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Improving Healthcare Workers' Knowledge About the Influence of Social Determinants in Black Americans with Congestive Heart Failure: A Quality Improvement Project

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SOCIAL DETERMINANTS IN BLACK AMERICANS WITH CONGESTIVE HEART FAILURE

Improving Healthcare Workers' Knowledge About the Influence of Social Determinants in Black Americans with Congestive Heart Failure: A Quality Improvement Project

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Abstract

Congestive heart failure in Black Americans is a significant public health issue that affects 1 in 100 black men and women before the age of 50. The higher incidence of heart failure among Black Americans has become a persistent concern. The progressive social neighborhood deprivation is one of the primary factors contributing to the existing problem (Patel et al., 2020). The purpose of this quality improvement project was to improve healthcare clinicians' knowledge of the influence of social determinants on Black Americans with congestive heart failure (CHF) at an outpatient clinic in West Palm Beach, Florida. A quantitative, cross sectional, pre and post-test design was used to conduct this project. Convenience sampling technique was utilized to recruit $N = 7$ participants and access data at a clinic in West Palm Beach, Florida. The project, including the research-based educational intervention, was conducted remotely and participants completed demographic, pre-, and posttest surveys using Qualtrics and the "What do you really know about the social determinants of health" quiz to assess their knowledge of awareness of the influence of social determinants on Black Americans with congestive heart failure. Results revealed a significant difference between pretest and posttest mean scores, with participants attaining higher scores on the posttest after the educational intervention, t (11) = 4.7685, with a p= 0.0006. Healthcare professionals should receive educational interventions in this area to improve the health outcomes in Black Americans with congestive heart failure.

Keywords: nursing research, congestive heart failure, social determinants, Black Americans

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Introduction

Social determinants of health include social, economic, and environmental circumstances of a person's birth, development, residence, employment, and aging, which may have an impact on their health outcomes and ability to receive healthcare (Tajeu et al., 2020). Social determinants of health have disproportionately affected communities of color, particularly Black communities, for quite some time. According to research, systematic racism makes it more probable for Black people to reside in less affluent areas with less social services, less access to wholesome foods, and a higher chance of being exposed to environmental toxins (Weinstein et al., 2017).

The two largest ethnic groups of American Blacks are African Americans and Caribbean Blacks. *African American* is used to refer to people who self-identify as Black but did not identify ancestral ties to the Caribbean. *Caribbean Blacks* are people who self-identified as Black and are of Indian or Caribbean descent. For example, Caribbean Blacks include persons in or from Haiti, Jamaica, and the Bahamas (Griffith et al., 2011). According to Griffith et al. (2011) Caribbean Blacks have a longer life expectancy and better self-rated than African Americans but that slowly begins to diminish the longer they live in the United States.

In comparison to the general population, African American patients have a 50% greater incidence of heart failure (HF), and they also have a higher chance of dying from congestive heart failure (CHF) than White patients do (Tilman, Makhlouf & Osae, 2019). Heart failure (HF) is the most common reason for hospitalization in people over the age of 65, accounting for 44% of all admissions. Black people over the age of 65 bear a disproportionate share of the burden, experiencing higher rates of avoidable hospitalization, 30-day rehospitalization, and 1-year rehospitalization than White people (Lo et al., 2018). The healthcare system, already under

pressure from one million heart failure patients, is further strained by these discrepancies in healthcare consumption. Evidence reveals that Blacks with congestive heart failure suffer from systematic and structural biases fueled by racism leading to clinical gaps in the management of their cardiovascular conditions. The lack of the timely and sufficient cardiac treatment for the specific races leads to all other consequences associated with worsening segregation, inequitable access, deaths, and ultimate formation of the negative beliefs about the cardiac services among particular patients (Eberly et al., 2019).

Heart failure is a very common illness that has a poor prognosis and a lot of morbidity. In addition to having a high and rising prevalence, people with heart failure also have a terrible prognosis, with more than half of them passing away within five years of their diagnosis (Centers for Disease Control and Prevention [CDC],2021). As a result, providing care for patients with heart failure costs the healthcare industry significantly. High readmission rates—almost 25% of patients with heart failure are readmitted within 30 days—increase the financial burden of heart failure (CDC,2021). Each year, heart disease costs the US economy 219 billion (CDC,2021). The expense of medical care, prescription drugs, and early mortality are all included in this total. The proposed topic for this DNP project was Improving Healthcare Workers' Knowledge about the Influence of Social Determinants on Black Americans with Congestive Heart Failure in an outpatient clinic in West Palm Beach, Florida.

Problem Statement

Problem Identification

Racial inequalities in healthcare are observed too frequently. It is well-known that Black individuals are at greater risk of congestive heart failure due to the combination of the genetic and social factors. The researchers indicate that the burden of the disease will reach 3.6% of the

African Americans (Nayak et al., 2020). Although it is well-known that the race is a meaningful factor influencing the cardiovascular disease burden the disparities remain longstanding. Patel et al. (2020) report that Black patients are more likely to reside in deprived census tracts compared to the White ones. They also have greater comorbidity scores and 6.4% higher 30-day heart failure readmission and even 30-day death (Patel et al., 2020). Thus, such patients deserve special attention from the healthcare providers. In contrast, they do not get enough support from the healthcare system. According to Eberly et al. (2019), the admission to cardiology is strongly influenced by race and the chances of the Black patients to be admitted are considerably lower compared to the White ones. Compared with White patients, African Americans are less likely to get the required heart failure medications in time, receive the effective device therapies and even fail to get the timely cardiologist consultation (Breathett et al., 2019). Although the insurance broadening had to increase the access to care and heart transplants among all ethnicities, the disparities are still present. Thus, inequitable quality of healthcare and structural racism become the barriers to the effective care for Black Americans.

Background

Hypertension is a prevalent condition worldwide and among the Black Americans in particular. The disorder represents several complex symptoms that are initially caused by the failures in the systemic blood circulation (Malik et al., 2022). It can vary according to the symptoms and fraction types but is always a cause for the decreased functional capacity and increased mortality risks (Malik et al., 2022). The higher incidence of heart failure among Black Americans has become a persistent concern. The progressive social neighborhood deprivation is one of the primary factors contributing to the existing problem (Patel et al., 2020). However, many more elements also prove to be important. Nayak et al. (2020) point out that the lower

level of the healthy lifestyle, obesity and hypertension are the major risk factors that predict higher heart failure incidence among the representatives of the selected group. However, the same researchers emphasize that only the difference in the vascular function is a physiological race-related peculiarity (Nayak et al., 2020). All other factors that increase the heart failure risks among the Black patients are modifiable. Higher diastolic blood pressure and body mass index, lower high-density lipoprotein, and cholesterol as well as kidney disease can be effectively managed but are not due to the persistent racial disparities in healthcare (Nayak et al., 2020). Thus, the timely prevention of heart failure could be possible if the healthcare providers provided the timely and effective response to African Americans.

Scope of the Problem

Congestive heart failure is a dangerous condition for various population groups. According to the forecasts, it will affect 3% of the American population by 2030 (Nayak et al., 2020). According to the other researchers, heart failure affects approximately 6.5 million Americans causing almost one million hospitalizations yearly (Patel et al, 2020). Unfortunately, the disease is not associated with the complete recovery. As complex state, it often causes readmissions or even deaths. Despite recently reported improvements in the statistical data, many patients die one year after heart failure hospitalization, and 25% of patients are readmitted to the hospital within one month (Patel et al, 2020). All in all, the problem is timely and relevant to a great number of people.

