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Improving healthcare strategies in relation to the effects of social determinants on hypertension prevention in pregnant black women: A Quality Improvement Project

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Improving healthcare strategies in relation to the effects of social determinants on hypertension prevention in pregnant black women: A Quality Improvement Project

A Scholarly Project Presented to the Faculty of the
Nicole Wertheim College of Nursing and Health Sciences

Florida International University

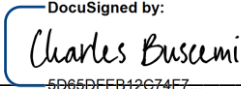
In partial fulfillment of the requirements
For the Degree of Doctor of Nursing Practice

By

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Abstract

Hypertension remains a significant health comorbidity experienced during pregnancy. Hypertensive abnormalities in this state have implications for the development of poor health outcomes for both the mother and the baby. Although hypertensive disorders of pregnancy are a leading cause of maternal morbidity and mortality, Black women are three times more likely than White women to die from pregnancy-related causes, with most deaths being preventable (CDC, 2021). Social Determinants of Health (SDoH) are conditions in which people are born and live, involving resources available to manage illnesses and are linked to why Black women have more long-term pregnancy complications and outcomes than other populations. A lack of clinician knowledge, attitudes, and behaviors have been linked to the negative impact this population receives when it comes to adequate culturally competent care. Therefore, it is imperative that clinicians are made aware and understand the SDoH that may negatively affect hypertension prevention and control in pregnant Black women. Following the completion of a literature review, 21 articles were selected. The studies are consistent across socioeconomic classes and are strongly associated with SDoH and the lack educational resources to better serve patients.

The findings of the literature review were used to create a quality improvement (QI) project to improve clinicians' knowledge, attitudes, and behaviors on the SDoH that can negatively affect pregnant Black women. An in-person, evidence-based, and interactive seminar was provided that included a pre- and posttest questionnaire. There was also time for questions and answers. The QI intervention was completed by the posttest 2 weeks after the seminar, to assess for changes in clinicians' knowledge, attitudes, and behaviors. The survey scores were compared pre and post intervention. The survey results indicated highest improvement was made in the knowledge section. Moreover, it was supported that with an educational intervention, clinicians' knowledge, attitudes, and behaviors can be enhanced.

Keywords: SDoH, Black women pregnancy complications, hypertension, and healthcare provider or clinician knowledge

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Chapter I

Introduction/Problem Statement/Significance

Introduction

Hypertension is a prevalent condition where blood force affecting the artery walls is powerful enough to trigger such health problems as heart disease. Pressure is determined by the volume of blood pumped by the heart and resistance to the blood flow in the arteries (Gbala & Adegoke, 2021). The higher Blood Pressure (BP) level points to more blood pumped by the heart, narrowing the arteries (Boakye et al., 2021). If the underlying cause is correctly identified and treated, patients with hypertension can have a normal BP rate or significant improvement in its control and a decrease in cardiovascular disease (CVD) risk.

Although genetic susceptibility to hypertension is unchangeable and confers CVD risks, there are also modifiable risks associated with hypertension that can help improve clinical outcomes. Modifiable risk factors are conditions that can be changed to decrease the chance of getting a disease. Important modifiable risk factors include diet, physical activity, smoking, and alcohol consumption. Environment strongly influences these factors. For example, excessive weight, poor nutrition, high sodium and insufficient potassium intake, sedentary lifestyle, and alcohol are the most significant elements, which are frequently introduced progressively from early life to adulthood (Boakye et al., 2021). Thus, addressing environmental aspects and integrating more than one of these lifestyle changes can have a positive impact on hypertension management among pregnant Black women (Boakye et al., 2021). Hypertension is particularly important to this population because it can lead to health injustices and maternal health issues such as preeclampsia and other blood pressure disorders (Boakye et al., 2021).

