf, 2010).

Work Evaluation and Experience

The work evaluation and experience domain includes overall job satisfaction, job security, meaningful and purposeful work, engagement, and types of emotions at work (Chari et al., 2018).

Meaning and organization of work. Being employed at time of acquired brain injury was correlated to RTW following injury (Autret et al., 2015). Strove survivors who were able to RTW reported a mild effect of health problems on work productivity, absenteeism, and presenteeism (Arwert et al., 2017). Unskilled workers felt they were less productive at work following stroke, compared to their skilled working counterparts (Brey & Wolf, 2015). Stroke survivors who perceived their work to be important were more likely to RTW (Lindstrom et al., 2009).

Home, Community, and Society

The final domain, home, community, and society, includes overall life satisfaction, financial security, social support, and activity engagement (Chari et al., 2018).

Life satisfaction. Quality of life is often reduced among stroke survivors (Chen et al., 2019). However, studies have shown that individuals who RTW have increased quality of life (Arwert et al., 2017; Chang et al., 2016; Chen et al., 2019). Employment may be an essential part of quality of life in patients with stroke (Chang et al., 2016). RTW has been identified as one of the most important factors related to increase in quality of life scores for people with acquired brain injury (Materne et al., 2018).

Financial health. Stroke survivors of lower socioeconomic statuses were less likely to RTW (Glader et al., 2017). Koch et al. (2005) found that some individuals made the decision to retire and collect Social Security payments rather than RTW due to financial concerns. Most studies examine the return to paid work, but a study done by Carcel et al. (2019) examined participation in unpaid work. They found that fewer women returned to unpaid domestic work than men (Carcel et al., 2019). One of the factors that was associated with women returning to unpaid work was having financially dependent children (Carcel et al., 2019).

Social relationships. For individuals who lived alone at time of stroke, RTW was less frequent than those who lived with a partner (Doucet et al., 2012). Having a live-in female caregiver was significantly associated with RTW (Han et al., 2019). Caregivers are instrumental in providing emotional support, as well as assistance with functional limitations (Koch et al., 2005). Wong et al. (2019) found that successful RTW occurred more often with individuals who were married and had lower levels of loneliness and better emotional support. In a study by Fukuzawa et al. (2018), marital status was correlated with re-employment.

Summary

The five domains of the Worker Well-Being Framework were used to guide the analysis of the literature. These domains are: (a) workplace physical environment and safety climate; (b) workplace policies and culture; (c) health status; (d) work evaluation and experience; and (e) home, community, and society. The range of RTW across studies included in the analysis ranged from 19%-75%. Workplace physical environment and safety climate was not discussed consistently across the literature. There was no mention of environmental conditions in the workplace that may affect RTW. However, most studies that identified occupation type concluded that unskilled workers were least likely to RTW. Most unskilled occupations include manual labor, and individuals with resulting disabilities from stroke may not be able to perform certain manual tasks. The presence of workplace support and programs supporting the RTW process were identified as facilitators of RTW for many individuals. The most consistent predictor of RTW was stroke severity, as measured by the NIHSS. Age, gender, cognitive impairment, and functional disabilities were identified as predictors of low RTW rates, but were not consistent across studies. Work evaluation and experience was also not consistently measured across studies. Individuals who deemed work as important were more motivated and successful in returning to work post-stroke. Home, community, and societal support was related to increased rates of RTW. The presence of caregivers and social support from spouses was positively associated with RTW. Individuals who RTW also reported increased scores in quality of life domains.

Identified Gaps

There were several gaps that were identified during analysis of the literature. Most studies were done outside of the U.S. with limited African American participation. Many studies did not collect data regarding employment type (full-time/part-time) or occupation prior to stroke. Follow-up time periods varied across studies, with some being as short as 1 month to up to 7 years. Studies used various methods to operationalize RTW, such as no longer receiving sickness benefits or receiving disability payments. Most studies did not assess work-related factors or presence of social support that may facilitate or hinder the RTW process. More research should be done to address employer perspectives with the return-to-work process to support individuals as they re-enter the workforce.

Study Design and Methods

Design

Mixed methods. Mixed methods involves the collection, analysis, and integration of both quantitative and qualitative data (Curry & Nunez-Smith, 2015). Some of the major characteristics of the mixed methods approach are integration of quantitative and qualitative data; priority is given to one or both forms of data; procedures are used in either a single study or multiple phases of a program of study; procedures are framed within philosophical worldviews and theory; and combined procedures direct the plan for conducting the study (Ivankova, 2015). Purposes of using a mixed methods approach are obtaining more in-depth knowledge of an issue, increasing generalizability of findings, explaining previous results, and using multiple data sources.

In the explanatory sequential mixed methods design, the quantitative phase is implemented first, followed by the qualitative phase to explain initial quantitative results in more depth (Creswell & Plano Clark, 2018). Integration occurs between phases and after data analysis is completed for the qualitative phase. Benefits of this design include collection and analysis of one type of data at a time, manageable design for a single researcher, and design of the qualitative phase based on what is learned from the initial quantitative phase (Creswell & Plano Clark, 2018). Challenges of this design include extended time needed for completion, identification of quantitative results to follow-up, and determination of which participants can best explain results (Creswell & Plano Clark, 2018).

Quantitative phase. The quantitative phase used a descriptive correlational design. The purpose of nonexperimental descriptive research is to observe and describe situational aspects as they naturally occur (Polit & Beck, 2017). The aim of a descriptive correlational design is to describe relationships among variables (Polit & Beck, 2017). Benefits of this design include collecting a large amount of data, strength in realism, and lack of constraints present in experimental designs (Polit & Beck, 2017). Some limitations of a descriptive correlational design are inability to support causal inferences, selection bias, and difficulty interpreting findings (Polit & Beck, 2017). One of the aims of the study was to identify relationships among demographics, worker well-being indices, and current employment status. Therefore, this design was appropriate to address this aim.

Qualitative phase. The qualitative phase used a qualitative descriptive design. Qualitative descriptive studies tend to draw from naturalistic inquiry and are described as

a summary of events in everyday terms (Sandelowski, 2000). Naturalistic inquiry is an approach to understanding the world in which the experiences of people in a societal and cultural context are observed, described, and interpreted (Salkind, 2010). Qualitative description encompasses methods from other qualitative approaches, such as case studies, grounded theory, and phenomenology. Naturalistic researchers draw on observations, interviews, and other sources of descriptive data, as well as their own experiences, to create rich descriptions and interpretations of social phenomena (Salkind, 2010). Benefits of a qualitative descriptive design include the ability to select from any number of theoretical frameworks, sampling strategies, and data collection techniques (Colorafi & Evans, 2016). However, one of the drawbacks of this design is the lack of strict boundaries may cause confusion and issues with credibility and rigor for researchers (Neergaard et al., 2009).

The naturalistic inquiry approach of qualitative descriptive design was instrumental in the study since little is known about the experiences of African American stroke survivors returning to employment. Qualitative description is useful for mixed method inquiries since it is very suitable for intervention development or refinement, clarifying concepts underlying scale development and needs assessments, especially in vulnerable populations (Neergaard et al., 2009).

Summary

Both correlational and qualitative descriptive designs were considered for the study. However, it was determined that neither was sufficient on its own to address the

aims of the study. Due to the limited literature available regarding the experiences of returning to work for African American stroke survivors, an explanatory sequential mixed methods design was chosen to guide the study. The quantitative phase consisted of a descriptive correlational design, and the qualitative phase consisted of a qualitative descriptive design.

Methods

Data Collection

Quantitative. Quantitative data were collected using the WellBQ (NIOSH, 2021). The benefit of using this instrument was to gather information related to study variables (sociodemographics [age, gender, marital status, income, educational level, occupation], worker well-being indices, and current employment status). Another benefit was that the WellBQ had been validated and deemed reliable for use (Chari et al., 2022). Two drawbacks were the use of self-reported data and missing information from the questionnaire.

Qualitative. Qualitative data were collected using 45- to 60-minute interviews with stroke survivors. Benefits included gaining in-depth knowledge of the experiences of African Americans as they re-enter the workforce following stroke, as well as validating quantitative results. Drawbacks of interviews were related to the time required for conducting interviews and transcribing data.

Summary

The study utilized both quantitative and qualitative data collection methods. The benefits and drawbacks of each method were considered. Benefits included using multiple data collection methods to measure study variables, selecting validated and reliable measurement scales, and gaining in-depth knowledge of the experiences of RTW from African American stroke survivors. Drawbacks included the use of self-reported data and time related to conducting and transcribing interviews.

Ethical Issues

Themes found in the literature related to ethical issues affecting African Americans in research include mistrust of healthcare providers and research personnel, access to care, and provider bias.

Mistrust. As a result of discriminatory practices against African Americans, many individuals have a distrust of healthcare providers and research personnel. A study done by Paskett et al. (2008) concluded that minority populations commonly cite mistrust of medical research to explain their lack of interest in clinical trials participation. Individuals fear that physicians would not be honest with them about the risks associated with a study and are afraid of being a "guinea pig" (Fisher & Kalbaugh, 2011; Schmotzer, 2012). In the study, Institutional Review Board (IRB) approval was obtained. Informed consent was obtained from all participants prior to participation. Participants were provided with full disclosure regarding the study, including the explanation of benefits and risks.

Access to care. Many minorities have access only to providers and hospitals that have limited resources (Fisher & Kalbaugh, 2011; Paskett et al., 2008). As a result, many of these individuals do not receive communication about research opportunities. To address this issue, the study implemented recruitment strategies at the rehabilitation center where stroke survivors were receiving services, as well as stroke survivor support groups.

Provider bias. Provider bias, as well as perceptions and prejudices, also affects minority participation in research (Fisher & Kalbaugh, 2011; Schmotzer, 2012). Research has shown that physicians are less likely to prescribe certain treatments to their minority patients due to their perception these individuals will not adhere to the prescribed regimen (Fisher & Kalbaugh, 2011). Physicians are more likely to have negative impressions of their African American patients and believe those patients are less intelligent and educated as compared to their White patients (Fisher & Kalbaugh, 2011; Schmotzer, 2012). To address this issue, researchers did not allow any biases or perceptions of this population to interfere with the selection of participants or methods used in the study.

Chapter Summary

This chapter presented the epidemiologic basis of the concepts of interest, conceptual framework, analysis of the literature related to RTW among stroke survivors, study design and methods, and ethical issues related to the population/sample of the study. The conceptual framework, Worker Well-Being Framework, guided the literature review of the concepts through five domains related to worker well-being. Gaps in the

literature included lack of African American participation, varying definitions and measurements of RTW, inconsistent follow-up time periods, and missing information regarding work-related factors and social support. The review of literature provided a rationale for the dissertation study. The next chapter will discuss in further detail the design/methods of the study, data collection and analysis, and ethical considerations.

CHAPTER 3

METHODS

The purpose of this chapter is to discuss the methodology of the dissertation study, including: (a) mixed methods design, (b) sampling and recruitment, (c) informed consent, (d) data collection, (e) reliability and validity of the study, and (f) data analysis plan. Initially, the research purpose, research questions, and study design will be described.

Purpose Statement and Research Questions

The purpose of the explanatory sequential mixed methods pilot study was to identify factors that affect return to work for African American stroke survivors. The goal of the quantitative phase was to identify relationships between demographic factors (i.e., age, gender, income, marital status, education, occupation) and worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with current employment status among African American stroke survivors. The goal of the qualitative phase was to explain quantitative results and explore barriers and facilitators of the return-to-work process by using data from individual interviews with African American stroke survivors. The rationale for integrating quantitative and qualitative methods in this study was to combine results from the two approaches to obtain a more

complete understanding of factors affecting RTW for African American stroke survivors than would be gained by using either method alone.

Overall Mixed Methods Question

How do quantitative questionnaire results and qualitative interviews jointly explain factors associated with current employment status for African American stroke survivors?

Quantitative Research Questions

What is the relationship between demographic factors (i.e., age, gender, income, marital status, education, occupation) with current employment status for African American stroke survivors?

What is the relationship between worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) and current employment status?

Qualitative Research Question

How do the selected RTW factors identified in the quantitative phase contribute to or impede return to work for African American stroke survivors?

Research Design

Mixed Methods Research Design

Mixed methods research involves the collection, analysis, and integration of both quantitative and qualitative data (Curry & Nunez-Smith, 2015). Some of the major characteristics of the mixed methods approach are integration of quantitative and qualitative data; priority is given to one or both forms of data; procedures are used in either a single study or multiple phases of a program of study; procedures are framed within philosophical worldviews and theory; and combined procedures direct the plan for conducting the study (Ivankova, 2015). The general rationale for using a mixed methods approach is to obtain more in-depth knowledge of an issue, increase generalizability of findings, explain previous results, and use multiple data sources. The reason for collecting both quantitative and qualitative data in the study was to use qualitative data to explain quantitative results to bring greater understanding of the return-to-work process than would be obtained by either type of data separately. Therefore, using a mixed methods approach yielded a more comprehensive understanding of factors affecting RTW among African American stroke survivors.