Consequences of the Problem

The costs of the problem are associated with the individual, community, and state-level expenses. On the individual level, the costs are associate not just with the financial expenses but the emotional challenges that the patients and their family members must face. Besides, the lack

of the timely and sufficient cardiac treatment for the specific races leads to all other consequences associated with worsening segregation, inequitable access, deaths, and ultimate formation of the negative beliefs about the cardiac services among the particular patients (Eberly et al., 2019). The risks of the complications deserve special attention. Decreased quality of life, poor functional capacity, weight loss, renal and liver dysfunction, valvular dysfunction, and ventricular arrhythmias become the common threats of heart failure (Malik et al., 2022). On the level of the community, the problem deserves special attention as one that is associated with the frequently reported heart failure problem and consequent relevant outcomes. With the high number of people with the heart failure, the levels of the community productivity are lower. With the structural and functional heart changes, such a disorder frequently leads to the necessity of the regular pharmacological expenses and consequently developed health problems such as renal failure, hypotension, and nosocomial infections (Malik et al., 2022).

However, in addition to the effective heart failure symptoms management, such a regular treatment is associated with the risks of the side effects. Besides, it does not prevent the potential comorbid conditions that can include obesity, diabetes, malignancies formation, and renal disease (Malik et al., 2022). The combined health problems are strongly associated with decreased effectiveness and lower level of well-being in general. Ultimately, with less productive population, the community is unlikely to prosper. On the national level, the mentioned problems are interpreted as the components decreasing the general economic and demographic indexes. Besides, they worsen the healthcare system achievements by means of increasing the healthcare costs by $30 billion annually (Patel et al, 2020). Thus, with the more effective solution of the discussed problem, these expenses could be decreased to ensure the better funding for some other promising areas.

Knowledge Gap

The researchers indicate that the problem of heart failure among the Blacks is multifactorial. Patel et al. (2020) emphasizes that higher burden of cardiovascular risk factors among the discussed group of patients is associate with the social determinants of health and frequently reported biases in the health care setting. Thus, it is desirable to understand which neighborhood characteristics are important when treating Black Americans with heart failure. Besides, the biases are reported among the racial minorities very frequently. Breathett et al. (2019) indicate that the search of the effective tactics that would reduce the decision-making biases in heart failure therapies is a timely concern. However, the specific analysis of the biases that are the most concerning when working with the Blacks and the potential approaches to address this group of people focusing on the specific challenges related to different regions should become a relevant and meaningful direction for the further studies. In addition, no specific plan for the bias elimination intervention focusing only on one racial group was found. Although the general data on the possible prejudice is widely available, it is highly recommended to focus on different racial groups separately to ensure that the most frequent biases among the specific groups are addressed in time and effectively.

Proposal Solution

The existence of any biases of the providers against the patients is pervasive and can lead to the sorrowful outcomes. The evidence prove that the cardiology service admission decisions are associated with numerous biases (Eberly et al., 2019). Prejudice and various other uncertainties often lead to disrupted perception of the clinical uncertainty or complexity cases, lack of sufficient attention to the comorbid conditions, incorrect priorities when making the

decisions in case of poor bed availability, lack of advocacy of the patient interests, patient preference and variable unfair decisions (Eberly et al., 2019). Such effects can be observed on different levels and among all members of the healthcare team. Thus, with the understanding that the congestive heart failure treatment requires the collaboration of the healthcare professionals, the intervention must also involve the education of all team members. Among such, the primary attention will be paid to the heart failure nurses, who directly communicate with the patients and the necessary lifestyle modifications, weigh management and other issues (Malik et al., 2022). Clinical pharmacists, primary care providers and cardiologists are also the valuable members of the team who must perceive the case of each patient clearly with no misbeliefs. With the biases within any agent of this team, the situation and the problems of the patient can be misperceived, thus, leading to inadequate treatment. In contrast, the possibility to avoid any biased decisions must become a key to the most effective patient-centered treatment. The purpose of this quality improvement project was to improve healthcare clinicians' knowledge of the influence of social determinants on Black Americans with congestive heart failure (CHF) at an outpatient clinic in West Palm Beach, Florida.

Advanced Literature Review

The proposed topic for this DNP project was Improving Healthcare Workers' Knowledge about the Influence of Social Determinants on Black Americans with Congestive Heart Failure. A review of the literature was conducted to identify disparities in the risks, treatments, and gaps in the management of Black Americans in the United States with congestive heart failure. An advanced search of articles from reputable databases to locate evidence related to the topic and project purpose was conducted using Google Scholar and PubMed. Several search terms were entered into the databases. These search terms comprised "congestive heart failure,"

"cardiovascular disease risks," "blacks," "African Americans," "disparities, "cardiac risk factors," "healthcare providers," and "management of cardiac heart failure." Only peer-reviewed journal articles with primary research evidence published from 2018 to 2023 related to the problem of congestive heart failure in African Americans as well as the related disparities were included. Selected articles were filtered into three content areas: disparities in Black Americans with congestive heart failure, increased cardiac risk factors in Blacks and clinical gaps among healthcare providers in the management of congestive heart failure in African Americans.

Disparities in Black Americans with Congestive Heart Failure in the U.S.

This section focuses on establishing existing disparities in Black Americans with congestive heart failure. Van Dyke et al. (2018) conducted a quantitative longitudinal study based on data collected from 1968 to 2015 to establish the historical perspective of disparities in death rates attributed to heart disease between Black and White Americans. This study retrieved death data attributed to heart diseases, such as heart failure, in all individuals who died from the age of 35 years and above. Van Dyke et al. (2018) used join point regression in modeling death rate trends linked to heart disease and Black-White mortality ratio trends over the study period. Findings from this study revealed significant disparities in heart disease death rates between African Americans and their White counterparts despite the two population groups recording significant reductions in mortality rates. For example, Whites experienced a reduction in death rates attributed to heart failure and other heart diseases from 1,032.3 to 326.3 between 1968 and 2015 per 100,000 Whites. Conversely, Blacks reported a reduction in heart disease-related deaths from 1,071.6 to 396.0 per 100,000 Blacks within the same period. To address these racial disparities, this study recommended continued surveillance of trends in death rates due to heart

disease by race as a strategy to generate valuable information for practitioners and policymakers to reduce the disparities and related death rates.

Tajeu et al. (2020) completed a quantitative prospective study to determine factors explaining the disparities in death rates due to cardiovascular diseases like congestive heart failure between White and Black Americans. A conveniently selected sample of 29,054 adults were recruited out of which 41.0% were non-Hispanic Blacks and the rest were Whites while 1,549 were recorded as cardiovascular deaths occurring during the study. Mediation analysis revealed that socioeconomic status contributed to 21.2% and 38.0% in the Black-White risk of cardiovascular death in younger adults below 65 years and older adults from 65 years and above, respectively. The higher rates of mortalities attributed to cardiovascular diseases in Blacks when compared to Whites were linked to racial differences in the presence of cardiovascular risk factors and poor socioeconomic status. As a result, this study recommended addressing modifiable risk factors for cardiovascular disease, including socioeconomic status in African Americans and other minority racial-ethnic populations.

In their observational cohort study, Cascino et al. (2023) determined the link between race in using ventricular assist devices and transplants in adult patients living with heart failure with access to care. The cohort of 377 patients with heart failure was selected through a purposive sampling technique after identifying as people of the White or Black race. The analysis of data was performed using measures of central tendency like the median, mean, and standard deviations for continuous variables compared to the use of univariable comparisons for categorical variables. This study found that 62 White participants (22%) received ventricular assist devices compared to 11 (11%) of Black counterparts despite death due to heart failure happening in 10% of the Blacks compared to only 13% of the Whites. Fundamentally, Black

patients were less likely to receive ventricular assist devices and transplants as well as other life-sustaining therapies for heart failure than their White colleagues. Consequently, this study recommended addressing inequities attributed to structural discrimination and racism or race-related bias in clinical decision-making.

Increased Cardiac Risk Factors in Black Americans in the U.S.