Background

The systemic differences in the health status of different populations are characterized as health inequities (WHO, 2018). Research suggests that the lower a person's socio-economic status, the higher their risk of poor health outcomes (WHO, 2018). According to the Centers for Disease Control and Prevention (CDC, 2021a), it is found that hypertension is present in 56% of non-Hispanic Black adults where it is only present in 48% non-Hispanic White adults. Therefore, the risk for developing high blood pressure is higher for Black women and men (CDC, 2021a). High blood pressure greatly affects the maternal health of pregnant Black women. Maternal health is the health of expectant mothers, covering childbirth and postnatal care (WHO, n.d.). Maternal health also includes other aspects of physical, psychological, and social health. Perinatal health refers to the state of a woman from 22 weeks of pregnancy to 7 days after birth (WHO, n.d.). According to Mulud et al. (2018), blood loss, infection, hypertension, unsafe abortion, and obstructed labor are the leading causes of maternal morbidity and mortality among Black women. Furthermore, preeclampsia is a pregnancy complication associated with increased blood pressure and the failure of such key organs as the liver and kidneys. It generally occurs after 20 weeks of gestation in women with normal blood pressure (Carson, 2018). If untreated, the condition can have serious or fatal implications for both the mother and the baby. Other associated conditions include gestational and chronic hypertension, preterm labor, and low birth weight for gestational age. Hypertension in pregnancy leads to increased nutrient and oxygen demands, making it difficult for the fetus to grow (CDC, 2021). That is why it is important to consider hypertension and its management among pregnant Black women.

Social Determinants

The social determinants of health (SDoH) are conditions in which people are born and live, involving resources available to manage illnesses (Miller et al., 2020). Social class refers to the culturally created economic concept that determines positions that persons hold within the social structure. In this regard, wealth distribution, education, employment status, and access to care contribute to socioeconomic status. SDoH impacts a person's well-being, quality of life, and health. Examples of SDoH include safe housing, neighborhoods, transportation, discrimination, education, job opportunities, access to nutritious foods, language, and literacy skills (Healthy People, n.d.)). Even though social determinants are most frequently mentioned in discussions of inequalities or disparities, social factors can impact cardiovascular health.

In the United States, there is a strong link between race/ethnicity and hypertension. According to Doyle et al. (2019), social determinants of health play a dual role in the development of cardiovascular disease both independently and through biological and behavioral risk factors. Hypertension is more common in Blacks than in Whites and increases the likelihood of stroke and end-stage renal disease in the former disparately (Miller et al., 2020). According to Miller et al. (2020), maternal strokes affect approximately 30 in 100,000 pregnancies with one-third of these strokes happening during hospital delivery. However, previous studies have shown that approximately 45% of preeclampsia related deaths were preventable. Characteristics of one's neighborhood may have an impact on the prevalence of hypertension. Individuals who live in the most economically depressed areas are more likely to have high BP related to lack of access and quality of care (Miller et al., 2020). There is also a link between living in particular areas, such as the southeastern United States, and the predominance of hypertension (Miller et al., 2020). These and other sociodemographic variables of BP are vital to the prevention and

management of hypertension in pregnant Black women. As healthcare clinicians, recognizing the impact of SDoH on health behavior is an important aspect in treatment (Rethorn et al., 2019).

Healthcare Cost

Preeclampsia is a complication of pregnancy with a prevalence of 3% to 5% (Thilaganathan & Kalafat, 2019). It is the leading cause of morbidity and mortality for pregnant women in the developed world and has a significant economic burden on healthcare systems (Thilaganathan & Kalafat, 2019). A 2019 report from the Preeclampsia Registry noted that short-term medical costs were estimated to be \$2.18 billion for the U.S. healthcare system (Preeclampsia Foundation, 2019). Treatment of preeclampsia poses an increased economic burden on patients and families. Mothers who suffer from preeclampsia often must stay in the hospital at least 2 days longer, further increasing healthcare costs (Hao et al., 2019). Preeclampsia costs were nearly doubled when compared with uncomplicated pregnancies. The primary drivers of increased costs were related to high infant costs associated with preterm deliveries (Hao et al., 2019). By recognizing the burden preeclampsia can have on the U.S. healthcare system, it is important that commitment is made to improve and prevent these outcomes (Preeclampsia Foundation, 2019).

Knowledge

Clinicians' knowledge of social determinants and its effects on health is an essential. Research suggests that taking steps to implement interventions to address social determinants of health such as, income support, housing, and care coordination, generate positive outcomes (Daniel et al., 2018). For successful health outcomes, clinicians, policymakers, and communities must understand the roles these factors play. Although awareness does not guarantee improved health outcomes, it is an important component of the clinician's role as an advocate for their

patients (Daniel et al., 2018). Daniel et al. (2018) mentioned that according to the American College of Physicians (ACP), a better understanding of the issue by clinicians is necessary for successful implementation. Healthcare clinicians should be knowledgeable about screening and identifying SDoH and different approaches when treating patients whose health is affected by these factors throughout their training and career (Daniel et al., 2018).