Philosophical Assumptions

Pragmatism is generally associated with mixed methods research as an overarching philosophy (Creswell & Plano Clark, 2018). Pragmatism emphasizes the importance of the research question and the use of multiple data collection methods. It also values the importance of research questions guiding decisions that are made during the planning and implementation of a study. The ontological assumption of pragmatism is

there are singular and multiple realities; and researchers test hypotheses and provide multiple perspectives (Morgan, 2007). The epistemological assumption is practicality; researchers collect data by using what effectively addresses research questions (Creswell & Plano Clark, 2018). This study used validated measures. The axiological assumption is the inclusion of both biased and unbiased perspectives (Creswell & Plano Clark, 2018). Individuals who have returned to employment, as well as those who have not returned to employment for various reasons, were recruited to participate in the study. The methodological assumption of pragmatism is the collection and mixing of both quantitative and qualitative data, which occurred in the study (Creswell & Plano Clark, 2018). The rhetorical assumption is the inclusion of either formal or informal styles of writing (Creswell & Plano Clark, 2018). The principal investigator used a more formal writing approach due to the nature and guidelines of a dissertation study.

Mixed Methods Research Design

The study used an explanatory sequential mixed methods design (Creswell & Plano Clark, 2011). The purpose of using this design was to gain a general understanding of factors affecting RTW using the quantitative data and results, while the qualitative data and its analysis refined and explained statistical results by exploring participants' views in more depth (Creswell & Plano Clark, 2018). Quantitative data were collected first, followed by qualitative data. Priority was placed on the qualitative phase. Integration occurred at two points; first between the quantitative data analysis and qualitative data collection, and then once the qualitative phase was complete. Results were then integrated, and conclusions drawn about how qualitative results explained quantitative

results. The procedural diagram was adapted from Ivankova et al. (2006) and is shown in Figure 3.

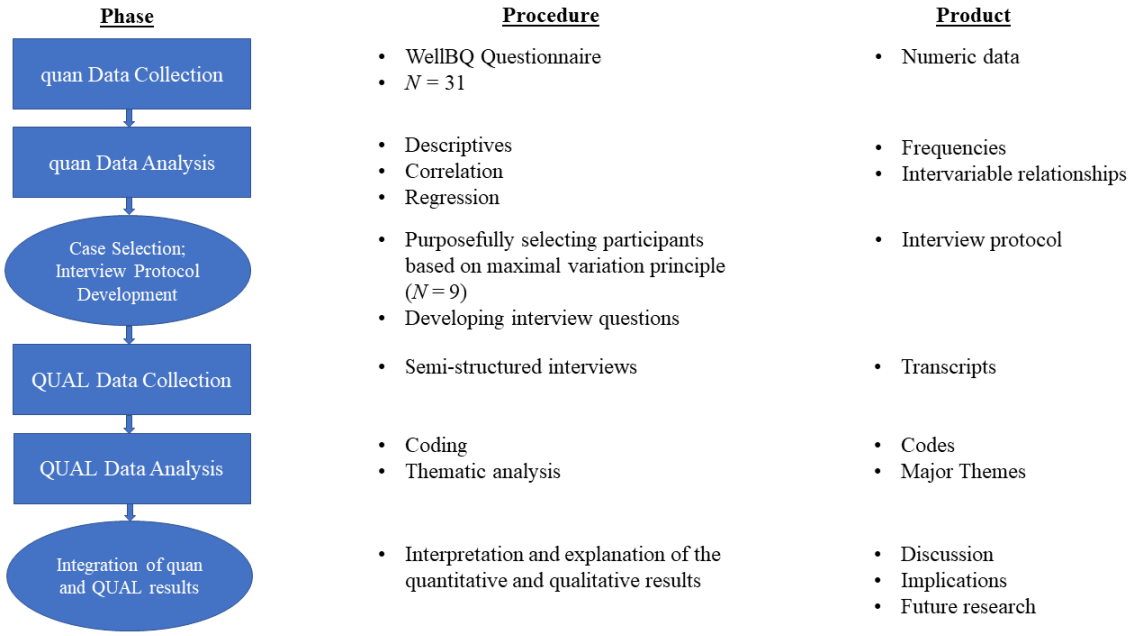

Figure 3. *Procedural Diagram*

Setting and Sample

The sampling scheme followed an explanatory sequential design, with the use of nonprobability sampling in the quantitative phase and purposeful sampling in the qualitative phase (Ivankova, 2015). The quantitative phase used nonprobability convenience sampling, and the qualitative phase used purposeful maximal variation sampling (Miles & Huberman, 1994). Participant inclusion/exclusion criteria were the same for both study phases. To participate in the study, participants were African American, ages 18-65, able to read and write in English, able to provide consent, and had suffered a first-time stroke and were employed prior to stroke. Potential participants were

excluded from the study if they were unemployed prior to stroke and severely disabled because of stroke (Modified Rankin Scale score >3). After initial eligibility screening, participants were screened to ensure they were cognitively able to understand the objectives of the study, complete the WellBQ questionnaire, and participate in an interview. The Telephone Interview for Cognitive Status (TICS) was used to determine the presence of cognitive impairment in eligible participants to determine if they were able to participate in the study. Participants with mild cognitive impairment were still eligible if they were able to give informed consent, understand the study objectives, complete the WellBQ questionnaire, and participate in an interview.

Participants were recruited from an outpatient stroke rehabilitation clinic in Birmingham, AL, stroke survivor support groups, community organizations, and through social media. Support for the study was obtained from the rehabilitation center administration (Appendix C), and the University of Alabama at Birmingham Institutional Review Board (IRB) provided approval for the human subjects' protocol (Appendix D). Contact was initiated with a practicing neurologist who worked at the rehabilitation clinic and assisted with gaining access to the facility and participants.

Recruitment took place over 5 months. Recruitment strategies included flyers, social media posts, and having health care professionals identify and approach potential participants. Potential participants at the rehabilitation clinic were initially contacted by the primary investigator, after consultation with a staff member. During the first contact, the primary investigator introduced the study, shared details of informed consent, and set up a follow-up contact time. The primary investigator obtained written informed consent from the participant at the time of follow-up.

The final sample size for the quantitative phase of the study was 31. Stroke survivors were purposefully sampled for the qualitative phase from participants who completed the quantitative phase. Magilvy and Thomas (2009) support the use of between 3 and 20 participants in qualitative descriptive research. The final sample size for the qualitative phase was 9 participants selected to follow-up based on initial quantitative results.

Potential sampling issues related to the explanatory sequential design include determining whether study phases will use the same individuals, deciding whether equal sample sizes will be used, and selecting the best participants for the qualitative follow-up. In the dissertation study, each study phase used the same participants, but the quantitative sample size was larger (n = 31) than the qualitative phase (n = 9) to support rigor of the quantitative and qualitative methods (Creswell & Plano Clark, 2018). The qualitative participants were selected based on statistically significant differences between RTW and non-RTW groups in the quantitative phase.

Informed Consent

IRB approval was obtained prior to implementation of study procedures. Participants were provided with full disclosure regarding the study, including the explanation of benefits and risks. Written informed consent was obtained from all participants prior to participation in the study. Participants were informed that participation was voluntary. This was especially important for the stroke survivors because the primary investigator did not want them to feel their rehabilitation treatment was affected by their decision to participate in the study. Data were de-identified. Each

participant was assigned a unique study identification number. Data were stored on an encrypted external hard drive, which was stored in a locked file cabinet when not in use. This protected all files on the device and required a password or key to access. Access was limited to those who required it and were identified within the IRB protocol. Anti-virus software was installed, updated regularly, and allowed to run regular checks on the external hard drive. All software used for data analysis was kept up to date. While in use, data on the drive were connected to a private network protected by a firewall that performs intrusion prevention and application threat monitoring. Data will be destroyed within 3-5 years of the end of the dissertation study.

Data Collection

Using an explanatory sequential design, data were collected using a between-strategies approach (Tashakkori et al., 2021). Data were collected using a combination of quantitative (survey) and qualitative (interviews) data sources.

Quantitative Phase

Quantitative data collection occurred over 7 months. Following consent, participants completed the WellBQ questionnaire (see Appendix A), which included five domains addressing worker well-being, demographic information (age, gender, marital status, income, educational level, and occupation), and current employment status. Employment status was categorized as either unemployed or employed. “Unemployed” included individuals who were retired or did not RTW. “Employed” included both full-

time and part-time work. Occupation was categorized as professional/business or manual labor.

The WellBQ was administered electronically or mailed to participants who chose to complete a paper questionnaire. To measure worker well-being, the WellBQ has five domains. The domains include: (a) work evaluation and experience (individuals' assessment of the quality of their work life); (b) workplace policies and culture (organizational policies, programs, and practices that may influence worker well-being); (c) workplace physical environment and safety climate (physical and psychological aspects and safety features of the work environment); (d) health status (physical and mental health and functioning); and (e) home, community, and society (external aspects of individuals' lives) (Chari et al., 2022). There are a total of 68 items related to the five domains and 15 demographic items. Construct validity has been established with Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) scores ranging from 0.93 – 1 (Chari et al., 2022). Cronbach α values that exceed 0.8 indicate internal consistency and reliability (Chari et al., 2022).

Table 1

Measurement Table

Concept	Definitions	Measurement	Validity/Reliability	Time of Measurement
Worker Well-Being	Characterizes quality of life with respect to an individual's health and work-related environmental, organizational, and psychosocial factors	WellBQ	Cronbach $\alpha = 0.8$	Time of Recruitment

Qualitative Phase

Selection of sample. In the explanatory sequential mixed methods design, one of the points of integration involves connecting the results from the initial quantitative phase to plan qualitative data collection and selection of participants (Creswell & Plano Clark, 2018). Quantitative results informed the sample selection for the qualitative phase. A subsample of participants was selected to be as representative as possible in the domains of the WellBQ that indicated a statistically significant difference between RTW and non-RTW groups. Following quantitative analyses, the primary investigator looked at the worker well-being indices that had statistically significant differences with current employment status. Then, the interview participants were chosen in order to include those who had higher and lower scores in each of the worker well-being domains to increase representativeness. Participants were also selected from RTW and non-RTW groups. As a result, nine participants were chosen to participate in the interview.

Interview protocol development. The interview protocol was developed based on quantitative results (see Appendix B). Questions were created to obtain more detail on statistically significant differences between RTW and non-RTW groups in the quantitative phase. The interview guide consisted of eight overarching questions with probes and sub-questions to elicit descriptions of the facilitators and barriers to RTW. Initially, questions were asked regarding the participant's current employment status, their meaning of work, and how the stroke changed their daily functioning. Next, questions were more specific about the WellBQ domains (i.e. support, accommodations). Lastly, participants were asked to share anything they wanted to discuss that wasn't asked during the interview. An amendment was submitted to the IRB after questions were reviewed by dissertation committee members.

Qualitative data collection occurred over 3 months. Qualitative data were collected by the primary investigator using semi-structured individual interviews and field notes. Participants were interviewed on the telephone or Zoom, using an interview guide.

Interviews lasted approximately 45-60 minutes and were audio recorded. Each participant was encouraged to select a location for the interview that provided a private, comfortable, and convenient environment. Interviews were transcribed and stored on a secure drive. Follow-up interviews were done as necessary. Recordings will be destroyed 2-3 years following completion of the study. Field notes captured the overall interview context including participant affect, nonverbal behaviors, and any other factors that affected the interview session. Interviews ceased once data saturation was reached with nine participants.

Reliability and Validity

To assess the quality of the study, the methodological rigor of both the quantitative and qualitative phases was evaluated. In the quantitative phase, an instrument was used that had been previously validated. Psychometric data of the WellBQ questionnaire was discussed previously. In the qualitative phase, credibility and trustworthiness was achieved using triangulation (data from observations and interviews), member checking, disconfirming evidence, and peer review/external check. Written transcriptions were shared with all nine participants for review and verification. Also, major themes were shared with participants to ensure they were reflective of their experiences (Creswell & Plano Clark, 2018). Data were also shared with colleagues familiar with return to work among stroke survivors for review and feedback (Creswell & Plano Clark, 2018; Creswell & Poth, 2018). Participants were informed of all data collection methods and research objectives. Data interpretation will be made available to study participants prior to publication of the dissertation.

To secure quality of mixed methods meta-inferences generated from the quantitative and qualitative results, the critical appraisal framework for quality (Curry & Nunez-Smith, 2015) was applied. Based on the study aims and research questions, there was justification in using an explanatory sequential mixed methods design. Quantitative and qualitative standards were adhered to with regard to sampling, data collection, and analysis. The integration plan was appropriate for the study design. Inference quality, inference transferability, and legitimation were used to address threats to validity of mixed methods inferences (Onwuegbuzie & Johnson, 2006). Conclusions from the study were based on findings from each study phase and are applicable for a sample of African

American stroke survivors. Consistency was maintained between study purpose, study design, and conclusions. The weaknesses of the application of the two approaches (quantitative and qualitative) were counterbalanced.

Threats to validity associated with the explanatory sequential design include failing to identify important quantitative results to explain, not explaining contradictory quantitative results with qualitative data, not connecting the initial results with qualitative follow-up, selecting inappropriate individuals or sample sizes for data collection, and selecting wrong individuals for qualitative follow-up (Creswell & Plano Clark, 2018). To address these threats in the study, participants were selected using inclusion/exclusion criteria, individuals were purposefully sampled for the qualitative follow-up based on initial quantitative results, and significant and nonsignificant quantitative predictors were used for follow-up.

Data Analysis

Quantitative Phase

Specific Aim 1: Determine factors associated with return to work among a sample of African Americans after experiencing a stroke.