This section addresses the increased occurrence of cardiac risk factors in adults of the African race. Lawson et al. (2020) conducted a cross-sectional survey to determine disparities in risk factors attributed to different patient groups defined by their race, gender, and socioeconomic status. A purposively selected sample of 108,638 adult patients with heart failure was included in the study to collect data on available risk factors influenced by race among other factors before analysis using linear and logistic regression. Findings from this study revealed the presence of many risk factors for cardiac disease in people of the African race, including lower socioeconomic status and high poverty levels. Black people reported early experiences of heart failure nine years earlier than their White colleagues. When compared to Whites, Blacks had higher prevalence rates of diabetes mellitus, and hypertension, which are some of the major cardiac risk factors. To address disparities in cardiac risk factors, this study recommended contemporary tailored or customized prevention programs to reduce the probability of people from the Black race developing cardiovascular diseases, such as congestive heart failure.

Further, He et al. (2021) conducted a cross-sectional survey examining trends in the risk for cardiovascular diseases over a 20-year period in the U.S. population by socioeconomic and racial-ethnic status. In this study, 50,571 participants were recruited from the age of 20 years and above using a stratified, multistage probability sampling technique. Cardiac risk factors examined as variables for this study comprised a 10-year likelihood of atherosclerotic heart

disease and the presence of other cardiovascular risks. Linear regression was used in analyzing sex- and age-adjusted means while logistic regression was for testing trends and significance of cardiac risks as well as group differences. This study established disproportionately higher prevalence rates of cardiac risk factors in African Americans than in White Americans. Although total cholesterol was lower in Blacks than in Whites, African Americans reported higher prevalence rates of atherosclerotic disease risk and hypertension, all of which escalates the risk of developing heart failure, among other cardiovascular conditions. As such, this study recommended moderating the presence of cardiac risk factors in Blacks by improving social determinants of health.

That notwithstanding, Lopez-Neyman et al. (2022) conducted a cross-sectional survey to comprehensively examine and report the prevalence of cardiometabolic and cardiovascular risks in the United States based on race and ethnicity. A stratified, multistage probability sampling technique was utilized in recruiting 8,370 adults with a minimum of 20 years between 2011 and 2018 without cardiovascular disorders, such as heart attack, heart failure, and stroke. The analysis of the data was performed using means followed by pairwise comparisons to determine inter-group differences. Firstly, this study established that non-Hispanic Blacks had an 8.2% of ideal diet score, which is significantly lower than 20.9% for non-Hispanic Asians. Similarly, African Americans reported high rates of hypertension, greater body mass index, and smoking behaviors, all of which escalate the risk of developing cardiovascular complications like heart failure. Fundamentally, Blacks had a smoking rate of 23.8%, diabetes mellitus at 26.8%, obesity at 50.25%, and hypertension levels at 59.3% higher than non-Hispanic Asians. Based on this evidence, African Americans have the highest risk of developing cardiac complications, including congestive heart failure because of the increased occurrence of related risk factors.

This study recommended future programs and research to focus on reducing persisting differences and racial disparities in cardiovascular conditions to achieve ideal cardiovascular health.

Clinical Gaps Among Healthcare Providers in the Management of Black Americans with Congestive Heart Failure

This section focuses on clinical gaps in the management of congestive heart failure in Black Americans. According to Lopez-Neyman et al. (2022), Black men experience the highest rates of heart failure due to their race coupled with the greatest rates of patient mortalities when compared to other racial-ethnic populations. Unfortunately, these Blacks are less likely to receive device therapies and heart failure medications in addition to receiving other health services from cardiologists and other healthcare professionals (Breathett et al., 2019). Cascino et al. (2023) reiterates that most of Blacks with heart failure are unlikely to receive advanced therapies for this condition majorly because of their race and ethnicity. This evidence reveals that Blacks with congestive heart failure suffer from systematic and structural biases fueled by racism leading to clinical gaps in the management of their cardiovascular conditions.

Cascino et al. (2022) conducted a retrospective cohort study assessing inequities or disparities in outcomes and access for Black patients in addition to investigating the heterogeneity in care decisions, especially when healthcare providers have been given discretion as a more prominent role. A sample of 12,310 Medicare beneficiaries was selected if they were hospitalized between 2008 and 2014 with systolic heart failure with a 6-month continuous enrolment before admission. Logistic regression models were effectively used by Cascino et al. (2022) to assess the relationship between sex and race with left ventricular assist devices (LVAD) use after adjusting for social determinants of health and clinical characteristics, among

other factors. This study established that Black Medicare beneficiaries in the United States were 3.0% less likely to receive LVAD than their White counterparts with high levels of poverty complicated by neighborhood deprivation worsening the probability of missing LVAD even when it is indicated. The clinical gap in managing heart failure was attributed to differences in clinician decision-making due to implicit bias, discrimination, and systemic racism. This evidence reveals the likelihood of missed care by nurses because of the racism and discrimination towards Blacks when seeking and receiving quality health services for congestive heart failure. This study recommended measures to reduce implicit bias and systemic racism, such as implicit bias training to persistently address inequalities or disparities in accessing and receiving LVADs and other health services in patients with heart failure.

Further, Breathett et al. (2019) conducted a mixed methods approach to determine whether the race of a patient affects provider allocation of therapies for heart failure. In this study, a sample of 44 healthcare professionals participating in the process of making decisions for advanced heart failure therapies was selected through a snowball sampling technique. This sample was subjected to interviews for qualitative data collection and grounded theory. Another sample of 1,432 participants was recruited to complete the Likert scale survey to collect quantitative data rating factors for the allocation of advanced therapy. For quantitative data, t-tests were utilized in comparing outcome results by the race of patients. This study found that the race of a patient affected decision-making for advanced therapies for heart failure with Blacks experiencing a reduced likelihood of allocation for these treatments. Healthcare professionals were less likely to recommend a heart transplant and other advanced heart therapies to Black patients when compared to their white counterparts. Consequently, the study recommended

reducing racial inequities in the process of making decisions on advanced heart failure therapies using multipronged approaches like improving objectivity in patient assessments.

In their retrospective cohort study, Breathett et al. (2018) examined the likelihood of heart failure patients receiving health services from a cardiologist based on their African American or Caucasian race after admission to the intensive care unit. Additionally, this study examined whether services offered by cardiologists resulted in higher in-hospital survival rates regardless of the race of the patient. A cohort of 497 hospitals admitting more than 10 patients with heart failure to the ICU was selected. Breathett et al. (2018) used Wilcoxon nonparametric tests for comparing continuous data while chi-square tests were utilized in descriptively comparing categorical data. It was found that patients receiving primary care services from cardiologists resulted in higher rates of patient survival for both Blacks and Caucasians. Unfortunately, African American patients were underrepresented in the population of heart failure patients receiving heart failure services from cardiologists. This study recommended the implementation of equalitarian measures to reduce racial disparities in receiving care by cardiologists and other healthcare professionals as well as the improvement of care quality and better heart failure outcomes.

The scholarly evidence aligns well with the purpose of the quality improvement project. Fundamentally, the literature provides the needed knowledge and awareness among healthcare providers offering health services at an outpatient clinic in West Palm Beach on the disparities and management of congestive heart failure in African Americans. Blacks experience disproportionately high rates of congestive heart failure, related morbidities, and mortalities. This disproportionate burden of heart failure in this population is linked to the presence of cardiac risk factors at greater levels when compared to Whites and other racial-ethnic groups. Moreover,

clinical gaps exist in the management of congestive heart failure in these patients partially because of systemic and structural racism, among other factors. Nurses and other healthcare professionals should actualize recommendations from different studies to address disparities and inequalities in Black Americans with cardiovascular conditions and risk factors such as congestive heart failure.

Significance

Significance to Nursing Practice

Heart failure is a major health concern in the United States and is particularly problematic in the African American community. New studies suggest that racial disparities persist in access to treatments that can help heart failure patients live longer and have a better quality of life (Rapaport, 2022). Nurses can provide the leadership needed to bring national attention to social determinants of health and begin effective strategies to improve the health of the nation. To attain this type of attention health care providers, need to commit continuously to addressing social determinants of health with in the African American community.