Behaviors

Maternal mortality from hypertensive disorders during pregnancy is largely caused by inadequate care and the lack of timely referral. Antenatal care (ANC) is a key component of primary health care (PHC). Among the most critical functions is to identify high-risk pregnancies and provide necessary care. The early diagnosis of hypertension during pregnancy is critical for effective management. Because hypertension is one of the most common medical maternal complications, it is critical to educate the expecting mother about it and associated social determinants. Various studies agree that educating mothers about the importance of bed rest is critical in the management (Fasanya et al., 2021). In efforts to reduce potential negative health outcomes related to SDoH, clinicians can be important advocates. Clinicians need to identify the social and behavioral processes that will help in the progress of interventions (Daniel et al., 2018). Clinicians and policymakers can improve maternal health for these women by providing patient-centered care and addressing social determinants of health. According to the CDC, healthcare clinicians can help by asking questions to better understand their patient and the different things that may be affecting their lives (CDC, 2022).

Attitudes

Clinicians' attitudes also affect hypertension morbidity and mortality rates among expectant Black mothers. According to Mulund et al. (2018), 53% of clinicians stress the value

of blood pressure testing during ANC visits, while 31% do not recognize hypertension as a health risk in pregnant Black women. Additionally, Fasanya et al. (2021) noted that most healthcare providers rely on blood pressure measurements taken by the clinical staff without verifying them and the readings themselves. The diagnosis of hypertension in general or during pregnancy in any patient is difficult, and the proper management and modifications are dependent on the diagnosis. The ways in which these pregnant women interact with their healthcare clinicians can have direct implications for their health outcomes (Taylor, 2020). Access to treatment plays a major role but so does how one is treated.

Problem Identification

Hypertension remains a significant health comorbidity experienced during pregnancy. Hypertensive abnormalities during pregnancy have implications for the development of poor health outcomes for both the mother and the baby (Fasanya et al., 2021). Hypertension can cause maternal stroke, where social determinants of health such as race and ethnicity, socioeconomic status, and clinicians' attitude and behaviors are contributing factors. Insufficient blood pressure control is the most common trigger for CVD (Cortés & Breathett, 2021). Furthermore, hypertension-induced disorders contribute to poor fetal outcomes and raise the risk of a preterm birth, pregnancy loss, and neonatal death (Cortés & Breathett, 2021). According to Cortés and Breathett (2021), hypertension can expose the mother to an emergency cesarean delivery, which increases the risk of a baby with low birth weight or neonatal death. Hypertension affects 2.73% of women worldwide, while preeclampsia, and eclampsia affect 0.29%, 2.16%, and 0.28%, respectively. Globally, the incidence is high and rising, accounting for up to 31% of the population of approximately 1.4 billion adults. The prevalence of the disease in the adult

American population is 31.9%, using the >140/90 mm Hg blood pressure rate (Carey et al., 2018). However recent guidelines suggest >130/80 as stage 1 hypertension (AHA, 2022).

In the United States, Black women suffer from a higher rate of adverse pregnancy outcomes and are three times more likely to die from pregnancy related complications, that are often preventable when compared to other populations (Cortés & Breathett, 2021). Preeclampsia is a condition during pregnancy in which the development of hypertension and proteinuria (protein in the urine) occur after 20 weeks of gestation (Ogunwole et al., 2021). However, in 2013 and 2014, the International Society for the Study of Hypertension in Pregnancy and the American College of Obstetricians and Gynecologists revised their definitions of preeclampsia stating that a diagnosis of preeclampsia can now be made in the absence of proteinuria (Fasanya et al., 2021). Early identification and diagnosis of preeclampsia can be obtained by taking blood pressure (BP) readings at each prenatal care visit. Laboratory values associated with severe preeclampsia include thrombocytopenia; a decreased platelet count of $<100\,000 \times 10^9/L$, increased liver enzymes, and an increased serum creatine (Fasanya et al., 2021). The new definition has already increased cases of preeclampsia and superimposed preeclampsia by up to 10% (Fasanya et al., 2021). This change in guidelines has expanded inclusivity, among Black women to access a diagnosis and treatment since in the past, the diagnostic cut off would misclassify 41.4% of Black women as nonproteinuric in comparison to 22.9% of non-Black women (Fasanya et al., 2021, p. 251)

Normal pregnancy presents a significant strain on the maternal cardiovascular system and in women with evidence of worsening cardiovascular maladaptation, preeclampsia is the recognized clinical phenotype (Thilaganathan & Kalafat, 2019). Furthermore, Black pregnant women experience more complications related to preeclampsia when compared to Whites, with

two to three times higher fatality rates. Preeclampsia can be an indicator for a future diagnosis of chronic hypertension (Ogunwole et al., 2021). Additionally, Black women with preeclampsia can have poor long-term cardiovascular outcomes (Thilaganathan & Kalafat, 2019).