The researcher used the software SPSS v. 28 to analyze quantitative data. First, each of the domains of the WellBQ were scored in accordance with scoring guidelines provided by the instrument's creators. Then, descriptive statistics were calculated among the demographic variables. Mean and standard deviations were calculated for all continuous variables, and frequencies and percentages were calculated for all categorical variables. Univariate analyses (*t*-tests or chi-square analyses, when appropriate) were

conducted to compare demographics and worker well-being indices between those who were and were not currently working. Cohen's *d* was then used to examine the magnitude of differences between groups (RTW and non-RTW). Variables deemed significant were placed in a logistic regression analysis.

Qualitative Phase

Specific Aim 2: Explore the experiences of African American stroke survivors to identify facilitators and barriers to return to work.

Qualitative interviews were transcribed by Landmark Associates Inc. The researcher used NVivo 12 to analyze qualitative data. Qualitative data analysis began following the audio recording and transcription of each interview using conventional content analysis. Conventional content analysis is used in studies that aim to describe a phenomenon where existing research is limited (Colorafi & Evans, 2016). With the current study, little is known regarding African American stroke survivors' return to employment. Conventional content analysis consists of data collected from open-ended questions, read word for word, and then coded (Colorafi & Evans, 2016). Analysis followed these steps: reading all data to achieve immersion, making notes of initial impressions, identifying codes, grouping similar codes into categories, and developing definitions of codes and categories (Hsieh & Shannon, 2005). Themes were identified using the domains of the WellBQ.

Mixed Methods

Specific Aim 3: Integrate findings from quantitative and qualitative phases to understand factors affecting return to work for African American stroke survivors.

In the explanatory sequential mixed methods design, the intent of integration is to connect the quantitative and qualitative phases, so the qualitative follow-up provides a strong explanation of quantitative results (Creswell & Plano Clark, 2018). Integration of quantitative and qualitative data was used to better understand factors that affect RTW for African American stroke survivors. Integration occurred in three phases: after quantitative data analysis, after qualitative data analysis, and during analysis of how the qualitative data explain the quantitative data. Integration strategies used included identifying quantitative results that need further explanation, identifying a purposeful sample and interview questions that can best explain quantitative results, and interpreting the value added by qualitative explanations (Creswell & Plano Clark, 2018). Quantitative and qualitative results were merged using a joint display that arranged the quantitative results and connected qualitative results. A joint display is a graphical representation of integrated findings (Creswell, 2015). Integrated results were then interpreted to determine if they provided insight into factors affecting RTW for African American stroke survivors.

Chapter Summary

An explanatory sequential mixed methods design was used to address study aims. In the quantitative phase, participants completed the WellBQ questionnaire. Nine participants were purposefully sampled from the quantitative phase and completed semi-

structured individual interviews. Data were analyzed at the completion of each study phase and results integrated following synthesis. The integration of quantitative and qualitative data was used to better understand factors that affect RTW for African American stroke survivors.

CHAPTER 4

RESULTS

Study Phase I: Quantitative

The purpose of this study was to identify factors associated with return to work among a sample of African American stroke survivors using an explanatory sequential mixed methods design. The goal of the quantitative phase was to identify relationships between demographic factors (i.e., age, gender, income, marital status, education, occupation) and worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with current employment status. This section presents results for the quantitative phase of this explanatory sequential mixed methods pilot study.

The quantitative phase of this study was guided by the following research questions:

What is the relationship between demographic factors (i.e., age, gender, income, marital status, education, occupation) with current employment status for African American stroke survivors?

What is the relationship between worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment

and safety climate; health status; and home, community, and society) with current employment status for African American stroke survivors?

Sample Characteristics

The quantitative sample was comprised of 31 African American stroke survivors who completed the WellBQ (see Table 2). The sample was comprised of 12 (39%) men and 19 (61%) women primarily between the ages of 45-64 (44%). Of the participants, 52% had returned to work following a stroke. Most participants worked in professional jobs (73%). The most commonly reported occupation was educational services (e.g., teachers, school administrators). Forty-eight percent of participants had a bachelor's degree or higher. Fifty-five percent of participants reported being married or living with a partner.

Table 2

Demographic Characteristics of Participants

Characteristic	*n*	%
Return to Work		
Yes	**16**	**52**
No	15	48
Occupation (*n* = 22)		
Professional	**16**	**73**
Manual	6	27
Age (*n* = 27)		
18-29	2	7.4
30-44	10	37
45-64	**12**	**44.4**
65 and older	3	11.1
Education (*n* = 25)		
High school/GED	6	24
Some college	7	28
Bachelor's degree or higher	**12**	**48**
Gender		
Male	12	39
Female	**19**	**61**
Marital Status (*n* = 20)		
Married or living with partner	**11**	**55**
Divorced	3	15
Separated	1	5
Never married	5	25

Results

Mean scores and standard deviations were reported for the sample split by current employment status for each of the domains of the WellBQ (see Table 3). Univariate analyses (*t*-tests or chi-square analyses, when appropriate) were conducted to compare demographics and worker well-being indices between those who were and were not currently working. *T*-tests were performed initially for all continuous variables. Cohen's *d* (*e*) indicated the magnitude of the differences between groups, and all variables that showed significant differences with current employment status illustrated a medium to

large effect size (see Table 3). Current employment was associated with higher education (p = 0.03, e = 0.79), household income (p = 0.01, e = 1.29), more supportive work culture (p = 0.03, e = 0.73), higher levels of work to non-work conflict (p = 0.002, e = 1.1) and productivity (p = 0.03, e = 0.71), increased availability of health programs at work (p = 0.03, e = 0.69), increased mental distress (p = 0.02, e = 0.78), and decreased fatigue (p = 0.02, e = 0.75).

Table 3

Continuous Variables

	RTW (*n* = 16)	**Non-RTW (*n* = 15)**			
Variable	**Mean (SD)**	**Mean (SD)**	***t*-test statistics**	***p*-value**	**Cohen's *d***
Demographics					
Age*	2.5(0.76)	2.69(0.86)	t(25)=0.62	0.27	0.24
Education*	3.54(0.66)	2.92(0.9)	t(23)=-1.98	**0.03**	-0.79
Household Income*	4.6(1.58)	2.5(1.69)	t(16)=-2.72	**0.01**	-1.29
Marital Status*	2(1.73)	3(1.73)	t(18)=1.29	0.11	0.58
Work Evaluation and Experience					
Job Satisfaction	3.56(0.63)	3.67(0.62)	t(29)=0.47	0.32	0.17
Wage Satisfaction	3.13(0.81)	3(0.66)	t(29)=-0.47	0.32	-0.17
Benefits Satisfaction	3.56(0.63)	3.67(0.72)	t(29)=0.43	0.34	0.15
Advancement Satisfaction	3.06(0.77)	2.73(0.59)	t(29)=-1.32	0.1	-0.48
Supervisor Support	3.75(0.45)	3.73(0.59)	t(29)=-0.09	0.47	-0.03
Coworker Support	3.69(0.48)	3.87(0.35)	t(29)=1.18	0.12	0.42
Job Security	3.50(0.97)	3.73(0.59)	t(29)=0.81	0.21	0.29
Job Autonomy	3.44(0.96)	3.67(0.9)	t(29)=0.68	0.25	0.25
Time Paucity/Work Overload	2.69(0.79)	2.67(0.82)	t(29)=-0.07	0.47	-0.03
Meaningful Work	3.69(0.79)	3.8(0.41)	t(29)=0.49	0.31	0.18
Work-related Positive Affect	5.94(1.39)	5.8(1.9)	t(29)=-0.23	0.41	-0.08
Work-related Negative Affect	3.56(1.2)	2.73(1.03)	t(29)=-2.05	0.25	-0.74
Work-related Fatigue	4.19(1.68)	3.27(1.75)	t(29)=-1.49	0.07	-0.54
Job Engagement	5.31(1.08)	4.67(1.63)	t(29)=-1.31	0.1	-0.47
Workplace Policies and Culture					
Supportive Work Culture	3.38(0.5)	2.93(0.7)	t(29)=-2.03	**0.03**	-0.73
Management Trust	3.25(0.58)	3.07(0.46)	t(29)=-0.98	0.17	-0.35

Health Culture at Work	3.69(0.48)	3.73(0.59)	t(29)=0.24	0.41	0.09
Availability of Job Benefits	7.88(3.4)	6.4(2.32)	t(29)=-1.4	0.09	-0.5
Availability of Health Programs at Work	2.69(2.06)	1.6(0.83)	t(29)=-1.91	**0.03**	-0.69
Work to Non-work Conflict	3.31(1.49)	2 (0.76)	t(29)=-3.01	**0.002**	-1.1
Non-work to Work Conflict	3.38(1.36)	3.07(1.28)	t(29)=-0.65	0.26	-0.23
Workplace/Schedule Flexibility	3.31(1.08)	3(1.36)	t(29)=-0.71	0.24	-0.26
Workplace Physical Environment and Safety Climate					
Overall Workplace Safety	3.44(0.96)	3.33(1.11)	t(29)=-0.28	0.39	-0.1
Workplace Safety Climate	2.94(0.68)	3.13(0.52)	t(29)=0.9	0.19	0.32
Physical Work Environment Satisfaction	3.06(0.68)	3.07(0.46)	t(29)=0.02	0.49	0.01
Discrimination	1.38(0.72)	1.07(0.26)	t(29)=-1.57	0.06	-0.56
Health Status					
Overall Health	2.88(0.5)	2.73(0.46)	t(29)=-0.82	0.21	-0.3
Days of Poor Physical Health	6.06(7.55)	6(7.09)	t(29)=-0.02	0.49	-0.01
Chronic Health Conditions	2.06(1.18)	2.13(1.13)	t(29)=0.17	0.43	0.06
Insomnia	0.38(0.5)	0.13(0.35)	t(29)=-1.55	0.07	-0.56
Days of Poor Mental Health	5.81(5.96)	6.53(7.07)	t(29)=0.31	0.38	0.11
Overall Stress	3.63(1.31)	3.13(0.92)	t(29)=-1.20	0.12	-0.43
Poor Mental Health	1.63(0.81)	1.13(0.35)	t(29)=-2.17	**0.02**	-0.78
Physical Activity	2.94(1.81)	2.67(0.98)	t(29)=-0.51	0.31	-0.19
Tobacco Use	0.19(0.54)	0(0)	t(29)=-1.33	0.1	-0.48
Alcohol Consumption	1.06(1.063)	0.8(0.78)	t(29)=-0.78	0.22	-0.28
Risky Drinking	1.25(0.78)	1.13(0.52)	t(29)=-0.49	0.31	-0.18
Healthy Diet	2.56(0.89)	2.8(0.78)	t(29)=0.79	0.22	0.28
Sleep Hours	1.44(0.63)	1.27(0.59)	t(29)=-0.78	0.22	-0.28
Sleepy at Work	2.75(0.78)	3.27(0.59)	t(29)=2.07	**0.02**	0.75
Cognitive Functioning Limitations	1.81(0.83)	1.67(0.62)	t(29)=-0.55	0.29	-0.2
Work Limitations	2.5(0.73)	2.73(0.7)	t(29)=0.91	0.19	0.33
Productivity	2.69(1.2)	2(0.66)	t(29)=-1.97	**0.03**	-0.71
Home, Community, and Society					
Life Satisfaction	3.13(0.62)	3.13(0.35)	t(29)=0.05	0.48	0.02
Financial Insecurity	2.25(0.86)	2.07(0.59)	t(29)=-0.69	0.25	-0.25
Support Outside of Work	3.75(0.45)	3.87(0.36)	t(29)=0.80	0.21	0.29
Activities Outside of Work	3.06(2.08)	2.20(1.15)	t(29)=-1.42	0.08	-0.51
Note. Age missing n = 4; education missing n = 6; income missing n = 13; marital status missing n = 11.					

**p-values in bold indicate significance at p < .05.*

Where it conceptually made sense, continuous variables were also transformed into categorical variables to note differences (see Table 4). Current employment was associated with opportunities for advancement (p = 0.03), availability of job benefits (p = 0.05), and work to non-work conflict (p = 0.03).