Significance to Nursing Research

Cardiovascular disease is a serious problem in the United States. It is the most common cause of death among African Americans and according to the U.S. Department of Health and Human Services, African Americans are 30% more likely to die from heart disease than non-Hispanic Whites (Allison, 2022). There is a need for more research into the increased rate and mortality of heart failure in Blacks. It is important to continue researching on congestive heart failure and its relation to social determinants. Increasing the research on social determinants would make great impact on healthcare for African Americans. This researcher hopes this project can influence nurses to do more research on this topic.

Significance to Health Policy

To address these racial disparities, this study recommended continued surveillance of trends in death rates due to heart disease by race as a strategy to generate valuable information for practitioners and policymakers to reduce the disparities and related death rates. Improving resource coordination can also help populations most harmed by health disparities. For example, health care organizations can help reduce ethnic health disparities by offering cultural competency training to health care providers.

Purpose of the Project

The purpose of this project was to improve healthcare clinicians' knowledge of the influence of social determinants on Black Americans with congestive heart failure (CHF) at an outpatient clinic in West Palm Beach, Florida.

PICO Clinical Question

Is there a significant difference between pretest and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention?

Ho: There is no significant difference between pre- and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention.

*Ha*1: There is a significant difference between pre- and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention.

Definition of Terms

Knowledge Awareness

This variable referred to healthcare workers' knowledge awareness of social determinants on Black Americans with congestive heart failure at a clinic in West Palm Beach, Florida. The researcher used Covering Health quiz on the social determinants of health developed by Joe Rojas-Burke (2014) to quantify this variable. The "What do you really know about the social determinants of health" survey was created by Joe Rojas-Burke in 2014 and has not been tested for reliability. The WE CARE survey was also used to help create the quiz and it adapted from a previous version of the screening instrument which had a test-retest reliability of 0.92 (Mahalingam et al.,2019). Additional questions were included. *How knowledgeable are you in the Social Determinants of Health; Which population is most at risk for negative outcomes related to Social Determinants of Health?;How likely are Black Americans likely to die due to CHF when compared to others?; Are you aware of the various tools to assess for Social Determinants of Health*?

Healthcare Workers

This variable referred to employees that provide direct patient care to patients with CHF at a clinical in West Palm Beach, Florida. The nominal variable was classified as follows: (a) medical assistant (MA); (b) advanced practice registered nurse (APRN); and (c) physician (MD or DO).

Age

This variable referred to the age of the healthcare provider at a clinical in West Palm Beach, Florida. Age is a ratio variable. This demographic and nominal variable was grouped as follows: (a) 18 to 29 years old; (b) 30 to 44 years old; (c) 45 years and older.

Gender

This variable referred to sex of the healthcare worker at a clinic in West Palm Beach, Florida. The demographic and nominal variable was categorized as follows: (a) female or (b) male.

Ethnicity

This variable referred to the ethnicity of healthcare workers at a clinic in West Palm Beach, Florida. Ethnicity is a demographic and nominal variable. This variable was categorized as follows: (a) non-Hispanic White; (b) non-Hispanic Black; (c) Hispanic; and (d) Other Ethnicity**.**

Theoretical Framework and Conceptual Underpinning

The researcher used Derrick Bell Critical Race Theory (CRT) to guide the quality improvement project. Critical race theory began in the early 1970's with the early writing of Derrick Bell, an African American civil rights lawyer and the first black to teach at Harvard Law School (Delgado & Stefancic,1998). According to Laura Bestler (2008), Bells theory has eight assumptions: (a) race is socially constructed product of social thought and relations; (b) racism is normal, ordinary and ingrained into society, making it difficult to recognize; (c) traditional claims of neutrality, objectivity, and color-blindness must be contested in order to reveal the self-interests of dominant groups; (d) social justice platforms and practices are the only way to eliminate racism and other forms of oppression and injustice; (e) the experiential knowledge of communities of colors of their "unique voice" is valid, legitimate, and critical toward understanding the persistence of racial inequality; (f) communities of color are differentially racialized depending on the interests of the dominant group; (g) history and historical contexts

must be taken into consideration in order to challenge policies and practices that affect people in color; (h) the ideological contestation, deconstruction, and reconstruction of race is often demonstrated through storytelling and counter narratives.

The project would be based on the critical race theory to help with the analysis and more clearly define its basis. In this case, the critical race theory should be perceived as a part of the medical field, and it stands for the investigation of health determinants that are related to a particular ethnical group, specifically examining attentively what enables the perception of race as a biological factor (Zewude & Sharma, 2021). Hence, the theory is directly related to the issue of social determinants that affect Black Americans with congestive heart failure, as currently, in medical practice, an individual approach is not very developed in determining the factors that affect the development of the disease in people from different ethnic groups, especially if this group also has differences in age and gender. To analyze the social causes that underlie racial inequality, it is crucial to look beyond such simplistic theories of health and illness, and this is where critical race theory can be used (Zewude & Sharma, 2021). In the end, when conducting a study, it is important to focus on how various external factors specifically affect Black Americans with congestive heart failure, and at the same time, it is necessary to draw a parallel between the general flow of patients. In this case, critical race theory can help draw this parallel and explain the importance of patient categorization to improve the quality of patient care.

Methodology

The purpose of this project was to improve healthcare workers knowledge on the influence of social determinants on Black Americans with congestive heart failure at an outpatient clinic in West Palm Beach, Florida. This researcher conducted an advance literature

review and identified gaps in the literature related to African Americans with congestive heart failure and healthcare workers knowledge on social determinants. The findings sustained the research problem, spoke to the overall purpose of the project, and informed the development of a PICO question that provided justification from the advancement of the project. The sequential sections address the study design, setting, sample, inclusion criteria, exclusion criteria, intervention, measures and instruments, data collection procedures, data analysis, as well as protection of human subjects.

Study Design

The researcher utilized quantitative, cross sectional, pre and post-test design. These designs are described in the next paragraphs.

Quantitative Research

According to Polit and Beck (2017), the goal of quantitative research is to collect numerical data by studying a phenomenon scientifically. This researcher explored the knowledge awareness of the influence of social determinants in African Americans with CHF among healthcare workers at a clinic in West Palm Beach, Florida. The investigator collected demographic data from healthcare providers, as well as Covering Health quiz by Joe Rojas Burke (2014) to quantify knowledge awareness using Qualtrics. Differences between the variables were analyzed using the Statistical Package for Social Sciences.

Cross- Sectional Design

Participants were surveyed twice as part of a cross-sectional study design. According to Polit & Beck (2017), a cross-sectional study is an observational research project that examines data from a population at a certain moment.

Pre and Posttest Design

A pre- and posttest was used to measure changes in knowledge awareness of the influence of social determinants on Black Americans with congestive heart failure. Knowledge awareness was measured before and after an educational intervention.

Population, Intervention, Comparison, and Outcome (PICO) Clinical Question

1. Is there a significant difference between pretest and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention?

   *H*a1: There is a significant difference between pre- and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention.

Setting

The exploration took place at an outpatient clinic in West Palm Beach, Florida. West Palm Beach is an appropriate location for conducting the investigation since Florida has an estimated 5.7 million individuals suffering from CHF (Virani et al., 2020). Additionally, Black men are more than twice as likely as White men to receive a CHF diagnosis, hence making them disproportionately affected by the disease (Little et al., 2021). Thus, West Palm Beach is the perfect place to conduct studies on the influence of social determinants of health in African Americans with congestive heart failure.

Sample

The estimated sample size n=7 based on experience while working at the clinic in West Palm Beach, Florida. The planned project will utilize a sample of healthcare professionals aged

between 18 and 45 years. It will involve *n*=3 healthcare practitioners, including *n*=1 physician, *n*=2 nurse practitioners, and *n*=4 medical assistants.

Inclusion Criteria

For the healthcare professionals, the requirements imply that they work for an outpatient clinic in West Palm Beach, Florida where the investigation will take place, have at least three years of experience working with African Americans with congestive heart failure, and are over the age of 18 years.