Preeclampsia and cardiovascular diseases share genetic and nongenetic risk factors (Thilaganathan & Kalafat, 2019). The current classifications of preeclampsia are based upon its severity and the timing of clinical presentation, mostly dividing preeclampsia into preterm (<37 weeks) or term (\geq 37 weeks) and early-onset (<34 weeks) or late-onset (\geq 34 weeks) (Thilaganathan & Kalafat, 2019). However, according to the American Heart Association (2021), a daily dose of 81mg of aspirin can help pregnant women who experience hypertension early on potentially avoid conditions such as preeclampsia.

Scope of the Problem

Hypertension among Blacks is the highest in the world, with 46% of expectant mothers experiencing blood pressure higher than 140/90 mm Hg (Fasanya et al., 2021). The economic implications of cerebrovascular risks in this group are potentially disastrous, given the limited costs of medical care and the impact of family income on impairments in young women. Despite measures taken for other comorbidities, studies have revealed clear racial differences in maternal deaths associated with preeclampsia and other hypertensive pregnancy complications, with Black and Hispanic mothers having a significantly higher risk than their White counterparts (Fasanya et al., 2021). These observed effects may be due to genetic variations, but socioeconomic class and healthcare quality have also been posited as important contributors.

On the other hand, the effect of maternal race on the risk of stroke is poorly understood. It is worth noting that hypertension and stroke-related death may be avoidable. According to Fasanya et al. (2021), 30% to 60% of preeclampsia-related deaths, the majority of which were

caused by hemorrhagic stroke, are preventable, and timely administration of antihypertensive agents is associated with a lower risk of both. Thus, clinicians recognizing racial inequality and effects of SDoH in maternal care, notably in hypertension management, may aid in the prevention of a significant percentage of hypertensive emergencies. It can increase clinicians' understanding and delivery of care for these women.

Consequences of the Problem

It is critical that clinicians are aware and able to assess and recognized the SDoH that impact Black pregnant women so they can provide them with the recommendations needed for optimal pregnancy outcomes. Hypertension is more common in Blacks than in Whites and increases the risk of stroke and end-stage renal disease in this group significantly (Hedderson et al., 2021). Besides, hypertension during pregnancy can complicate up to 10% of pregnancies and prevent the placenta from receiving enough blood (Carson, 2018). High blood pressure during pregnancy can lead to other complications, including stroke, kidney failure, and cesarean delivery (Rahman & McEvoy, 2018). Considering that disparities are present in healthcare delivery, it is only natural to posit that healthcare injustices, race, and social economic status can continue to contribute to hypertension complications among pregnant Black women, putting a financial burden on the healthcare system; therefore, it is essential to educate clinicians on evidence-based approaches to care for Black pregnant women.

A lack of clinical education on the best strategies of care for racial minorities has impacted the incidence of hypertension among expectant Black mothers (Daniel et al., 2018). Holistic, patient-centered, and culturally sensitive approaches that promote inclusivity and understanding serve to decrease stress levels in these women and can promote screening compliance in Black pregnant women. By assessing healthcare clinicians' attitudes, behaviors,

and knowledge in the SDoH that may affect hypertension in Black pregnant women, gaps of knowledge can be filled, and this can promote compliance and prevention to reduce cases of hypertension among these women. According to Fasanya et al. (2021), a lack of knowledge can lead to injustices in healthcare that produce physiological and psychological stress, where patients avoid seeking treatment. Furthermore, physiological, and psychological stress can contribute to the development of hypertension.