Table 4

Categorical Variables

	RTW (*n* = 16)	**Non-RTW (*n* = 15)**		
Variable	**Number (%)**	**Number (%)**	**Chi-square or Fisher's exact test statistics**	***p*-value**
Demographics				
Gender			$X^2(1,N=31) = 0.78$	0.38
Female	11(69)	8(53)		
Male	5(31)	7(47)		
Occupation*			$X^2(1,N=22) = 2.26$	0.16
Professional	11 (85)	5 (56)		
Manual	2 (15)	4 (44)		
Work Evaluation and Experience				
Job Satisfaction			$X^2(1,N=31) = 0.42$	0.4
Satisfied	10(62.5)	11(73)		
Not Satisfied	6(37.5)	4(27)		
Wage Satisfaction			$X^2(1,N=31) = 1.42$	0.22
Satisfied	5(31)	2(13)		
Not Satisfied	11(69)	13(87)		
Benefits Satisfaction			$X^2(1,N=31) = 1.15$	0.25
Satisfied	10(62.5)	12(80)		
Not Satisfied	6(37.5)	3(20)		
Advancement Satisfaction			$X^2(1,N=31) = 5.59$	**0.03**
Satisfied	5(31)	0(0)		
Not Satisfied	11(69)	15(100)		
Supervisor Support			$X^2(1,N=31) = 0.11$	0.54
Agree	12(75)	12(80)		
Disagree	4(25)	3(20)		
Coworker Support			$X^2(1,N=31) = 1.42$	0.22
Agree	11(69)	13(87)		
Disagree	5(31)	2(13)		
Job Security			$X^2(1,N=31) = 0.11$	0.54
Agree	12(75)	12(80)		
Disagree	4(25)	3(20)		

Job Autonomy			$X^2(1,N=31) = 1.42$	0.22
Agree	11(69)	13(87)		
Disagree	5(31)	2(13)		
Time Paucity/Work Overload			$X^2(1,N=31) = 0.002$	0.74
Agree	1(93.8)	1(7)		
Disagree	15(6.2)	14(93)		
Meaningful Work			$X^2(1,N=31) = 0.008$	0.64
Agree	13(81)	12(80)		
Disagree	3(19)	3(20)		
Work-related Positive Affect			$X^2(1,N=31) = 0.88$	0.35
Always	8(50)	10(67)		
Not Always	8(50)	5(33)		
Work-related Negative Affect			$X^2(1,N=31) = 2$	0.26
Always	2(12.5)	0(0)		
Not Always	14(87.5)	15(100)		
Work-related Fatigue			$X^2(1,N=31) = 0.002$	0.74
Always	1(6.2)	1(7)		
Not Always	15(93.8)	14(93)		
Job Engagement			$X^2(1,N=31) = 2.28$	0.23
Always	0(0)	2(13)		
Not Always	16(100)	13(87)		
Workplace Policies and Culture				
Supportive Work Culture			$X^2(1,N=31) = 2.36$	0.13
Agree	6(37.5)	2(13)		
Disagree	10(62.5)	13(87)		
Management Trust			$X^2(1,N=31) = 1.42$	0.22
Agree	5(31)	2(13)		
Disagree	11(69)	13(87)		
Health Culture at Work			$X^2(1,N=31) = 0.51$	0.38
Agree	11(69)	12(80)		
Disagree	5(31)	3(20)		
Availability of Job Benefits			$X^2(1,N=31) = 4.21$	**0.05**
More Benefits	6(37.5)	1(7)		
Less Benefits	10(62.5)	14(93)		
Availability of Health Programs at Work			$X^2(1,N=31) = 4.31$	0.06
More Programs	4(25)	0(0)		
Less Programs	12(75)	15(100)		
Work to Non-work Conflict			$X^2(1,N=31) = 5.59$	**0.03**
Always	5(31)	0(0)		
Not Always	11(69)	15(100)		
Non-work to Work Conflict			$X^2(1,N=31) = 2$	0.26

Always	2(12.5)	0(0)		
Not Always	14(87.5)	15(100)		
Workplace/Schedule Flexibility			$X^2(1,N=31) = 0.02$	0.59
Agree	10(62.5)	9(60)		
Disagree	6(37.5)	6(40)		
Workplace Physical Environment and Safety Climate				
Overall Workplace Safety			$X^2(1,N=31) = 0.02$	0.6
Safe	11(69)	10(67)		
Unsafe	5(31)	5(33)		
Workplace Safety Climate			$X^2(1,N=31) = 0.32$	0.47
Agree	2(12.5)	3(20)		
Disagree	14(87.5)	12(80)		
Physical Work Environment Satisfaction			$X^2(1,N=31) = 0.68$	0.36
Satisfied	4(25)	2(13)		
Not Satisfied	12(75)	13(87)		
Discrimination			$X^2(1,N=31) = 2$	0.26
Agree	2(12.5)	0(0)		
Disagree	14(87.5)	15(100)		
Work-related Physical Violence			$X^2(1,N=31) = 0.97$	0.52
Yes	1(6.2)	0(0)		
No	15(93.8)	15(100)		
Work-related Bullying			$X^2(1,N=31) = 2$	0.26
Yes	2(12.5)	0(0)		
No	14(87.5)	15(100)		
Health Status				
Overall Health			$X^2(1,N=31) = 0.28$	0.46
Good	13(81)	11(73)		
Poor	3(19)	4(27)		
Chronic Health Conditions			$X^2(1,N=31) = 0.3$	0.53
Yes	14(87.5)	14(93)		
No	2(12.5)	1(7)		
Insomnia			$X^2(1,N=31) = 2.36$	0.13
Yes	6(37.5)	2(13)		
No	10(62.5)	13(87)		
Overall Stress			$X^2(1,N=31) = 0.3$	0.53
Always	2(12.5)	1(7)		
Not Always	14(87.5)	14(93)		
Poor Mental Health			$X^2(1,N=31) = 3.11$	0.13
Daily	3(19)	0(0)		
Not Daily	13(81)	15(100)		
Tobacco Use			$X^2(1,N=31) = 2$	0.26
Yes	2(12.5)	0(0)		

No	14(87.5)	15(100)		
Risky Drinking			$X^2(1,N=31) = 0.002$	0.74
Often	1(6.2)	1(7)		
Not Often	15(93.8)	14(93)		
Work-related Injury			$X^2(1,N=31) = 2$	0.26
Yes	2(12.5)	0(0)		
No	14(87.5)	15(100)		
Injury Consequence			$X^2(1,N=31) = 2$	0.26
Yes	2(12.5)	0(0)		
No	14(87.5)	15(100)		
Home, Community, and Society				
Life Satisfaction			$X^2(1,N=31) = 0.68$	0.36
Satisfied	4(25)	2(13)		
Not Satisfied	12(75)	13(87)		
Financial Insecurity			$X^2(1,N=31) = 2$	0.26
Worried	2(12.5)	0(0)		
Not Worried	14(87.5)	15(100)		
Support Outside of Work			$X^2(1,N=31) = 0.68$	0.36
Always	12(75)	13(87)		
Not Always	4(25)	2(13)		
Activities Outside of Work			$X^2(1,N=31) = 2$	0.26
Always	2(12.5)	0(0)		
Not Always	14(87.5)	15(100)		
Note. Occupation missing n = 9.				

**p-values in bold indicate significance at p < .05.*

Logistic regression was performed using variables identified as significant and/or trending towards significant from each domain (i.e., demographics; work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with the highest Cohen's *d*. Income (*e* = 1.29), work-related fatigue (*e* = 0.54), work to non-work conflict (*e* = 1.1), discrimination (*e* = 0.56), poor mental health (*e* = 0.78), and activities outside of work (*e* = 0.51) were placed in a regression model. Multivariate analysis did not indicate any significant predictors of employment status.

Summary

Participants who returned to work had higher educational and income levels, supervisor and coworker support, availability of work health programs, decreased fatigue, and higher productivity levels. However, these individuals also reported job demands interfering with personal life and increased mental distress.

Study Phase II: Qualitative

The qualitative research question was: How do the selected RTW factors identified in the quantitative phase contribute to or impede return to work for African American stroke survivors? The qualitative strand included semi-structured interviews with nine participants. This section of the chapter will discuss the descriptive characteristics of the qualitative sample followed by thematic analysis results.

Description of Qualitative Sample

The qualitative sample included five men and four women. Of the nine participants, five (55%) had returned to employment following a stroke (see Table 5). Most participants were between the ages of 30-64, married, worked in professional occupations, and held a bachelor's degree or higher.

Table 5

Demographic Characteristics of Participants

Participant	**Descriptive Characteristics (gender, age, employment, occupation, education, marital status)**
4	male, 45-64 years old, non-RTW, manual, Bachelor's or higher, divorced
5	female, 45-64 years old, RTW, professional, Bachelor's or higher, married
6	male, 30-44 years old, RTW, professional, some college, married
7	male, 45-64 years old, RTW, professional, Bachelor's or higher, married
9	female, 30-44 years old, RTW, professional, Bachelor's or higher, never married
13	female, 45-64 years old, non-RTW, professional, Bachelor's or higher, never married
15	male, 65 and older, non-RTW, professional, Bachelor's or higher, married
16	female, 30-44 years old, non-RTW, manual, high school/GED, never married
18	male, 30-44 years old, RTW, professional, Bachelor's or higher, married

Qualitative Findings

The qualitative analysis used the five domains of the Worker Well-Being Framework as overarching themes and resulted in 11 subthemes. Their names and descriptions are included in Table 6.

Table 6

Themes and Corresponding Subthemes

Themes	**Descriptions**	**Subthemes**
1: Work Evaluation and Experience	meaning of work	- meaning of work - support at work - work expectations
2: Workplace Policies and Culture	organizational policies and programs	- return-to-work programs - supportive work culture - work to non-work conflict
3: Workplace Physical Environment and Safety Climate	physical and safety features of the work environment	- accommodations - discrimination
4: Health Status	physical and mental health, health behaviors, disabilities	- cognitive limitations - mental health - physical health
5: Home, Community, and Society	external factors outside of work	- family support - faith - community support - rehabilitation

Theme 1: Work Evaluation and Experience

Participants reported that their work evaluation and experience, including meaning of work, support received at work, and expectations, influenced their current employment status. Their perceptions of how each of these factors impacted employment are illustrated below.

Meaning of work. Overall, all participants viewed their work as meaningful, but for various reasons. One participant described her work as a source of income:

> It's very important to me. I earned my nursing degree and I wanted to put it to good use. I wanna keep using that because I earned it. Working is my bread and butter. It's what I do. It's to make a living so it's very important to me. I gotta be able to pay my bills. (PT 5)

Another participant attributed his stroke recovery to how he defines work: "For me, work means a lot. It means that I'm making progress daily" (PT 18). Participants also shared how they value being able to still be employed following their stroke. PT 7 stated, "[Having a stroke] actually made me appreciate work a little bit more, appreciate the position I'm in."

Support at work. Building on their questionnaire responses, participants had varying accounts of support received at work following their stroke and how it impacted their employment. PT 15 shared, "I didn't get any support from them." Although some participants were able to RTW following their stroke, not all remained in the same position or even with the same employer due to the stress of being in an unsupportive work environment. PT 5 explained, "Going back to work then, that environment turned

out to be very, very stressful." Other participants had positive experiences with going back to work and receiving support from supervisors and coworkers.

> Especially having coworkers that were offering to help drive me to and from work because a lot of them live in the northern part of the county compared to where I live. My school that I work at is mid-county. A lot of them were very kind to pick me up early in the morning and then drive me to school. Then someone else would take me home at the end of the day. Then they would drive all the way back to their homes and to their families. That was definitely helpful, just people understanding and wanting to help and being there for me. (PT 9)

Even though PT 13 was unable to RTW, she shared similar sentiments from previous coworkers. "My friends and ex-coworkers check on me normally. It's nice to be missed by people who you tried to make an impact on."

Work expectations. Following their stroke, participants who returned to work placed expectations on themselves to return to "normal." PT 6 reflected, "I wanted everything to be normal. That's where my mind was so. That's where my mind has always been. I'm gonna get back to do what I used to do." PT 7 stated, "I had to get back, no question about it, so whatever I had to do I just had to bounce back, I had to keep it moving." One participant returned to work approximately 2 weeks after her stroke, sharing:

> Knowing myself, I hate missing out on things. Just being a teacher, it's so hard not being there to prepare for the beginning of the school year because it's such a crucial time to plan for not only the lessons you're going to be teaching, but your expectations. (PT 9)

Summary of Theme 1. The theme "Work Evaluation and Experience" included the subthemes of meaning of work, support at work, and work expectations. All participants viewed their work as meaningful, whether it was a way to live out their passion, provide for themselves and their families, or show progress in their stroke recovery which impacted their motivation for returning to employment. In terms of support received at work, participants had both positive and negative experiences, with the majority receiving support from supervisors and coworkers. Lastly, expectations regarding work influenced the time and effort individuals placed on returning to employment.

Theme 2: Workplace Policies and Culture

Participants reported that workplace policies and culture, including the subthemes return-to-work programs, supportive work culture, and work to non-work conflict, influenced their current employment status. Their perceptions of how each of these factors impacted employment are illustrated below.

Return-to-work programs. None of the participants voiced participating in a formal return-to-work program upon returning to employment. PT 4 voiced, "I was a contractor, so my job didn't have nothing like that." PT 7 shared that he left his original position after his stroke for a job with "more benefits and health benefits" to aid in his stroke recovery.

Supportive work culture. Not only receiving support from individuals, but also having an overall supportive work culture was beneficial for participants who returned to

employment. One participant voiced why he was not interested in returning to work under new management:

> Because we had a lot of administrative change going on in the system, and the people that I had learned to work with were gone, and different people came in, the principal, and superintendent, and that type. It wasn't that enjoyable anymore. (PT 15)

PT 6 described why he had to RTW before he felt "ready": the job wouldn't allow me any more time 'cause I could've worked from home, but they wouldn't approve it." On the other hand, other participants described the workplace culture as very supportive and understanding.

> The manager that I had at the time that I had the stroke, she was like, "Yeah, you come back here to this job. I want you take—I want you to have this job. You can do this job." (PT 5)

Work to non-work conflict. Participants voiced feeling conflicted with returning to work while also taking care of themselves. PT 7 shared:

> I had a really bad stroke, and I was just up there struggling because I had so many demands on me. Worked a high-profile position at a major firm, and my customer base was not ready for me to be away, and neither was I, and I wasn't prepared to have a stroke, I had it on the weekend on a Sunday.

Even though participants viewed recovery as a priority, they still felt guilty about not being able to perform their best and meet work demands. PT 9 stated, "Not being there was very tough for me those few days that I missed."

Summary of Theme 2. The theme "Workplace Policies and Culture" was made up of the following subthemes: return-to-work programs, supportive work culture, and work to non-work conflict. None of the participants' employers offered return-to-work programs, which they felt would have been beneficial in their recovery as they transitioned back to the workplace. Having a supportive work culture impacted their ability to successfully RTW. Lastly, some participants voiced conflicting feelings with returning to employment while also taking care of their personal lives and responsibilities.