Exclusion Criteria

Healthcare providers who did not work at the clinic in West Palm Beach, Florida were not able to participate. The healthcare provider under 18 years of age were excluded. Secretaries and coordinator are not allowed to participate. For the healthcare practitioners, the rationale behind the exclusion from the study implies being an employee of a different healthcare facility, having less than three years of experience managing congestive heart failure in African American.

Intervention

Following approval from Florida International University's (FIU) Institutional Review Board (IRB), permission was also obtained from a clinic in West Palm Beach, Florida to conduct the quality improvement project and collect data. Research subjects will receive an email invitation that includes purpose and overview of the project. After acceptance and consent, participants will then be asked to complete a demographics questionnaire via Qualtrics and a pre-test survey to assess their knowledge of the topic of interest. After completion of the pre-test survey, the intervention will include a 10-minute voice over PowerPoint presentation that will provide healthcare professionals with an understanding of the complex factors that contribute to healthcare disparities in African Americans. Finally, a post-intervention survey will be

conducted to evaluate the effectiveness of the educational intervention. This survey will examine how healthcare professionals' knowledge have changed over time. Then, the results of the survey will be disseminated to the leadership at the clinic for further improvements to the knowledge of healthcare providers on the social determinants of African Americans with congestive heart failure.

Measures and Instruments

Demographic data was collected using a researcher-developed demographic instrument and included: (a) age (a. 18 to 29 years old; b. 30 to 44 years old; and c. 45 years and older); ((b) gender (a. female or b. male); (c) ethnicity (a. non-Hispanic White; b. non-Hispanic Black; c. Hispanic; and d. Other Ethnicity); (d) healthcare providers (a. medical assistant (MA); b. advanced practice registered nurse (APRN); c. physician (MD or DO).

Knowledge awareness of the influence of social determinants on Black Americans with congestive heart failure among healthcare workers at a clinic in West Palm Beach, Florida was quantified using an instrument. A survey was used to measure knowledge awareness. The "What do you really know about the social determinants of health" survey was created by Joe Rojas-Burke in 2014 and has not been tested for reliability. The WE CARE survey was also used to help create the quiz and it adapted from a previous version of the screening instrument which had a test-retest reliability of 0.92 (Mahalingam et al.,2019). Additional questions were included. *How knowledgeable are you in the Social Determinants of Health? Which population is most at risk for negative outcomes related to Social Determinants of Health? How likely are Black Americans likely to die due to CHF when compared to others? Are you aware of the various tools to assess for Social Determinants of Health*? Two questions will not be scored, other

questions will either be one point for the correct answer and zero points for the incorrect answer. The lowest possible score is zero and the highest is 12.

Data Collection Procedures

Institutional Review Board (IRB) approval was obtained from FIU. The researcher obtained permission from the nurse practitioner at a clinic in West Palm Beach, Florida to conduct the quality improvement project. Convenience sampling method was used to recruit participants and access data. An email was sent to potential participants, explaining the purpose of the quality improvement project with a link to the survey via Qualtrics. Participants first completed an online demographic survey that collected: age (a) 18 to 29 years old; (b) 30 to 44 years old; and (c) 45 years and older); gender (a) female or (b) male; ethnicity (a) non-Hispanic White; (b) non-Hispanic Black; (c) Hispanic; and (d) Other Ethnicity; healthcare providers (a) MA; (b) APRN and (c) MD or DO. The participants will complete the social determinants of health pretest survey before the educational intervention, which consisted of a 10-minute voice over PowerPoint Presentation. The intervention was in the email and participants completed the posttest survey online after the educational intervention. Participants took 30 minutes to complete the demographic questionnaire, watch the voice over PowerPoint presentation, and complete the pre- and post-surveys using Qualtrics.

Data Analysis

The following procedures involved the use of the Statistical Package for Social Sciences Program (SPSS): data entry, coding, cleaning, and analysis. Descriptive analysis was used to examine the data. For the variables, the mean (*M),* median (*Mdn*), mode, frequency, standard deviation (*SD*), and range were determined. Using the *t*-test, significant differences between the variables were looked at. To find statistically significant variations between groups and mean

values before and after the educational intervention, the *t*-test was performed. Statistical significance was defined as a *p*-value 0.05 (Polit & Beck, 2017).

Protection of Human Subjects

In order to protect the human subjects in the suggested DNP study, informed consent will be obtained from all participants before their involvement. The consent form will clearly outline the purpose of the study, what participation implies, any risks or benefits, and their right to withdraw from the study at any time without penalty (Mick, 2019). In addition, the researcher will take steps to protect the privacy and confidentiality of the participants. Apart from this, it is necessary to store all data in a secure location, with only authorized individuals having access to it (Mick, 2019). Participants will be free to stop participation without negative consequences. Moreover, the researcher will take steps to minimize the harm that may result from participation, such as designing survey questions that are not offensive or harmful and allowing participants to skip any questions that make them feel uncomfortable (Mick, 2019). Data analysis will be conducted in a way that protects the privacy and confidentiality of the participants, with only aggregate data being reported, which will not allow to identify individual participants.

Results

The purpose of this project was to increase knowledge awareness of the effects of social determinants in Black Americans with congestive heart failure among healthcare providers at an outpatient clinic in West Palm Beach, Florida. A quantitative, cross sectional, pre- and posttest study design was used to conduct this quality improvement project. Data was gathered via Qualtrics and analyzed using Statistical Package for Social Sciences (SPSS). A two-tailed paired samples t-test was used to discover significant differences between pre and posttest results. Subsequent sections will discuss demographic data and results related to the PICO clinical question. A total of *N*=7 participants completed the demographic questionnaire, pretest, and posttest.

Age distribution varied among the participants (see Table 1). Majority of all participants were 31 to 44 years of age. Over 25% of the participants were 18 to 30 years old and 45 years or older.

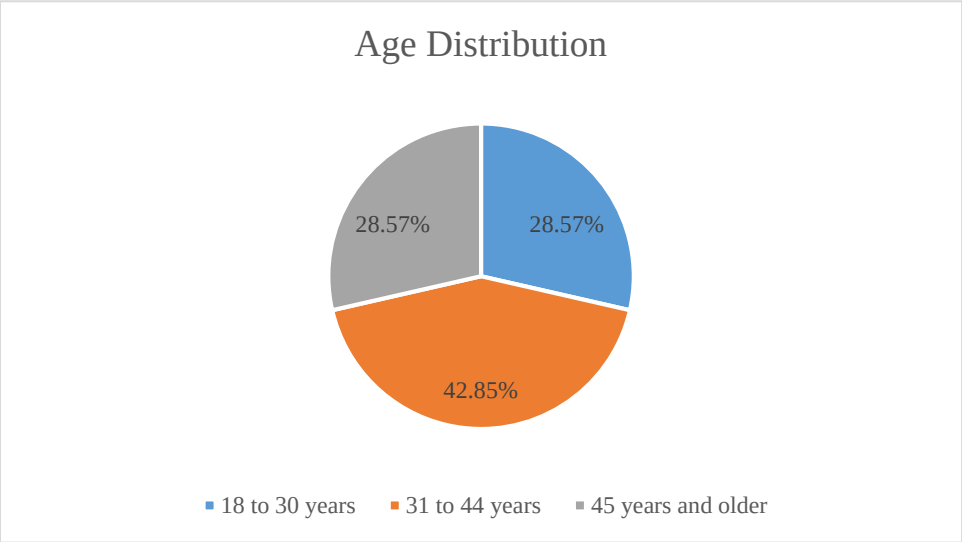
Table 1

Age Distribution Among Healthcare Providers at an Outpatient Family Health Clinic

Age	Frequency	Percentage
18 to 30 years	2	28.575%
31 to 44 years	3	42.85%
45 years and older	2	28.575%
Total	7	100%

Figure 1

Age Distribution Among Healthcare Providers at an Outpatient Family Health Clinic



The gender of the participants identified as either female or male, see Table 2 and Figure 2. Most participants were female, and approximately 14% of males participated in this project.