Knowledge Gaps

To overcome the limitations that hinder Black expectant women from accessing optimum care, it is important to first assess healthcare clinicians' knowledge levels and barriers on the SDoH that contributes to the healthcare injustices that this patient population faces. These determinants include racial inequalities, access to healthcare, education, economic status, language, and literacy. There is a lack of research on education programs to address such barriers, which should be made available to healthcare professionals. This intervention should be integrated in the health care system to avail it to doctors, nurses, advanced practice nurses, physician associates, and all allied health professionals. Incorporating it in the healthcare industry may reduce cases of healthcare inequality while highlighting the significance of testing blood pressure during ANC visits.

Furthermore, there is a gap in research on the selection, accessibility, and affordability of appropriate treatment, preventing the complication of hypertension management. Cultural aspects of long-term use of hypertension medications, varying needs of individual patients, and conflicting clinical trial designs and outcomes have all exacerbated management (Gbala & Adegoke, 2021). Persons with hypertension have different genetic characteristics, which may influence treatment selection and response. Research suggests there is a lack of knowledge with

clinicians understanding of the influences that keep people from obtaining better health outcomes or effective strategies given a patient's unique circumstances (Daniel et al., 2018).

Proposal Solution

Thus, the literature reviewed indicates that disparities in healthcare and lack of understanding of the effects of SDoH relating to Black pregnant women should be addressed. An educational intervention that includes a PowerPoint presentation that provides clinicians with an approach to integrating the structural social needs of Black pregnant women into healthcare can change the perceptions of clinicians and their attitudes towards pregnant women from minority communities. Educational programs should also target racial and ethnic inequality, prejudice against minorities, clinical malpractice, and providers' knowledge and attitudes. According to Carey et al. (2018), implementing such programs can improve the perceptions and attitudes of the healthcare workforce. The interventions should also include conducting a pre-survey of healthcare clinicians' knowledge before participating in the program to establish a basis of their baseline knowledge, attitudes, behaviors or any negative influences or perceptions. Following this, a post-survey was performed assuming that providing an intervention program regarding pertinent areas would change their knowledge levels, behaviors, and attitudes toward providing healthcare to Black pregnant women (Carey et al., 2018). The primary objective of this healthcare quality improvement program is to assess clinicians' knowledge, attitudes, and behaviors of how SDoH can impact Black pregnant women so clinicians can develop the competencies to provide patient-centered strategies to this population of women. This QI project also aimed to highlight the issues of SDoH that contribute to healthcare and social inequalities that pregnant Black women face in healthcare settings that require further intervention.

Chapter II

Summary of the Literature/Evidence Related to the Clinical Question

Literature Review

Emerging research shows that maternal morbidity and mortality are growing in the United States. The purpose of this quality improvement project was to increase knowledge awareness of the SDoH that affect hypertension prevention and control in pregnant Black women and assess for change in attitudes and behaviors. A literature review was conducted to identify knowledge gaps and current literature on the wellbeing of pregnant Black women and clinicians' knowledge, attitudes, and behaviors on social determinants of health using online databases. This literature review is centered on previous reviews and reports, and it is not a thorough review of published research on pregnant Black women's health; rather, it is a review of topics identified in the existing literature as top priorities for enhancing healthcare clinicians' knowledge, attitudes, and behaviors on the effects of social determinants and the health and wellbeing of pregnant Black women in the United States. A literature search was conducted by using the following databases: CINAHL, PubMed, and JAHA.

Inclusion Criteria

For the inclusion criteria, research articles that were primary and peer reviewed were considered. In primary articles, a research question is formulated, and this helps provide clinically relevant, reliable, and convincing evidence related to the objective. Inclusion criteria consisted of articles published between 2017-2022 and study participants above 18 years of age. The articles had to include *social determinants of health, Black women pregnancy complications morbidity, clinician or healthcare provider knowledge, and hypertension in pregnant Black women*. Only articles that have full text access and written in English were included.

Exclusion Criteria

In this literature review, articles were excluded if they did not include information specific to the research problem, or they were not written in the English language. Publications that were only abstract or not full text were excluded. Other exclusion criteria included duplicate articles, articles that were reviews, editorials, opinionated pieces and presentations, and articles published earlier than 2017. The search was narrowed to include healthcare clinicians working with adult populations and analyzed their knowledge, behaviors, and attitudes in assessing social determinants of health and care of pregnant Black women, and primarily focused on the US.

Literature Search Findings

The search generated approximately 100 articles PubMed ($n = 50$); CINAHL ($n = 20$), JAHA ($n = 30$). After applying the inclusion and exclusion criteria, 24 articles were reviewed in the literature review.