Theme 3: Workplace Physical Environment and Safety Climate

"Workplace Physical Environment and Safety Climate" was an overarching theme that included the subthemes of accommodations and discrimination and helped illustrate how employment was affected.

Accommodations. The majority of participants voiced not having workplace accommodations. PT 7 stated, "No, not at all. Not one, nothing." PT 16 was unable to return to her job due to the lack of accommodations available: "I wasn't able to work in the kitchen or prepare food anymore because I needed to sit and take breaks." PT 6 shared how his job functions changed after his stroke:

> In the work area, I'm more so confined to a desk. Whereas I used to be out amongst the people, doing things, fixing whatever going on the floor in this building so running the lines or things of that nature. Now, I'm just at my desk. I gotta be—get to work early in order to get a handicap parking space close enough

to the building. if I don't get there, I have to park a ways from the building, and it's just crazy.

PT 6 also spoke about his experience with the Equal Employment Opportunity Commission (EEOC) and the lack of guidance received regarding requesting accommodations when he transitioned back to work. "I feel she doesn't do enough, so it's more so of the people that should be working for you in that area are not" (PT 6).

On the other hand, some participants voiced not requesting accommodations once they returned to employment. PT 18 stated, "No. I haven't had any adjustments. Like I said, I come in each day and I pretty much just do my thing. I don't have to have anybody assist me. I don't need anybody to help me do anything." PT 9 expressed, "I really just wanted as much normalcy as possible for myself. I hate when things have to change because of me, or people have to make adjustments to what they are doing to accommodate me."

Discrimination. Some individuals who were able to RTW faced discrimination related to their race and disability as they transitioned back to employment. PT 7 shared, "I was one of the only Blacks there hired by my company—and there's jokes going around, "Oh, he ate too much fried chicken, that's why he had a stroke." PT 5 also shared concerns of discrimination: "If I was forgetting something, 'Oh, you know, she had a stroke.' I didn't wanna be judged."

Summary of Theme 3. The theme "Workplace Physical Environment and Safety Climate" was comprised of two subthemes: accommodations and discrimination. In terms of accommodations, most participants did not request or have available workplace accommodations. As a result, some participants were unable to return to their original

position or work at all. In terms of discrimination, a few participants reported being discriminated against at work and having to change jobs.

Theme 4: Health Status

"Health Status" was an overarching theme that included the subthemes of: cognitive limitations, mental health, and physical health. This theme illustrated how cognition, mental, and physical health impacted current employment status.

Cognitive limitations. Some participants voiced not having physical impairments but experiencing cognitive limitations that affected their ability to return to employment. PT 9 shared, "Sometimes I just struggle just with general cognitive things. I have noticed, though, that a lot of my memories pre-stroke, there are some things that I truly don't remember." PT 15 stated, "It was not a real severe stroke, but it impacted my short-term memory." PT 5 expressed having difficulty with focusing and remembering things once she returned to work.

> I can forget things easily. Like in the classroom, I'll say something to my students, and they'll say, "Well, you said that you weren't gonna do that." If I say, "Well, this is gonna be on the test," and I don't put it on the test. "Well, you said it was gonna be on the test." (PT 5)

Mental health. Increased mental distress was identified as being associated with employment status based on questionnaire responses. However, both participants who returned to work and those who did not noted changes in their mental health. PT 13 expressed concerns with how she felt job-related stress was a risk factor for her stroke: "I felt the job caused my illness. Lots of stress. Long days and long nights thinking about

work. My brain never shut off." She also discussed how she lost confidence following her stroke, "I was a very confident person. I lost that after it happened. It makes me sad" (PT 13). PT 15 shared how his mental health was affected following his stroke, "I guess you could say a lot of mental changes. Well, things really changed. It really, really changed, even the work situation. Things really changed, for the worse, so to speak."

PT 18 shared how anxiety impacted him when he returned to work in a new environment:

> Going into [work]—every time I went into a new environment, somewhere that was new for me, it was like taking steps—it don't matter how comfortable I was with taking steps at home and being around home and working out—going into any new environment was like a foreign territory. It was taking steps. The environment, everything around you, it just made my spasticity tense up more. It made my anxiety flare up more. I just wasn't comfortable being—I thought it would be easy. You know?

PT 9 voiced how she deals with feelings of anxiety and PTSD post-stroke:

> Trying to ground myself in a way, focusing on things that I can see, hear, just to get my mind off of those thoughts. I feel like those feelings really come up in the moments where I'm just trying to relax and it's quiet.

Physical health. Some participants had temporary physical impairments, while others had long-term deficits that affected their ability to RTW. PT 13 shared that she has left-sided weakness which affects her employment: "I'm not able to complete my duties as an assistant principal at my old job. I'm physically unable to do that." Other

participants voiced having residual deficits but were able to return to their previous jobs though in different roles. PT 18 stated:

> I can't play basketball or throw a football or throw a baseball. You know? Like sports activities. I was a coach, and I played sports, so just being outdoors doing outdoor activities like that, I'm limited in that area as far as that.

PT 7 spoke about the fatigue he experienced after his stroke:

> Just the way I felt—so I had to drink a lot of coffee, and just do—I didn't feel good, I wanted to sleep all day. If I could in a perfect world I'd sleep all day, with my brain, it felt good to sleep. I just had to come home and just rest when I could and try to get a good night's rest all night, just take it easy.

Other participants voiced long-term speech impairment, but have been able to sustain their employment.

Summary of Theme 4. The theme "Health Status" had three subthemes: cognitive limitations, mental health, and physical health. Participants noted issues with memory, concentration, and focus have impacted their return to employment. Mental health disorders such as anxiety and PTSD were also reported among participants. However, participants identified coping strategies used to overcome these feelings in the workplace. Lastly, physical impairments were a barrier for some individuals returning to employment, while others were able to make adjustments in job roles to maintain their quality of life.

Theme 5: Home, Community, and Society

The last theme, "Home, Community, and Society," had four subthemes, which were family support, faith, community support, and rehabilitation. These subthemes helped illustrate how participants perceived external factors to influence their employment status.

Family support. The importance of support was a recurring theme for participants. Specifically, family support has been credited as one of the biggest motivating factors in stroke recovery. PT 5 described how her mother was instrumental during her recovery:

> Family was a huge support. My mom—I could chuckle right now, but she really, really made sure that when I was not in therapy that I was doing something to get my brain back to exercising. When I wasn't at therapy, she would be at home with flashcards and doing matching games and stuff like that. My friends and my family, especially my mom, was very, very instrumental in me getting back to where I am now, honestly.

PT 9 shared how her mother assisted in her transition back to work, "I couldn't drive for a while, but my mom had flown down from Michigan, and she stayed with me to take me to and from work." Other participants described how their families pushed and encouraged them. PT 18 expressed, "just having a supportive family and supportive friends, an awesome fiancé that motivates me and encourages me."

Faith. Participants also identified how having a belief system assisted in their recovery. PT 7 shared, "I'm absolutely blessed to be here, I serve a wonderful God who's got me, I'm just blessed." PT 18 also shared similar sentiments:

> First and foremost, God. I wouldn't be able to do anything if it wasn't for him. He gave me the mind frame to be able to do things. He gives me the physical capacity to do it. The spiritual sense of the holy spirit of being with me helps me through all things. That's first and foremost.

Community support. Participants expressed the benefits of participating in community or online stroke survivor support groups. PT 13 stated, "It's nice meeting people that's going or gone through what you've gone through." PT 18 shared how he tries to be a motivation for other stroke survivors:

> You need to have somebody to always telling you that you're doing awesome, that you're doing great. To see you do this, to see you—that helps you continue that push. The people that I talk to, the stroke survivors, a lot of people don't have someone in their corner encouraging them, liftin' them up. They're tryin' to figure it out day by day. I can tell from the conversations I have with them, they are needing that motivation, that encouragement.

PT 6 has a goal of starting a support group in his area for stroke survivors, "if I get through going through my process to get one started because I really think it's very important because like I said, there's nothing here. Sometimes it does people good to see somebody just like them."

Rehabilitation. Stroke rehabilitation varied among participants. Some participated in formal therapy programs, such as physical and occupational therapy, while others did not. PT 15 did not have any physical deficits, only cognitive, so his wife assisted him with remembering things.

> I had the best help, best doctor right here at home. I was blessed to have her to help me, keep me straight. That's all the doctor I needed. I had to go back to try to do the relearn that stuff, social security, phone number, address. (PT 15)

PT 5, who has issues with focus and memory, described her rehabilitation experience:

> Yeah, I went through—well, occupational therapy, of course, and then a lot of neuropsych therapy, so there was a lot of asking questions, a lot of toggling back and forth different tasks. There was a lot of do you remember this or remember—repeat this phrase and, you know, tell me the names and things in categories, those type of things.

Most participants saw benefit from their rehabilitation, although others did not. PT 18 shared:

> As far as when I was there, it was almost like I was a test or a lab example and they were trying to figure it out. They were able to get me going as far as with my hand, but I didn't see anything great that they were doing to show me that helped me improve. That was just myself constantly pushing daily, being consistent daily, doing exercise three or four times a day daily. As far as my leg, they didn't do anything for my leg that gave me anywhere I'm at now.

One participant even shared how she received no follow-up care after she was discharged from the hospital.

> I was very frustrated when I left the hospital with my follow up care. With that I was just really upset because the neurologist that was seeing me in the hospital, come to find out when I was trying to get the follow up appointments with him, he was not covered by my health insurance. Honestly, I was never able to follow

up with physical therapy. That's something that I'm still looking into because I have days where I still struggle with my left side and some basic physical movements. (PT 9)

Summary of Theme 5. The overarching theme of "Home, Community, and Society" included four subthemes: family support, faith, community support, and rehabilitation. Within the subtheme of family support, participants expressed the integral role family played in their recovery, whether they were able to RTW or not. Family members encouraged, motivated, and supported stroke survivors with their rehabilitation. Within the faith subtheme, participants identified the importance of having a belief system and how it impacted their recovery. Participants also voiced the importance of having a "sense of community" by interacting with other stroke survivors who share similar lived experiences. Lastly, rehabilitation was identified as a facilitator for RTW, even though not all participants had formalized therapy plans.

Chapter Summary

This chapter presented results following quantitative and qualitative analysis. Quantitative results indicated participants who returned to work had higher educational and income levels, supervisor and coworker support, availability of work health programs, decreased fatigue, and higher productivity levels. These individuals also reported job demands interfering with personal life and increased mental distress. Qualitative analysis included five overarching themes and 11 subthemes and identified barriers and facilitators to RTW. The next chapter will discuss integration of quantitative

and qualitative findings, conclusions, and implications for future research, practice, and policy.

CHAPTER 5

DISCUSSION

An explanatory sequential mixed methods study was conducted to better understand factors associated with RTW for African American stroke survivors. The goal of the quantitative phase was to identify relationships between demographic factors (i.e., age, gender, income, marital status, education, occupation) and worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with current employment status. To achieve this goal, 31 African American stroke survivors completed the WellBQ (NIOSH, 2021). Based on the results of the WellBQ, a purposive sample was chosen for the qualitative phase that represented statistically significant differences of demographics and worker well-being indices between those who were employed and unemployed. The goal of the qualitative phase was to build upon the results of the questionnaire to better understand barriers and facilitators to RTW through individual interviews with nine participants. The purpose of this chapter is to discuss a summary of major findings, integration of quantitative and qualitative results, implications for future research, practice, and policy, and study strengths and limitations.

Summary of Major Findings

Quantitative Results

Analysis from the WellBQ was used to answer the following research questions:

> What is the relationship between demographic factors (i.e., age, gender, income, marital status, education, occupation) with current employment status for African American stroke survivors?
>
> What is the relationship between worker well-being indices (i.e., work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society) with current employment status for African American stroke survivors?

Data analysis revealed that current employment was associated with higher education, household income, work to non-work conflict, productivity, a more supportive work culture, increased availability of health programs at work, increased mental distress, and decreased fatigue.

Qualitative Results

The five domains of the Worker Well-Being Framework (see Figure 1) were used as overarching themes to guide qualitative analysis (Chari et al., 2018). The five themes were: (a) "Work Evaluation and Experience"; (b) "Workplace Policies and Culture"; (c) "Workplace Physical Environment and Safety Climate"; (d) "Health Status"; and (e) "Home, Community, and Society." These themes and 11 subthemes answered the

qualitative research question: How do the selected RTW factors identified in the quantitative phase contribute to or impede return to work for African American stroke survivors?

Participants identified having meaningful work as a facilitator to RTW, whether it was a way to live out their passion, provide for their families, or display progress in their stroke recovery. Having supportive supervisors and coworkers was also a facilitator to RTW. Expectations regarding work influenced individuals' time and effort placed on returning to employment. None of the participants' employers offered return-to-work programs, which was identified as a barrier to RTW. Having a supportive work culture was identified by participants as a facilitator to RTW. Some participants voiced conflicting feelings about returning to employment while taking care of their personal responsibilities, which could sometimes be a barrier. Not having access to accommodations was seen as a barrier to RTW. Discrimination was also identified as a barrier to RTW. Some participants identified cognitive and physical impairments and mental health disorders as barriers to RTW. A supportive family and community and a belief system were also identified as facilitators of RTW. Lastly, participation in rehabilitation (speech and occupational therapy) was identified as a facilitator to RTW.