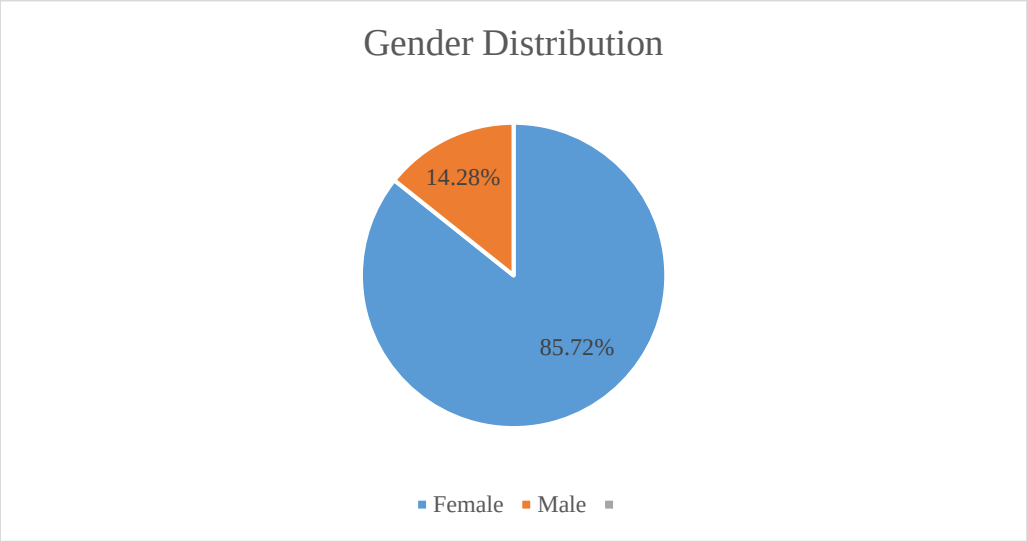
Table 2

Gender Distribution Among Healthcare Providers at an Outpatient Family Health Clinic

Gender	Frequency	Percentage
Female	6	85.72%
Male	1	14.28%
Total	7	100%

Figure 2

Gender Distribution Among Healthcare Providers at an Outpatient Family Health Clinic



The ethnic distribution varied among participants (see Table 3). More than half of the participants identified as Non-Hispanic Black. Over a quarter of participants identified as Hispanic, while less than 20% identified as Non-Hispanic White.

Table 3

Ethnicity Distribution Among Healthcare Providers at an Outpatient Family Health Clinic

Ethnicity	Frequency	Percentage
Non-Hispanic Black	4	57.14%
Non-Hispanic White	1	14.29%
Hispanic	2	28.57%
Total	7	100%

Role of participants varied with majority being medical assistants (MA) (see Table 4). However, fewer than 15% of the participants were Physicians (MD or DO). Advanced practice RNs (APRNs) represented 29 % of the sample.

Table 4

Role Among Healthcare Providers at an Outpatient Family Health Clinic

Level of Education	Frequency	Percentage
MD or DP	1	14%
APRN	2	29%
MA	4	57%
Total	9	100%

PICO Clinical Question

The PICO clinical question was: Is there a significant difference between pretest and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention? The alternative hypothesis (*Ha1*) related to PICO clinical question was: There is a significant difference between pre- and posttest scores among healthcare providers at a clinic in West Palm Beach, Florida after an educational intervention. Outcomes of this project demonstrated that there is a significant difference between pre- and posttest scores among healthcare providers at an outpatient clinic in West Palm Beach, Florida after an educational intervention regarding the effects of social determinants among Black Americans with congestive heart failure. Results showed that the educational intervention was effective at increasing knowledge awareness. Pre- and posttest results will be discussed in the subsequent paragraphs.

In the pretest, answers were scored by either being given one point for the correct answer or zero points for the incorrect answer. The lowest possible score is zero and the highest is 12. Two questions were not scored. Answers varied throughout the assessment, see Table 5.

Participants scored low on the pretest and answered "don't know" on most of the questions causing them to score so low.

Table 5

Participants' Knowledge of SDoH Pre- and Post-Intervention Scores

Question	Pre-Intervention	Post Intervention	% Change
Rates of illness and premature death are higher among the poor, but there is a threshold at which increases in social status no longer affect health.			
-True	0 (0.00%)	0 (0.00%)	0
-False *	1 (14%)	7 (100%)	86 ↑
- Don't Know	6 (85%)	0 (0.00%)	85 ↓
Progress in recent decades has narrowed the entrenched inequalities in infant mortality and premature death that divide the U.S. population by socioeconomic class and race.			
-True	0 (0.00%)	0 (0.00%)	0
-Don't Know	7 (100%)	0 (0.00%)	70 ↓
- False*	0(0.00%)	7 (100%)	100 ↑

Expanding health insurance coverage and access to medical care (the focus of the federal Affordable Care Act) is unlikely to reverse the health disparities caused by the social determinants of health			
-True *	2 (28%)	7 (100%)	72 ↑
-Don't Know	5 (78%)	0 (0.00%)	78 ↓
- False	0 (0.00%)	0 (0.00%)	0
Food deserts – neighborhoods with few or no grocery stores selling fresh, affordable produce – are a well-defined root cause of obesity and other health problems in disadvantaged communities.			
-True	0 (0.00%)	0 (0.00%)	0
-Don't Know	7 (100%)	0 (0.00%)	100 ↓
-False *	0 (0.00%	7 (1000%)	100 ↑
Price is not a significant driver of the unwholesome food choices that are prevalent among people on the lower rungs of the socioeconomic ladder.			
-True	1 (14%)	0 (0.00%)	14 ↓
-Don't Know	5 (71%)	0 (0.00%)	71 ↓
-False *	1 (14%)	7 (100%)	86↑

Studies consistently find that when cities provide stable, subsidized housing to people with chronic mental health and substance abuse problems who live on the streets it saves taxpayer dollars by reducing the burden on law enforcement and hospitals.			
-True	7 (100%)	0 (0.00%)	100 ↓
-Don't Know	0 (0.00%)	0 (0.00%)	0
-False*	0 (0.00%)	7 (100%)	100 ↑
African Americans have levels of overall poverty that are two to three times higher than those of white Americans, and this explains the strikingly worse health outcomes among African Americans.			
-True*	7 (100)	7 (100%)	0
-Don't Know	0 (0.00%)	0 (0.00%)	0
-False	0 (0.00%)	0 (0.00%)	0
Social disadvantage appears to accelerate aging at the cellular level.			
-True *	0 (0.00%)	7 (1000%)	100 ↑
-Don't Know	0 (0.00%)	0 (0.00%)	0 ↑
-False	7 (1000%)	0 (0.00%)	100 ↓

Stress during fetal development – from a mother's poor diet, for example, or exposure to pollutants – may set the stage for diseases decades later in life as an adult.			
- True *	3 (42%)	7 (100%)	58 ↑
-Don't Know	4 (57%)	0 (0.00%)	57 ↓
-False	0 (0.00%)	0 (0.00%)	0
Intensive day care for infants and toddlers in disadvantaged homes may produce health benefits that persist into adulthood.			
-True*	6 (85%)	7 (100%)	25 ↑
Don't Know	1 (14%)	0 (0.00%)	14 ↓
False	0 (0.00%)	0 (0.00%)	0
Which population is most at risk for negative outcomes related to Social Determinants of Health?			
-Caucasians	0 (0.00%)	0 (0.00%)	0
-Blacks *	7 (100%)	7 (100%)	0
-Hispanics	0 (0.00%)	0 (0.00%)	0
-Asians	0 (0.00%)	0 (0.00%)	0
How likely are Black Americans likely to die due to CHF when compared to others?			
-2-3x more likely	7 (100%).	7(100%)	0
-the same	0 (0.00%)	(0.00%)	0

Note: *= correct answer

In the posttest, the scoring was done the same as in the pretest. Like before, answers showed the participants knowledge on social determinants of health. The participants scored a lot higher on the posttest (Table 5), which indicated their knowledge did increase regarding social

determinants post intervention. Participants scored high on all items and there was some significant increase.