Summary of the Literature

Pre-eclampsia is a pregnancy-related hypertensive disorder that usually manifests itself after 20 weeks of pregnancy. It is one of the major causes of maternal and infant mortality throughout the world. According to recent findings, Black women are three to four times more likely than White women to die from pregnancy-related causes (Sharma et al., 2019). Unlike deaths from other primary drivers, pre-eclampsia-/eclampsia-related deaths continue to increase and are linked to various factors including social determinants of health. The precise cause of pre-eclampsia/eclampsia is unknown. However, Cortés and Breathett (2021) indicated that an anomalously implanted placenta is thought to be a major risk factor.

Futhermore, studies also reveal that preeclampsia is associated with several additional adverse acute cardiovascular events, such as organ dysfunction, cardiomyopathy, and cardiac

arrhythmias (Stearns et al., 2022). Preeclampsia raises a woman's risk of hypertension and cardiovascular disease such as stroke long term. Acute cardiovascular effects may play a role in the development of these long-term chronic diseases that can compromise on the health of individuals. These conditions are often preventable and often related to SDoH. Genetics and lifestyle often play an important role in health; however, research suggests that SDoH such as where people are born, live, work and age are equally as important (ACOG, 2018). SDoH are largely associated with health inequities in the United States (ACOG, 2018). Health equities can be achieved once healthcare clinicians and personnel address the underlying issues that prevent people from being healthy (NASEM, 2021). Health equity can be beneficial to everyone by creating economic growth and healthier environments (NASEM, 2021). Research suggests SDoH have been shown to affect many conditions cared for by obstetrician-gynecologists (ACOG, 2018).

Social Determinants of Health

The social determinants of health are conditions in which people are born and live, involving resources available to manage illnesses (Miller et al., 2020). They affect everyone and include both positive and negative aspects of these conditions (NASEM, 2021). SDoH impacts a person's well-being, quality of life and health. For example, SDoH impact people's health in that determinant such as unemployment contributes to depression (Singu et al, 2020). Determinants such as income or economic stability impacts people's ability to enroll in different insurance plans and thus impacts the kind of medical service one can access (Singu et al, 2020).

Clinicians' knowledge of social determinants and its effects on health is an essential. Daniel et al. (2018) emphasized the importance to address outcomes associated with SDoH, healthcare clinicians, policymakers, and communities should understand the roles these factors

play in individuals and surrounding communities. Healthcare clinicians should be knowledgeable about how to screen and identify SDoH and different approaches when treating patients whose health is affected (Daniel et al., 2018). Furthermore, Martinez et al. (2020) added that lack of knowledge of different resources to manage SDoH, skills in patient communication, and clinicians' comfort have been identified as priority areas for education improvement. Research suggests that clinicians' negative attitudes about the importance of the issue further interfere with the delivery of care (Martinez et al., 2020). Although organizations stress the importance of addressing and teaching SDoH, research suggests more work is needed in educating healthcare clinicians (Martinez et al., 2020). According to National Academies of Sciences, Engineering, and Medicine (2021), the importance of screening for social needs has led more providers to take on the role, however practice has yet to become universal. Most hospitals and physician practices do not perform screening for the five key domains of social needs: housing instability, food insecurity, utility needs, transportation needs, and intrapersonal violence (NASEM, 2021).

Medical Training and SDoH

Although organizations stress the importance of addressing and teaching SDoH, research suggests more work is needed in educating healthcare clinicians and personnel (Martinez et al., 2020). It is estimated that approximately 60% of preventable deaths are attributed to SDoH; therefore, it is important for healthcare clinicians to learn to identify and address SDoH to improve public health (Gard et al., 2020). Given the important role that determinants of health play in health and wellness of different populations, research suggests there is a need for healthcare professionals to be taught on how to incorporate these determinants in their treatment to identify the appropriate interventions applicable to each patient and their conditions. With the increasing push for patient-centered approach to treatment, medical schools have focused on

implementing programs that improve population and community health (Gard et al., 2020; Mullan, 2017). Medical colleges have developed training programs that focus on SDoH education. As Doobay-Persaud et al (2019) noted, there are many colleges that provide SDoH education though curriculum dissemination is still limited. The National Academies of Sciences, Engineering, and Medicine suggest that nursing education programs, including continuing education should ensure that nurses are equipped with the knowledge to address SDoH and achieve health equity (NASEM, 2021). SDoH must be addressed and understood to achieve health equity (Doobay-Persaud, 2019; Gard et al., 2020). Medical clinicians need to develop effective communication skills to address SDoH (Gard et al., 2020).