Integration of Quantitative and Qualitative Results

This study's mixed methods research question was: How do quantitative questionnaire results and qualitative interviews jointly explain factors associated with current employment status for African American stroke survivors? To better understand

the factors associated with current employment status found in the quantitative strand, individual interviews were conducted to obtain a more comprehensive understanding of facilitators and barriers to RTW. Due to the explanatory sequential mixed methods study design, the results of the quantitative strand were first analyzed. Then, individual interviews were completed to help explain the quantitative results.

Joint Display to Show Integrated Findings

The integrated quantitative and qualitative findings are presented in a joint display (Creswell & Plano Clark, 2018). Each domain of the WellBQ that was analyzed quantitatively was depicted with summaries from each of the five themes that emerged from the qualitative analysis (see Table 7). The integrated findings were grouped by each domain of the WellBQ. In addition, the integrated findings are also discussed in conjunction with previous research on RTW among all stroke survivors.

Table 7

Joint Display of Integrated Findings

Quantitative Results		**Qualitative Themes**	**Mixed Methods Inferences**
Well-BQ	p*		
Work Evaluation and Experience			
Supervisor Support	0.47	Having support from both supervisors and co-workers was viewed as a facilitator to RTW.	Supervisor and co-worker support and meaningful work were identified as facilitators to RTW, but were not statistically significant.
Coworker Support	0.12		
Meaningful Work	0.31	Work was viewed as meaningful, whether it was a way to live out passion, financial security, or progression in stroke recovery.	
Workplace Policies and Culture			
Supportive Work Culture	**0.03**	Having an overall supportive work culture was a facilitator to RTW.	A supportive work culture was identified as a facilitator to RTW and was statistically significant.
Availability of Health Programs at Work	**0.03**	The lack of return-to-work programs was a barrier to RTW.	Not having access to return-to-work programs was identified as a barrier to RTW and was statistically significant.
Work to Non-work conflict	**0.002**	Participants felt guilt about not being able to perform their best and meet work demands, while making stroke recovery their priority.	Work to non-work conflict was identified as a barrier to RTW and was statistically significant.
Workplace Physical Environment and Safety Climate			
Physical Work Environment Satisfaction	0.49	The lack of workplace accommodations was a barrier to RTW.	The lack of workplace accommodations and discrimination were barriers to RTW, but were not statistically significant.
Discrimination	0.06	Discrimination in the workplace was a barrier to RTW.	
Health Status			
Poor Physical Health	0.49	The presence of physical impairments was a barrier to RTW.	The presence of physical and cognitive impairments were barriers to RTW, but were not statistically significant.
Poor Mental Health	**0.02**	Participants who returned to work and those who did not reported signs and symptoms of anxiety and depression following stroke.	
Fatigue	**0.02**	Increased fatigue was reported among individuals who returned to work.	

Cognitive Functioning Limitations	0.29	The presence of cognitive impairment was a barrier to RTW.	
Productivity	**0.03**	Participants expressed increased pressure to perform at pre-stroke levels at work.	
Home, Community, and Society			
Support Outside of Work	0.21	Support outside of work (family, faith, and community) and rehabilitation were facilitators to RTW.	External support outside of the work environment was a facilitator to RTW, but was not statistically significant.

Note. **p*-value comparing RTW and non-RTW groups from quantitative results.

Work Evaluation and Experience

In the work evaluation and experience domain of the WellBQ, quantitative results did not show a statistically significant difference with current employment status. However, participants reported having meaningful work as a facilitator to RTW. This finding aligns with a study conducted by Lindstrom and colleagues (2009), which found that stroke survivors who perceived their work to be important were more likely to RTW. Participants described their work as a "passion," a means for taking care of their families, and a demonstration of the progress made in their stroke recovery. Another facilitator identified by participants was support at work from supervisors and coworkers. Coole and colleagues (2013) found that employers are important to the return to and retention of work following stroke. Although some participants could RTW, not all remained in the same position or even with the same employer due to a lack of support at work.

Workplace Policies and Culture

In the workplace policies and culture domain of the WellBQ, the quantitative results showed a statistically significant difference in supportive work culture, availability of health programs at work, and work to non-work conflict between RTW and non-RTW groups. Individuals who returned to work reported a more supportive work culture, increased availability of health programs, and increased work to non-work conflict. This is consistent with previous studies that have identified employer support as a primary facilitator of RTW (Culler et al., 2011; Hartke et al., 2011). Participants found it beneficial to have support from supervisors and coworkers and an overall supportive work culture. Some participants voiced having to return to work before they felt "ready" due to non-supportive work culture. Gard et al. (2019) identified insufficient communication with employers, lack of support, having to return to work too quickly, and lack of transportation to work as barriers to RTW.

None of the participants in this study reported participating in a return-to-work program, which was a barrier. Return-to-work programs were not discussed consistently in the literature for stroke survivors. However, Gard and colleagues (2019) found the ability to use a stepwise approach (i.e., increasing work hours gradually) as a facilitator to RTW. Coole and colleagues (2013) found that many employers lack awareness in obtaining information related to stroke, support services, and disability management, which could be a facet of the return-to-work programs if offered. Upon returning to work, participants voiced feeling conflicted with returning to work while taking care of personal responsibilities (e.g., childcare, caregiving for other family members, community involvement). They felt guilty about not being able to perform their best and meet work

demands. This finding is consistent with a study by Coole and colleagues (2013), who also found that stroke survivors may be unwilling to communicate their needs or limitations for fear of losing their job or burdening their coworkers.

Workplace Physical Environment and Safety Climate

The quantitative analysis showed no statistically significant difference with workplace physical environment and safety climate and current employment status between RTW and non-RTW groups. However, participants reported the lack of workplace accommodations as a barrier to RTW (i.e., ability to sit down, take short breaks, decreased working hours). This finding is similar to that of Endo and colleagues (2018), who found that employees working for smaller organizations seemed to have less protection regarding reasonable work accommodations to support RTW. Some participants were unable to RTW due to the lack of accommodations, while others were given modified job duties. Another barrier to RTW was discrimination. Some individuals who were able to RTW faced discrimination and eventually changed jobs. This supports the previous finding of Balasooriya-Smeekens et al. (2016), in which individuals who were successful in returning to work often felt bullied or made fun of once they returned to work.

Health Status

In the health status domain of the WellBQ, the quantitative results showed a statistically significant difference in poor mental health, fatigue, and productivity with

current employment status between those who RTW and those who did not. Individuals who returned to work reported increased mental distress, decreased fatigue, and increased productivity. Depression and anxiety are emerging as predictive factors for RTW, with RTW groups reporting lower rates of each (Arwert et al., 2017; Glader et al., 2017; van der Kemp et al., 2017). However, in the current study, both individuals who returned to work and those who did not reported signs and symptoms of depression and anxiety. Quantitative analysis indicated decreased fatigue among individuals who were currently employed. However, in the qualitative phase, participants in both RTW and non-RTW groups reported increased fatigue following their stroke. Post-stroke fatigue frequently occurs in stroke survivors and has been reported as a barrier to resuming work (Andersen et al., 2012; Bonner et al., 2016; Doucet et al., 2012; Gilworth et al., 2009).

Regarding productivity, participants expressed placing expectations on themselves to return to "normal" once they transitioned back to employment. Brey and Wolf (2015) found that unskilled workers felt less productive at work following stroke compared to their skilled working counterparts. Even though cognitive functioning limitations were not statistically significant, participants reported difficulties with short-term memory, focus, and attention once they returned to work. Previous studies have found individuals without cognitive impairment are more likely to RTW than those with cognitive impairments (Fride et al., 2015; Schulz et al., 2017; Westerlind et al., 2017). Physical health was also not statistically significant with RTW, but participants expressed the impact physical impairments had on their employment status. Some participants were unable to RTW due to weakness and/or paralysis, while others were able to return to their

previous jobs but in different roles. Previous studies have found that individuals with moderate to severe limb paralysis did not RTW (Aarnio et al., 2018; Doucet et al., 2012).

Home, Community, and Society

The quantitative analysis showed no statistically significant difference between the home, community, and society domain and current employment status between those who RTW and those who did not. However, participants reported support outside of work (family, faith, and community) and rehabilitation as facilitators to RTW. Support was a recurring theme for participants, but having a support system outside of work was credited as one of the biggest motivating factors in stroke recovery. This is consistent with previous literature that found that successful RTW occurred more often with married individuals, with lower levels of loneliness, and better emotional support (Doucet et al., 2012; Han et al., 2019; Wong et al., 2019). Participation in stroke rehabilitation was identified as a facilitator to RTW, but varied across participants. Some individuals had formalized therapy plans, while others did not. Hellman et al. (2016) found in interviews with stroke survivors, employers, and rehabilitation professionals that there is a need to assess work ability during rehabilitation and the RTW process.

Implications

This section illustrates how this study could inform future research, clinical practice, and policy.

Future Research

This study's findings suggested significant differences with current employment status and worker well-being indices. Previous studies have not fully assessed work-related factors that may facilitate or hinder the RTW process among African American stroke survivors. More research should be done to address employer perspectives with the return-to-work process. Previous research has indicated that stroke severity and functional disability are associated with RTW. Since the current study did not examine associations with stroke severity, disability, and work-related factors, future research may examine the associations in this sample.

Clinical Practice

This study illustrated the impact of stroke rehabilitation as a facilitator to RTW. Findings from this study suggest that participation in rehabilitation benefits individuals as they transition back to employment. Previous research has suggested the need for assessment of work ability during the RTW process. During inpatient care and following discharge, stroke survivors should receive appropriate therapy referrals for speech, occupational, and vocational rehabilitation. Mental distress was also reported among RTW and non-RTW groups. Healthcare professionals in outpatient settings (e.g., primary care) should assess for the presence of mental health disorders (e.g., anxiety and depression) following a stroke and implement strategies to manage these conditions.

Policy

This study yielded several policy implications, including the need for referral guidelines for stroke rehabilitation and the availability of return-to-work programs. Individuals discharged home following inpatient hospitalization have two options for rehabilitation, home healthcare agency (HHCA) or outpatient offices and clinics. To receive services from the HHCA, individuals must be certified as being homebound by a physician (Winstein et al., 2016). A challenge for stroke survivors is maintaining continuity of care when discharged from acute care to a community setting (Winstein et al., 2016). Setting guidelines for an outpatient referral will ensure that all individuals receive the care they need and are not lost to follow-up. This will result in individuals receiving appropriate treatment that may be necessary to make improvements in their stroke recovery (e.g., rehabilitation, counseling). Requiring organizations to develop return-to-work programs will benefit stroke survivors, as well as other individuals who may take leaves of absence related to chronic medical conditions or injuries. These programs will be able to provide guidelines for employees to have accommodations or work in a limited capacity until they can resume regular duties. This would help individuals as they transition back into employment.

Limitations

There were several limitations identified in the dissertation study. The study sample size was small (n = 31). The timing of the study coincided with the Covid-19 pandemic, which affected recruitment and data collection methods. Recruitment had to be

expanded from the outpatient rehabilitation stroke clinic due to appointment cancellations and clinic no-shows. Convenience sampling was used for the quantitative phase, which has a high risk for sampling bias and limits representativeness. The quantitative phase was restricted to using self-reported data and no objective measures, such as stroke severity and functional disability. Using self-reported data has a risk for recall and external bias. The quantitative phase also used a newer survey instrument that had not been validated in the study population. The qualitative sample was based on participants who were willing to be interviewed, which caused an unequal number of participants in RTW and non-RTW groups for follow-up. All interviews were conducted either virtually using Zoom or on the telephone. Study findings are not generalizable and limited to study participants.

Strengths

First, the researcher was trained to conduct this study due to having completed multiple mixed methods research classes. For the quantitative phase of the study, the WellBQ was an instrument previously validated in other populations. For the qualitative phase of the study, credibility and trustworthiness were ensured through triangulation, member checking, disconfirming evidence, and peer review/external check. Written transcriptions were shared with participants for review and verification. Also, major themes were shared with participants to ensure they are reflective of their experiences (Creswell & Plano Clark, 2018). Data were also shared with colleagues familiar with return to work among stroke survivors for review and feedback (Creswell & Plano Clark,

2018; Creswell & Poth, 2018). Participants were informed of all data collection methods and research objectives. Data interpretation will be made available to participants.

The critical appraisal framework for quality (O'Cathain, 2010) was used to ensure validity of the meta-inferences drawn from this study. Using an explanatory sequential mixed methods design was justified based on the study aims and research questions. Quantitative and qualitative standards were adhered to with regard to sampling, data collection, and analysis. The integration plan was appropriate for the study design. Theoretical consistency was ensured due to the study being guided by a conceptual framework and findings being compared with the current state of the science. Interpretive efficacy was used to help synthesize the inferences gathered from the quantitative and qualitative strands of the study. Lastly, a joint display was used to assist with the mixed methods analysis of the quantitative and qualitative results and to draw integrated conclusions.

Conclusion

This study is the first mixed methods study to explore associations of the worker well-being indices of the NIOSH Worker Well-Being Framework with current employment status and identifying barriers and facilitators of the RTW process for African American stroke survivors. This study's findings can inform research, clinical practice, and policy development. Future research and interventions based on this study could potentially lead to improved RTW rates for African American stroke survivors.