A two-tailed paired samples *t*-test was done to analyze whether the mean difference of the pretest and posttest was statistically significant. Results of the paired *t*-test indicated a significant large difference between pretest (M= 40.25, SD=43.41) and posttest (M=100.00, SD=0.00) mean scores, which participants attained higher scores on the posttest after the educational intervention, $t(11)$= 4.76, with a p=0.0006, (p<0.05); see Table 6. Also, based on the results and an alpha value less than 0.05, the researcher could reject the null hypothesis and accept the alternative hypothesis (*Ha1*) for the PICO clinical question.

Table 6

Two- Tailed Paired Sample t-Test scores for the Difference between Pre- and Post- intervention Knowledge Scores

	Pre-Survey	Post-Survey	t value	P-Value
Mean	40.25	100	4.7685	0.0006
SD	43.41	0.00		

Discussion

The purpose of this quality improvement project was to improve healthcare clinicians' knowledge of the influence of social determinants on Black Americans with congestive heart failure (CHF) at an outpatient clinic in West Palm Beach, Florida. A quantitative, cross sectional, pre and post-test design was used to conduct this project. Convenience sampling technique was utilized to recruit n = 7 participants and access data at a clinic in West Palm Beach, Florida. The project, including the research-based educational intervention, was conducted remotely and participants completed demographic, pre-, and posttest surveys using Qualtrics and the "What do you really know about the social determinants of health" quiz to assess their knowledge of

awareness of the influence of social determinants on Black Americans with congestive heart failure. Data was collected via Qualtrics platform and analyzed using the Statistical Package for Social Sciences (SPSS). Results established that participants scored higher on the posttest after the educational intervention. Further, results revealed a significant large difference between pre- and posttest mean scores, $t(11) = 4.78$, with a $p = 0.0006$, ($p < 0.05$). Subsequent sections will summarize results, compare, and contrast findings with current literature, as well as discuss implications for advanced practice nursing, limitations of the project, and recommendations.

Summary of the Results and Discussion

The overall findings of this project suggest that following the implementation of an educational intervention, healthcare clinicians' and personnel's knowledge can improve regarding the effects social determinants can have on Black Americans with congestive heart failure. Based on the results, the most statistically significant mean was in the knowledge scores post-intervention, indicating there was an initial lack of knowledge and improvement post educational intervention. The mean (*M*) score of the pre-test was 40.25, with a standard deviation (*SD*) of 43.41 and posttest with mean (*M*) score 100.00, with a standard deviation (*SD)* of 0.00. In the pre-test, participants scored low on the pre-test and significantly higher on the post-test. Results established that participants achieved higher scores post-test after the educational intervention. Thus, the researcher rejected the null hypothesis and accepted the alternative hypothesis (*Ha1*) related to the PICO clinical question, as a significant difference was determined between pre- and post-test means scores, t=4.7685, with a p=0.0006.

It has been learned through previous research, that educational meetings alone or combined with other interventions, can improve professional practice and health-care outcomes

for the patient. Pretest scores revealed a gap in knowledge awareness among healthcare workers in West Palm Beach, Florida. Posttest mean scores demonstrated a statistically significant large difference; in that they were higher than pretest mean scores. Muckaden et al. (2018) purpose in the study was to improve doctors, nurses, social workers, and counselors' knowledge on pediatric palliative care by the use of educational training. Training manuals were prepared with modules on pain management, access to analgesics, symptom assessment, and management, communication with children and the families, dealing with adolescents, play and diversion therapies, spiritual counseling, emergencies, ethics, policies, and resources. Data were entered in MS Excel and analyzed. Statistical significance was set at $p \leq 0.05$. Post training, doctors and the nurses had a better level of knowledge, skill set, and attitude, whereas social workers and counselors fared better with prevailing care practices (Muckaden et al,2018).

Another study was done to improve pharmacists' knowledge and application of inpatient opioid and alcohol withdrawal management through delivery of an educational intervention and implementation of practice-based prospective drug utilization reviews (Brust-Sisti et al, 2023). Post educational intervention scores improved significantly, with pre- and post-intervention scores of 7.33 ± 1.98 and 8.86 ± 0.91, respectively *(p*=.0035). Pharmacists indicated that the education increased their confidence and enabled them to learn new information that could be directly applied to their pharmacy practice (Brust-Sisti et al, 2023). Surely, educational interventions are effective.

Implications for Advanced Practice Nursing

This quality improvement project had significant implication for the discipline of nursing, including nursing practice, nursing research and health policy. The project revealed deficits among healthcare providers at an outpatient clinic in West Palm Beach, Florida and it helped

them gain awareness on the influence of social determinants in Black Americans with congestive heart failure. Nurses can provide the leadership needed to bring national attention to social determinants of health and begin effective strategies to improve the health of the nation. To attain this type of attention health care providers, need to commit continuously to addressing social determinants of health with in the African American community.

Cardiovascular disease is a serious problem in the United States. It is the most common cause of death among African Americans and according to the U.S. Department of Health and Human Services, African Americans are 30% more likely to die from heart disease than non-Hispanic Whites (Allison, 2022). To address these racial disparities, this study recommended continued surveillance of trends in death rates due to heart disease by race as a strategy to generate valuable information for practitioners and policymakers to reduce the disparities and related death rates. Improving resource coordination can also help populations most harmed by health disparities. For example, health care organizations can help reduce ethnic health disparities by offering cultural competency training to health care providers.

Limitations of the Project

Studies have limitations. The limitations of this project were:

1. Convenience sampling method was used to conduct this project; but this method does not involve randomization.
2. A low number of participants decreased the generalizability of this project. This project was done in a small clinic which could have affected the sample size.
3. A cross sectional, pre and post-test study design cannot be used to describe causality between variables.

4. Data was collected from participants at a small clinic so results cannot be generalized to other clinics.

5. Technology played a major role in this project: not all participants were computer literate therefore many surveys were not done correctly.

Recommendations

Future researchers should continue using a longitudinal study design to discover the causation between the variables. Future researchers should also discuss limitations including randomization, as well as increasing the number of participants to increase the generalizability of the study. This project should in the future should be conducted in other settings by broadening participation and including other health facilities such as hospitals, urgent cares, and cardiology primary offices too, yield increased generalizability. Additional considerations include the use of qualitative designs to further access subjective data that objective measurements do not capture. Future studies could also survey African Americans with or without heart failure to determine real-world impact and effectiveness of educational interventions administered to their healthcare providers.

Conclusions

This quality improvement project increased knowledge awareness among healthcare workers in West Palm Beach, Florida, regarding the influence of social determinants in Black Americans with congestive heart failure. Results of paired *t*-test indicated a significant difference between pretest (M=40.25, SD=43.41) and posttest (M=100, SD= 0.00) mean scores, with participants achieving higher scores on the posttest after the educational intervention, t (11) =4.7685, with a p=0.0006. Healthcare workers should receive educational interventions

regarding the influence of social determinants in Black Americans with congestive heart failure to improve the health outcomes in Black Americans with congestive heart failure.

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***Appendix* A**

FLORIDA INERNATIONAL UNIVERSITY INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

FIU | FLORIDA INTERNATIONAL UNIVERSITY

Office of Research Integrity
Research Compliance, MARC 430

MEMORANDUM

To:	Dr. Francisco Brenes
CC:	Melissa Pierre
From:	Kourtney Wilson, MS, IRB Coordinator KMW
Date:	June 27, 2023
Protocol Title:	**"**Improving Healthcare Workers' Knowledge About the Influence of Social Determinants in Black Americans with Congestive Heart Failure: A Quality Improvement Project**"**

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #:	IRB-23-0347	**IRB Exemption Date:**	06/27/23
TOPAZ Reference #:	113379		

As a requirement of IRB Exemption you are required to:

1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
3) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at http://research.fiu.edu/irb.