Barriers in Communication

Medical office staffing can be a barrier. Some practices may not have the staff readily available but should have the resources to refer (Herrera et al., 2019). Screening tools should be available in languages other than English to cater to the selected population to prevent language barriers (Herrera et al., 2019). A study conducted by Herrera et al. (2019) explored the implementation of the WE CARE model in the community health centers. The model was used as a framework to assess SDoH factors in patients and their families. The model assessed needs in six domains: employment, parental educational attainment, childcare, risk of homelessness, food security, and household health and electricity (Herrera et al., 2019). Clinicians were trained to review the screener and be involved in the primary referral process. The model allowed patients to seek needs they might have thought they did not need (Herrera et al., 2019). Clinicians found the implementation useful to their patients and organizations mission. The study was conducted utilizing a clustered randomized controlled trial in which three healthcare facilities were chosen to implement the selected WE CARE screening tool while the other three

continued their standard of care, no screening (Herrera et al., 2019). Data was collected through semi structured qualitative interview guides.

Pregnant Black Women

Black women have a higher maternal death rate, but they are also more susceptible to comorbid illnesses and poor pregnancy outcomes. Bornstein et al. (2020) noted that specific types of hemorrhage and preeclampsia are more common in Black women. Using national delivery data, the researchers discovered that women of color had higher rates of gestational and chronic high blood pressure, asthma, placental disorders, preexisting diabetes, and immune disorders than White women. Other established risk factors for gestational mortality and severe morbidity include advanced maternal age, a lack of maternity services, illiteracy, and poverty (Bornstein et al., 2020). A study conducted by Hauspurg et al. (2020) agreed that Black women are at higher risk for hypertension during pregnancy. Research suggests that complications are further seen in the postpartum period and lack of close follow-up (Hauspurg et al., 2020). According to Sharma et al. (2022), over the past two decades maternal cardiovascular risk factors such as hypertension, diabetes and obesity have increased, putting the at-risk population higher. Hauspurg et al. (2020) further emphasized the three to four times higher maternal death rate in Black women and believe contributing factors to be multifactorial and suggests SDoH as some.

With maternal mortality and morbidity continuously increasing, research suggests that pregnant Black women may have encountered lack of access to well-woman care, which may cause a delay in getting care when needed the most (Crear-Perry et al., 2021). Lack of access to primary care providers puts these women at risk for delay in care early on in pregnancy and lessens their ability to build trusting relationships with providers (Crear-Perry et al., 2021).

Screening for SDoH

SDoH screening can help to identify the need of the patient and thus help clinicians to provide targeted treatment. Größ et al (2021) conducted a study to examine the effectiveness of EHR-based SDoH screening as well as its facilitators and barriers. The study established that EHR-based screening was effective in identifying patients' needs. The study identified presence of screening advocate, grant requirement, encouragement from professional association, and flexible attitude, as among the facilitators of EHR-based screening. In examining the barriers and enablers of screening, Schwartz et al. (2020) established that screening was more effective when patients were hospitalized than on outpatient patients.

Research suggests that successful implementation can be difficult. Other screening tools used include Protocol for Responding and Assessing Patients' Assets, Risks and Experiences (PREPARE) and Health Begins screening tool (Bloch & Rozmovits, 2021). Clinicians must note that screening for SDoH is different than screening for traditional medical problems (O'Gurek, 2018). Clinicians should be encouraged to engage their entire practice population rather than only targeting subgroups when screening (Thornton & Persaud, 2018). Studies have shown screening for social needs routinely can help determine the assessments of need and the resources needed to address them in each area (Bloch & Rozmovits, 2021; Herrera et al., 2019). However, some clinicians noted lack of training and staff support as barriers to screening (Schickendanz et al., 2019).