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APPENDIX A

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH WORKER WELL-BEING QUESTIONNAIRE (WELLBQ)

National Institute for Occupational Safety and Health
Worker Well-Being Questionnaire
(NIOSH WellBQ)
Version 1

Welcome! Thank you for agreeing to fill out the National Institute for Occupational Safety and Health Worker Well-Being Questionnaire, which is known as the NIOSH WellBQ. This survey asks about aspects of your job and workplace, your health, and your life outside of work. The information will help provide a better understanding of how workers in your organization are doing and identify ways to improve worker well-being.

You can choose not to participate. On any question, you can choose not to give an answer. There are no right or wrong answers. Just base your answers on what you think. Some questions might not apply to your situation. In these cases, you can choose "Does not apply" if it is one of the answer choices. Please try to complete the survey in one sitting. It will take about 15 minutes to complete.

If you have more than one job, please answer questions as they apply to your *main* job.

NIOSH WellBQ

The questions in this section ask how you feel about different aspects of your job. If you have more than one job, please answer questions as they apply to your *main* job.

Q1. Overall, I am ___ with my job.

- ☐ Not at all satisfied
- ☐ Not too satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied

Q2. I am ___ with my wages.

- ☐ Not at all satisfied
- ☐ Not too satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied

Q3. I am ___ with the benefits provided by my employer.

- ☐ Not at all satisfied
- ☐ Not too satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied
- ☐ Does not apply

Q4. I am ___ with my chances for advancement on the job.

- ☐ Not at all satisfied
- ☐ Not too satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied

Q5. I can count on my supervisor for support when I need it.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q6. I can count on my coworkers for support when I need it.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q7. I feel my job is secure.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q8. I am given a lot of freedom to decide how to do my own work.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q9. I never seem to have enough time to get everything done on my job.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q10. The work I do is meaningful to me.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q11. The work I do serves a greater purpose.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q12. How often do you experience these feelings when you are working?

	Never	Almost never (a few times a year or less)	Rarely (once a month or less)	Sometimes (a few times a month)	Often (once a week)	Very often (a few times a week)	Always (every day)
A. Enthusiastic							
B. Energetic							
C. Content							
D. At ease							
E. Anxious							
F. Angry							
G. Gloomy							
H. Discouraged							

Q13. How often do you experience fatigue when you are working?

- ☐ Never
- ☐ Almost never (a few times a year or less)
- ☐ Rarely (once a month or less)
- ☐ Sometimes (a few times a month)
- ☐ Often (once a week)
- ☐ Very often (a few times a week)
- ☐ Always (every day)

Q14. My work inspires me.

- ☐ Never
- ☐ Almost never (a few times a year or less)
- ☐ Rarely (once a month or less)
- ☐ Sometimes (a few times a month)
- ☐ Often (once a week)
- ☐ Very often (a few times a week)
- ☐ Always (every day)

Q15. I am immersed in my work.

- ☐ Never
- ☐ Almost never (a few times a year or less)
- ☐ Rarely (once a month or less)
- ☐ Sometimes (a few times a month)
- ☐ Often (once a week)
- ☐ Very often (a few times a week)
- ☐ Always (every day)

Q16. When I get up in the morning, I feel like going to work.

- ☐ Never
- ☐ Almost never (a few times a year or less)
- ☐ Rarely (once a month or less)
- ☐ Sometimes (a few times a month)
- ☐ Often (once a week)
- ☐ Very often (a few times a week)
- ☐ Always (every day)

The questions in this section ask how you feel about your organization and about benefits and health programs available at work. If you have more than one job, please answer questions as they apply to your *main* job.

Q17. At my organization, I am treated with respect.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q18. My organization values my contributions.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q19. My organization cares about my general satisfaction at work.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q20. My organization is willing to extend resources in order to help me perform my job to the best of my ability.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q21. I receive recognition for a job well done.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q22. I trust the management at my organization.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q23. My organization is committed to employee health and well-being.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q24. My organization encourages me and provides opportunities to engage in healthy behaviors, such as being physically active, eating a healthy diet, living tobacco free, and managing my stress.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

Q25. Are the following benefits offered by your employer?

	Yes	No	Don't know	Does not apply
A. Health insurance				
B. Assistance with education/tuition				
C. Retirement (employer contributions to retirement savings)				
D. Paid maternity leave				
E. Paid paternity leave				
F. Paid sick leave				
G. Other paid caregiving leave (for example, to care for sick family members)				
H. Paid disability leave				
I. Paid vacation days				
J. Other paid leave (for example, bereavement, emergency, jury duty)				
K. Ability to take unpaid leave				
L. Transit options (such as help with transportation to and from work)				
M. On-site medical care				
N. Employee assistance programs (such as programs that help workers with personal or work-related problems)				

Q26. Are the following health and wellness programs or services available to you at the place where you work?

	Yes	No	Don't know	Does not apply
A. Health education and promotion programs (wellness programs)				
B. On-site fitness centers or gym membership discounts (includes a gym and/or space for group classes)				
C. Common spaces or activity hubs (areas for group activities, such as socializing, exercise classes, etc.)				
D. Smoking cessation programs				
E. Alcohol and substance programs				
F. Stress management programs				
G. Access to healthy lunch and snack options				

Q27. How often do the demands of your job interfere with your personal life?

- ☐ Never
- ☐ Almost never (a few times a year or less)
- ☐ Rarely (once a month or less)
- ☐ Sometimes (a few times a month)
- ☐ Often (once a week)
- ☐ Very often (a few times a week)
- ☐ Always (every day)

Q28. How often do the demands of your personal life interfere with your work on the job?

- ☐ Never
- ☐ Almost never (a few times a year or less)
- ☐ Rarely (once a month or less)
- ☐ Sometimes (a few times a month)
- ☐ Often (once a week)
- ☐ Very often (a few times a week)
- ☐ Always (every day)

Q29. I have the freedom to vary my work schedule.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q30. I have the freedom to work wherever is best for me—either at home or at my organization.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree
- ☐ Does not apply

The questions in this section ask about physical characteristics of your work environment and safety conditions where you work. If you have more than one job, please answer questions as they apply to your *main* job.

Q31. Overall, how safe do you think your workplace is?

- ☐ Very unsafe
- ☐ Somewhat unsafe
- ☐ Somewhat safe
- ☐ Very safe

Q32. Please indicate how much you agree or disagree with each of the following statements about safety practices at your workplace.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Does not apply
A. Management reacts quickly to solve the problem when told about safety hazards.					
B. Management insists on thorough and regular safety audits and inspections.					
C. Management provides all the equipment needed to do the job safely.					
D. Management invests a lot of time and money in safety training for workers.					
E. Management listens carefully to workers' ideas about improving safety.					
F. Management gives safety personnel the power they need to do their job.					

Q33. On my present job, this is how I feel about the following topics:

	Not all satified	Not too satisfied	Somewhat satisfied	Very satisfied
A. The environmental conditions (heating, lighting, ventilation, etc.)				
B. The physical surroundings (for example, building infrastructure, work area layout, design)				
C. The pleasantness of the work environment				

Q33D. The accommodations for disabilities and/or special needs (wheelchair ramps, lactation rooms, etc.)

- ☐ Not at all satisfied
- ☐ Not too satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied
- ☐ Does not apply

Q34. I feel discriminated against in my job because of my age.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q35. I feel discriminated against in my job because of my race or ethnic origin.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q36. I feel discriminated against in my job because of my gender.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Somewhat agree
- ☐ Strongly agree

Q37. In the past 12 months, were you sexually harassed by anyone while you were on the job?

- ☐ Yes
- ☐ No

Q38. In the past 12 months, were you exposed to physical violence while you were on the job?

- ☐ Yes
- ☐ No

Q39. In the past 12 months, were you bullied, threatened, or harassed in any other way by anyone while you were on the job?

- ☐ Yes
- ☐ No

Q40. In the past 12 months, have you been in a situation where any of your superiors or coworkers put you down or were condescending to you, made demeaning remarks about you, or addressed you in unprofessional terms?

- ☐ Yes
- ☐ No
- ☐ Does not apply

The questions in this section ask about your physical and mental health and health-related behaviors.

Q41. Would you say that in general, your health is poor, fair, good, very good, or excellent?

- ☐ Poor
- ☐ Fair
- ☐ Good
- ☐ Very good
- ☐ Excellent

Q42. Now, thinking about your physical health, which includes physical illness and injury, during the past 30 days, for how many days was your physical health not good?

Enter number of days (0–30) ☐

Q43. Have you ever had any of the following?

	Never	In the past	Have currently
A. Arthritis			
B. Other musculoskeletal disorders (for example, back pain, neck pain, other pain)			
C. Asthma			
D. Lung disease, other than asthma (for example, chronic obstructive pulmonary disease [COPD], chronic bronchitis, emphysema)			
E. Cancer			
F. Depression			
G. Diabetes			
H. Heart disease			
I. High blood pressure			

Q44. Have you ever had chronic insomnia?

- ☐ Never
- ☐ In the past
- ☐ Have currently

Q45. Now, thinking about your mental health, which includes stress, depression, anxiety, and problems with emotions, during the past 30 days, for how many days was your mental health not good?

Enter number of days (0–30) ☐

Q46. How often do you experience stress with regard to the following topics?

	Never	Almost never (a few time a year or less)	Rarely (once a month or less)	Sometimes (a few times a month)	Often (once a week)	Very often (a few times a week)	Always (every day)
A. Your health							
B. Your finances							
C. Your family or social relationships							
D. Your work							

Q47. Over the last 2 weeks, how often have you been bothered by feeling down, depressed, or hopeless?

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Q48. Over the last 2 weeks, how often have you been bothered by little interest or pleasure in doing things?

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Q49. Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious, or on edge?

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Q50. Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Q51. In a typical week, how many days do you get at least 20 minutes of *high intensity* physical activity? (High intensity activity lasts at least 10 minutes and increases your heart rate, makes you sweat, and may make you feel out of breath; examples are running, fast cycling, and strenuous, continuous lifting of heavy objects.)

Enter number of days (0–7) ☐

Q52. In a typical week, how many days do you get at least 30 minutes of *moderate intensity* physical activity? (Moderate intensity activity lasts at least 10 minutes and requires more effort than is needed for typical everyday tasks; examples are brisk walking, gardening, and continuous lifting of light objects.)

Enter number of days (0–7) ☐

Q53. Do you use any of the following tobacco products?

	Never	Not anymore	Somedays	Daily
A. Cigarettes				
B. Cigars				
C. Pipes				
D. Smokeless tobacco				
E. Electronic cigarettes				

Q54. How many drinks of alcoholic beverages do you have in a typical week? (One drink = one beer, glass of wine, shot of liquor, or mixed drink.)

Enter number of drinks ☐

Q55. During the past year, how often have you had more than four drinks if you are a male, or more than three drinks if you are a female, on any single day? (One drink = one beer, glass of wine, shot of liquor, or mixed drink.)

- ☐ Never
- ☐ Once (1 day)
- ☐ A few times (2 or 3 days)
- ☐ Often (more than 3 days)

Q56. Think of the foods that are a part of your normal diet. How many servings of fruits and vegetables do you eat in a normal day?

(One serving is any of the following: 1 cup raw leafy greens [about the size of a small fist]; 1/2 cup of other vegetables [cooked or raw]; 1 medium piece of fruit [about the size of a baseball]; 1/2 cup chopped, cooked, or canned fruit; or 3/4 cup vegetable or fruit juice.)

- ☐ Less than 1 serving
- ☐ 1 serving
- ☐ 2 servings
- ☐ 3 servings
- ☐ 4 servings
- ☐ 5 or more servings

Q57. How many hours of sleep do you usually get at night? If you are a shift worker, how many hours of sleep do you get a day?

- ☐ 6 or fewer hours
- ☐ 7 hours
- ☐ 8 hours
- ☐ 9 or more hours

Q58. In the past 7 days, how often have you felt sleepy while at work?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Usually
- ☐ Always

Q59. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Extremely
- ☐ Does not apply/do not have condition

Q60. Are you limited in the kind or amount of work you can do because of a physical, mental, or emotional problem?

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Extremely
- ☐ Does not apply/do not have problem

Q61. In the past month...

	Never	Almost never (one time a month)	Rarely (once a week or less)	Sometimes (a few times a week)	Often (once a day)	Very often (a few times a day)	Always (every hour)
A. How often did you not concentrate enough on your work?							
B. How often did you find yourself not working as carefully as you should?							
C. How often did you not work at times when you were supposed to be working?							
D. How often did you get less done than other workers?							

Q62. During the past 12 months, did you experience any work-related injuries?

- ☐ Yes
- ☐ No

Q63. If you experienced any work-related injuries in the past 12 months, did any of them require any first aid or medical treatment, change in job activities, or lost time from work?

- ☐ Yes
- ☐ No
- ☐ Does not apply/was not injured in the past 12 months

The questions in this section ask about your experiences, feelings, and activities outside of work.

Q64. In general, how satisfied are you with your life?

- ☐ Not at all satisfied
- ☐ Not too satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied

Q65. How worried are you right now about not being able to maintain the standard of living you enjoy?

- ☐ Not worried at all
- ☐ Not too worried
- ☐ Moderately worried
- ☐ Very worried

Q66. How worried are you right now about not having enough income to pay your normal monthly bills?

- ☐ Not worried at all
- ☐ Not too worried
- ☐ Moderately worried
- ☐ Very worried

Q67. How often do you get the social and emotional support you need from friends, family, or others outside of work?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Always

Q68. In general, how often do you take part in any of the following activities outside of work?