KMW

***Appendix* B**

FLORIDA INTERNATIONAL UNIVERSITY

SUPPORT LETTER FROM FACILITY

Date: 5/16/2023

Francisco Brenes, Ph.D., APRN-BC, FNP, PMHNP

Clinical Associate Professor

Nicole Wertheim College of Nursing & Health Sciences

Florida International University

Dear Dr. Brenes

Thank you for inviting Leo Medical Care to participate in the quality improvement Project proposed by Melissa Pierre. I understand that this student will be conducting this project as part of the requirements for the Doctor in Nursing Practice program at Florida International University. After reviewing the proposal of the project titled " Improving Healthcare Workers' Knowledge About the Influence of Social Determinants in Black Americans with Congestive Heart Failure: A Quality Improvement Project. I have warranted her permission to conduct the project in this facility.

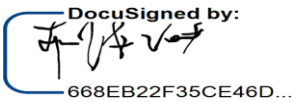
We understand that the quality improvement project will be developed in our setting and will occur over the course of several sessions in an approximate eight-week period and will probably be implemented afterward. We are also aware of our staff participation in supporting the student to complete this project, including warrant the student access to our facilities, give consent, deliver the pre-test questionnaire, provide the educational intervention, and administer post-test to all recruited participants. We will provide a peaceful environment to safeguard our participant privacy as well as adequate area to conduct the educational activity.

Our understanding the quality improvement project is that it aims to improve healthcare workers' knowledge about the influence of social determinants in Black Americans with congestive heart failure. Prior to project implementation, the FIU Institutional Review Board (IRB) shall evaluate and approve all procedures. Consent must be obtained from all recruited participants working within our facility. As proposed, the structured educational intervention is expected to be delivered by way of a voiceover PowerPoint presentation lasting approximately 10 minutes. The demographic questionnaire and pre- and posttests are projected to take approximately 50- minutes to complete.

Data collected by the student will be kept confidential and shall be anonymously logged in electronic spreadsheets and maintained on a password-protected laptop computer to which just the student has access

We expect that Melissa Pierre will not interfere with the normal office performance, behaving in a professional manner and following the office standards of care. As Owner of Leo Medical Center, I support the participation of our providers and staff in this project and look forward to work with you.

Sincerely,



Dr. Lyonie Pierre-Vernet

***Appendix* C**

FLORIDA INTERNATIONAL UNIVERSITY

RECRUITMENT EMAIL LETTER

Recruitment Email for Improving Healthcare Workers' Knowledge About the Influence of Social Determinants in Black Americans with Congestive Heart Failure: A Quality Improvement Project

Dear Leo, Medical Care Staff,

My name is Melissa Pierre, and I am a student from the Graduate Nursing Department at Florida International University. I am writing to invite you to participate in my quality improvement project. The goal of this project is to improve healthcare workers knowledge about the influence of social determinant in Black Americans with congestive heart failure. You are eligible to take part in this project because you are healthcare workers at Leo Medical Care, and you provide or may provide care to Black Americans with congestive heart failure. I am contacting you with the permission of Dr.Lyonie.

If you decide to participate in this project, you will be asked to complete and sign a consent form for participation. You will complete a pre-test questionnaire, which is expected to take approximately 10-15 minutes. Then, you will then be asked to view an approximately 7-minute-long educational presentation online. After watching the video, you will be asked to complete the post-test questionnaire, which is expected to take approximately 10-15 minutes. *No compensation will be provided.*

Remember, this is completely voluntary. You can choose to be in the study or not. If you'd like to participate, please click on the link provided (link for Qualtrix questionnaire). If you have any questions about the study, please email or contact me at mp2016@fiu.edu or (954) 470-0133.

Thank you very much.

Sincerely,

Melissa Pierre

Appendix D

FLORIDA INTERNATIONAL UNIVERSITY

RESEARCHER-DEVELOPED DEMOGRAPHIC INSTRUMENT

Please click on the appropriate response.

1. What is your age?
    a. 18 to 29 years
    b. 30 to 44 years
    c. 45 years and older
2. What is your gender?
    a. Male
    b. Female
3. What is your ethnicity?
    a. non-Hispanic White
    b. non-Hispanic Black
    c. Hispanic
    d. Other Ethnicity
4. What is your current role as a provider in this facility?
    a. MA
    b. APRN
    c.MD or DO
5. How many years have you worked with Black Americans?
    a. 0 to 1 year
    b. 2 to 3 years
    c. 4 or more years

Appendix E

FLORIDA INTERNATIONAL UNIVERSITY

What Do You Really Know About Social Determinants of Health Quiz Instrument

1. Rates of illness and premature death are higher among the poor, but there is a threshold at which increases in social status no longer affect health.
    a. True
    b. False
    c. Don't Know
2. Progress in recent decades has narrowed the entrenched inequalities in infant mortality and premature death that divide the U.S. population by socioeconomic class and race.
    a. True
    b. False
    c. Don't Know
3. Expanding health insurance coverage and access to medical care (the focus of the federal Affordable Care Act) is unlikely to reverse the health disparities caused by the social determinants of health
    a. True
    b. False
    c. Don't Know
4. Food deserts – neighborhoods with few or no grocery stores selling fresh, affordable produce – are a well-defined root cause of obesity and other health problems in disadvantaged communities.
    a. True
    b. False
    c. Don't Know
5. Price is not a significant driver of the unwholesome food choices that are prevalent among people on the lower rungs of the socioeconomic ladder.
    a. True
    b. False
    c. Don't Know
6. Studies consistently find that when cities provide stable, subsidized housing to people with chronic mental health and substance abuse problems who live on the streets it saves taxpayer dollars by reducing the burden on law enforcement and hospitals.
    a. True
    b. False
    c. Don't Know
7. African Americans have levels of overall poverty that are two to three times higher than those of white Americans, and this explains the strikingly worse health outcomes among African Americans.
    a. True
    b. False
    c. Don't Know
8. Social disadvantage appears to accelerate aging at the cellular level.
    a. True
    b. False

   c. Don't Know
9. Stress during fetal development – from a mother's poor diet, for example, or exposure to pollutants – may set the stage for diseases decades later in life as an adult.
   a. True
   b. False
   c. Don't Know
10. Intensive day care for infants and toddlers in disadvantaged homes may produce health benefits that persist into adulthood.
   a. True
   b. False
   c. Don't Know
11. How knowledgeable are you in the Social Determinants of Health?
   a. Not knowledgeable
   b. Somewhat knowledgeable
   c. Very knowledgeable
12. Which population is most at risk for negative outcomes related to Social Determinants of Health?
   a. Caucasians
   b. Blacks
   c. Hispanics
   d. Asians
13. Are you aware of the various tools to assess for Social Determinants of Health?
   a. Yes
   b. No
14. How likely are Black Americans likely to die due to CHF when compared to others?
   a. 2-3x more likely
   b. The same

Appendix F

FLORIDA INTERNATIONAL UNIVERSITY

CITI ETHICS CERTIFICATION

CITI PROGRAM

Completion Date 15-May-2023
Expiration Date 15-May-2026
Record ID 49843268

This is to certify that:

Melissa Pierre

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Basic/Refresher Course - Human Subjects Research
(Curriculum Group)
Biomedical Human Research Course
(Course Learner Group)
2 - Refresher Course
(Stage)

Under requirements set by:

Florida International University

CITI
Collaborative Institutional Training Initiative

101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Verify at www.citiprogram.org/verify/ ?w73319952-5174-4bef-8982-83dc52ec5a79-49843268

Appendix G

FLORIDA INTERNATIONAL UNIVERSITY

CV

2017	BSN, Nova Southeastern University, Davie, FL
2018-2020	Staff Nurse, Memorial Regional Hollywood, FL
2022	MSN, FIU Miami, Fl