	Never	Almost never (A few times a year or less)	Rarely (Once a month or less)	Sometimes (A few times a month)	Often (Once a week)	Very often (A few times a week)	Always (Every day)	Does not apply
A. Voluntary or charitable activities								
B. Domestic caregiving activities (for example, children, elderly or disabled relatives/ friends, but not in a volunteer or charity setting)								
C. Home maintenance tasks (for example, cooking, cleaning, repairs)								
D. Socializing with friends, family, others								
E. Taking training or education courses								
F. Sporting, cultural, or leisure activities								
G. Relaxation or planned solitary activities								

You have completed the NIOSH WellBQ. Thank you for your time!

Optional Items

The questions in this section ask about your current working arrangements, occupation, and the industrial sector in which you are working. If you have more than one job, please answer questions as they apply to your *main* job.

E1. How would you describe your work arrangement in your job?

- ☐ I am an independent contractor, an independent consultant, or a freelance worker.
- ☐ I am on call and work only when called to work.
- ☐ I am paid by a temporary agency.
- ☐ I work for a contractor who provides workers and services to others under contract.
- ☐ I am a regular, permanent employee.

E2. Is your job full-time or part-time?

- ☐ Full-time
- ☐ Part-time

E3. How long have you worked in your job?

- ☐ Less than 1 year
- ☐ 1–5 years
- ☐ 6–10 years
- ☐ 10–20 years
- ☐ More than 20 years

E4. Select the occupation that best describes the kind of work you do in your job.

- ☐ Architecture and Engineering
- ☐ Arts, Design, Entertainment, Sports, and Media
- ☐ Building and Grounds Cleaning and Maintenance
- ☐ Business and Financial Operations
- ☐ Computer and Mathematical
- ☐ Community and Social Service
- ☐ Construction and Extraction
- ☐ Education Instruction and Library
- ☐ Farming, Fishing, and Forestry
- ☐ Food Preparation and Serving Related
- ☐ Healthcare Practitioners and Technical
- ☐ Healthcare Support
- ☐ Installation, Maintenance, and Repair
- ☐ Legal
- ☐ Life, Physical, and Social Science
- ☐ Management
- ☐ Material Moving
- ☐ Military Specific
- ☐ Office and Administrative Support
- ☐ Personal Care and Service
- ☐ Production
- ☐ Protective Service
- ☐ Sales and Related
- ☐ Transportation
- ☐ Other (Please specify): _____

E5. Select the kind of industry or business you work in for your job.

- ☐ Arts, Entertainment, and Recreation
- ☐ Accommodation and Food Services
- ☐ Administrative and Support and Waste Management
- ☐ Agriculture, Forestry, Fishing, and Hunting
- ☐ Construction
- ☐ Educational Services
- ☐ Finance and Insurance
- ☐ Health Care and Social Assistance
- ☐ Information
- ☐ Management of Companies and Enterprises
- ☐ Manufacturing
- ☐ Military
- ☐ Mining, Quarrying, and Oil and Gas Extraction
- ☐ Other Services, Except Public Administration
- ☐ Public Administration
- ☐ Professional, Scientific, and Technical Services
- ☐ Real Estate and Rental and Leasing
- ☐ Retail Trade
- ☐ Transportation and Warehousing
- ☐ Utilities
- ☐ Wholesale Trade
- ☐ Other (Please specify): _____

The questions in this section ask for basic information about yourself.

D1. What is your age?

- ☐ 18–29
- ☐ 30–44
- ☐ 45–64
- ☐ 65 and older

D2. What is the highest level of school you have completed or the highest degree you have received?

- ☐ Less than high school
- ☐ High school/GED
- ☐ Some college
- ☐ Bachelor's degree or higher

D3. Do you consider yourself to be Hispanic or Latino?

- ☐ Yes
- ☐ No
- ☐ Refused
- ☐ Don't know

D4. What race or races do you consider yourself to be? Please select one or more of these categories.

- ☐ White
- ☐ Black/African American
- ☐ American Indian
- ☐ Alaska Native
- ☐ Native Hawaiian
- ☐ Other Pacific Islander
- ☐ Asian
- ☐ Some other race
- ☐ Refused
- ☐ Don't know

D5. Are you male or female?

- ☐ Male
- ☐ Female
- ☐ Refused
- ☐ Don't know

D6. Do you think of yourself as gay/lesbian or gay; straight, that is, not gay/lesbian; bisexual; something else; or you don't know the answer?

- ☐ Gay/lesbian
- ☐ Straight, that is, not gay/lesbian
- ☐ Bisexual
- ☐ Something else
- ☐ I don't know the answer
- ☐ Refused
- ☐ Don't know

D7. What was your entire household income last year, before taxes?

- ☐ <$20,000
- ☐ $20,000 to $34,999
- ☐ $35,000 to $49,999
- ☐ $50,000 to $74,999
- ☐ $75,000 to $99,999
- ☐ $100,000 to $149,999
- ☐ $150,000 to $199,999
- ☐ $200,000 or more

D8. Are you the head of your household?

- ☐ Yes
- ☐ No

D9. What is your current marital status?

- ☐ Married or living with partner
- ☐ Widowed
- ☐ Divorced
- ☐ Separated
- ☐ Never married

D10. How many dependents currently live in your household? Please enter the total number in each age category.

Total number of household members age 0 to 5 ☐

Total number of household members age 6 to 12 ☐

Total number of household members age 13 to 17 ☐

Total number of household members age 18 or older ☐

APPENDIX B

INTERVIEW GUIDE

Introduction

Thank you for agreeing to speak with me today. Before we get started, I want to inform you that everything we discuss today will be recorded, unless you request otherwise. The purpose of this study is to understand the experiences of individuals as they re-enter the workforce following a stroke. I will be taking notes during the interview. Audio recordings will be transcribed word for word and shared with you for accuracy and reviewed by the researchers involved in this study. A pseudonym will be used instead of your name to protect your identity. You may skip questions that you do not want to answer or end the interview at any time. Do you have any questions for me?

Initial Questions

1. Tell me about your current employment.

Probing Questions

1a. Tell me about your current job. What are your duties?

1b. Are you working at the same place as before your stroke?

1c. When did you start working again after your stroke?

1d. Are you currently looking for employment?

1e. How has COVID-19 (coronavirus) impacted your employment?

2. What does work mean to you?

3. How has the stroke changed the way you function daily?

Returned to Work:

1. Please describe your experience with returning to work after your stroke.

   Probing Questions

      1a. Please describe your first day at work.

      1b. What did you feel?

      1c. How difficult or easy was it for you that day?

2. When you had your stroke, what expectations did you have regarding returning to work?

   Probing Question

      2a. How were those expectations met or not met?

3. Let's talk about the factors that helped you return to work. What helped you most? What helped you least?

4. How do you cope with difficulties at work?

Probing Question

   4a. Can you provide some examples?

5. Talk to me about what support you receive at work.

Probing Questions

   5a. What type of support?

   5b. Who provides this support?

5c. How often do you receive support?

5d. In what situations do you receive support?

6. What adjustments have been made at work for your specific role?

Probing Question

6a. Can you provide some examples?

7. When you think about the next 5-10 years, how do you feel about your work situation?

8. Is there anything you would like to add that wasn't discussed?

<u>Did Not Return to Work:</u>

1. When you had your stroke, what expectations did you have regarding returning to work?

   Probing Question

   1a. How were those expectations met or not met?

2. Let's talk about the factors that hindered you in returning to work. How did you overcome those difficulties?

3. How do you cope with difficulties of not working?

Probing Question

3a. Can you provide some examples?

4. Talk to me about how you receive support.

Probing Questions

4a. What type of support?

4b. Who provides this support?

4c. How often do you receive support?

4d. In what situations do you receive support?

5. When you think about the next 5-10 years, how do you feel about your work situation?

6. Is there anything you would like to add that wasn't discussed?

APPENDIX C

SITE PERMISSION LETTER

UAB SCHOOL OF MEDICINE

Department of Physical Medicine and Rehabilitation

April 20, 2021

To: UAB Office of Institutional Review Board
AB 470
1720 2nd Avenue South
Birmingham, AL 35294-0104

FROM: Department of Physical Medicine and Rehabilitation
SRC Outpt Clinic

Please let this letter serve as verification that the Department of Physical Medicine and Rehabilitation supports Kristin D. Ashley, MSN, RN, CNE recruiting participants from our Outpatient Stroke Clinic, at Spain Rehabilitation for her study "A Mixed Methods Study Examining Factors Affecting Return to Work Among African American Stroke Survivors." Ms. Ashley will be supervised during her visits and throughout the study by Dr. Xiaohua Zhou. Dr. Zhou is a respected Associate Professor with our department and has been with us for many years. Dr. Zhou has supervised/mentored many trainees over the years and has been active with numerous research projects.

The purpose of this study is to identify that affect return to work for African American stroke survivors. Ms. Ashley will speak to potential participants during their follow-up visits. If they consent to participate, she will collect data regarding demographics, stroke severity, and functional disability. She will also select some individuals to participate in follow-up interviews.

Dr. Zhou has been over our PM&R Stroke Service for many years, so she is an excellent collaborator for this project and patient population.

If you have any questions or need any additional information please feel free to reach out to our office at 205-934-3450.

Sincerely,

Stephanie Walters

Stephanie Walters
Personnel Generalist
Department of PM&R
University of Alabama at Birmingham

The University of Alabama at Birmingham
SRC 190 • 1717 6th Avenue South
Birmingham, Alabama 35233• (205) 934-3450

APPENDIX D

INSTITUTIONAL REVIEW BOARD MATERIALS

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

470 Administration Building
701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 |
irb@uab.edu

APPROVAL LETTER

TO: Ashley, Kristin D

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance # FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)
IORG Registration # IRB00012550 (IRB 03)

DATE: 15-Jul-2021

RE: IRB-300007196
IRB-300007196-003
A Mixed Methods Study Examining Factors Affecting Return to Work Among African American Stroke Survivors

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The IRB reviewed and approved the Initial Application submitted on 06-Jul-2021 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

Type of Review:	Expedited
Expedited Categories:	6, 7
Determination:	Approved
Approval Date:	15-Jul-2021
Approval Period:	Expedited Status Update (ESU)
Expiration Date:	14-Jul-2024

Although annual continuing review is not required for this project, the principal investigator is still responsible for (1) obtaining IRB approval for any modifications before implementing those changes except when necessary to eliminate apparent immediate hazards to the subject, and (2) submitting reportable problems to the IRB. Please see the IRB Guidebook for more information on these topics.

The following apply to this project related to informed consent and/or assent:

- Waiver of 24 Hour Waiting Period

Documents Included in Review:

- IRB EPORTFOLIO
- IRB PERSONNEL EFORM

To access stamped consent/assent forms (full and expedited protocols only) and/or other approved documents:
1. Open your protocol in IRAP.
2. On the Submissions page, open the submission corresponding to this approval letter. NOTE: The Determination for the submission will be "Approved."
3. In the list of documents, select and download the desired approved documents. The stamped consent/assent form(s) will be listed with a category of Consent/Assent Document (CF, AF, Info Sheet, Phone Script, etc.)

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

470 Administration Building
701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 |
irb@uab.edu

APPROVAL LETTER

TO: Ashley, Kristin D

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance # FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)
IORG Registration # IRB00012550 (IRB 03)

DATE: 31-Oct-2021

RE: IRB-300007196
IRB-300007196-005
A Mixed Methods Study Examining Factors Affecting Return to Work Among African American Stroke Survivors

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The IRB reviewed and approved the Revision/Amendment submitted on 11-Oct-2021 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

Type of Review:	Expedited
Expedited Categories:	6, 7
Determination:	Approved
Approval Date:	31-Oct-2021
Expiration Date:	30-Oct-2024

Although annual continuing review is not required for this project, the principal investigator is still responsible for (1) obtaining IRB approval for any modifications before implementing those changes except when necessary to eliminate apparent immediate hazards to the subject, and (2) submitting reportable problems to the IRB. Please see the IRB Guidebook for more information on these topics.

The following apply to this project related to informed consent and/or assent:

- Waiver (Partial) of HIPAA
- Waiver of 24 Hour Waiting Period

Documents Included in Review:

- IRB EPORTFOLIO

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APPROVAL LETTER

TO: Ashley, Kristin D

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance # FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)
IORG Registration # IRB00012550 (IRB 03)

DATE: 22-Feb-2022

RE: IRB-300007196
IRB-300007196-006
A Mixed Methods Study Examining Factors Affecting Return to Work Among African American Stroke Survivors

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The IRB reviewed and approved the Revision/Amendment submitted on 08-Feb-2022 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

Type of Review:	Expedited
Expedited Categories:	6, 7
Determination:	Approved
Approval Date:	22-Feb-2022
Expiration Date:	21-Feb-2025

Although annual continuing review is not required for this project, the principal investigator is still responsible for (1) obtaining IRB approval for any modifications before implementing those changes except when necessary to eliminate apparent immediate hazards to the subject, and (2) submitting reportable problems to the IRB. Please see the IRB Guidebook for more information on these topics.

The following apply to this project related to informed consent and/or assent:

- Waiver (Partial) of HIPAA
- Waiver of 24 Hour Waiting Period

Documents Included in Review:

- IRB EPORTFOLIO

To access stamped consent/assent forms (full and expedited protocols only) and/or other approved documents:
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