Screening for SDoH requires the interviewer to ask potentially sensitive questions and introduce an interview that is less data driven and more relationship driven (Thornton & Persaud, 2018). This can be done with open and sensitive communication, which includes active listening and respect of one's cultural beliefs and practices (Brooks et al., 2019). This allows for the healthcare clinician to provide a more culturally patient centered approach to care. Cultural

competence is important when trying to understand the whys to patient behaviors (Brooks et al., 2019). Lack of culturally sensitive patient communication, increases the risk of negative perceptions, experiences, and miscommunication in care, leading too poor adherence to treatment and poor health outcomes (Brooks et al., 2019). Incorporating social factors is an essential part to improving both primary and secondary prevention in the treatment of acute and chronic illnesses (Crear-Perry et al., 2021).

Education to Improve Knowledge

Knowledge and awareness are important parts of clinicians' role as the patients' advocate. An understanding of issues affecting patients is necessary for effective implementation. One way knowledge is acquired is through education. Studies have investigated the impact of education and training on improving knowledge required to address the issue of SDoH. In a study by Gard et al. (2020), the researchers sought to examine internal and family medicine residents' competence in identifying and addressing SDoH. The study's participant size consisted of 129 residents. Data was collected by utilizing a cross-sectional survey with a purposive sampling approach. The study established that most residents had previous training on SDoH but lacked competence in addressing SDoH. The study's authors suggest incorporating educational interventions, may be a key component to addressing SDoH effectively. Incorporating experiential learning experiences across the curriculum can increase confidence and competence of students by providing hands on experience to serve as advocates in addressing SDoH (Crear-Perry et al., 2021; Thornton & Persaud, 2018).

A study by Bahmaid et al. (2018) investigated the impact of research educational intervention on knowledge, attitude, and perception of pharmacists towards evidence-based medicine. The study was conducted utilizing a pre/posttest quasi experimental design with 76

participants. Participants were randomly selected. The study established that evidence-based knowledge interventions improve knowledge, attitude, and perception of pharmacists towards evidence-based medicine. These two studies thus show that education and training can improve knowledge and implement change. Incorporating a focus on SDoH and health inequities into medical education and clinical training, may help create cultural understanding of patients and change the way clinicians recognize the SDoH that produce health outcomes (Crear-Perry et al., 2021).

Healthcare Clinicians' Attitudes

Research suggests that clinicians' negative attitudes about the importance of the issue further interfere with the delivery of care (Martinez et al., 2020). Research has found that solely incorporating SDoH into the didactic curriculum has not effectively influenced future engagement and advocacy (Thornton & Persaud, 2018). Thornton and Persaud (2018) noted that medical students who learned about SDoH from a didactic non-experiential approach have shown an increase in negative attitudes toward the medically underserved, suggesting incorporation of SDoH needs to go beyond the classroom. Attitude can be changed by attaching positive feeling on the target subject. O'Gurek et al. (2018) added that clinicians may easily become overwhelmed by having to incorporate one more thing into their daily practice flow. O'Gurek et al. (2018) and Bloch and Rozmovits (2021) both explained that assessing for SDoH cannot be the sole responsibility of the provider. Any provider can participate in social intervention to some degree. The success on these interventions is the desire of the clinician to prioritize them, engage in the community, and dedicate resources (Bloch & Rozmovits, 2021).

Healthcare Clinicians' Behaviors

Clinicians' behaviors are based on having or lacking knowledge. Research suggests that recognizing the importance of SDoH can help clinicians understand and communicate better with their patients. The study conducted by Herrera et al (2019) revealed that the healthcare clinicians and their staff had positive perceptions to utilizing the WE CARE model. The healthcare clinicians stated that incorporating such change was "productive" and "efficient" and easy to incorporate into their daily practice. However, participants suggested workflow should be formalized before implementation. Screening and coordinating the social needs of these patients may help prevent clinician and staff burnout (O'Gurek et al., 2018). After increased knowledge, studies suggest clinicians can refer the patients and their families to a community resource and engagement specialists (ACOG, 2019; Bloch & Rozmovits 2021). The CDC suggests clinicians can help patients and those accompanying them by helping them understand urgent maternal warning signs and when to seek immediate attention (CDC, 2022).

Interventions

Educating health care clinicians and staff about social determinants of health in maternal outcomes, the value of care coordination, cultural competency, and negative stereotypes are essential measures to address (Bornstein et al., 2020). These observations concur with findings of a recent survey conducted by Cortés and Breathett (2021) who note a disconnect between providers' commitment to acknowledge inequities in their practices. According to the American College of Obstetricians and Gynecologists (2018), most clinicians understood the importance of addressing SDoH; however, the majority also lacked confidence in addressing them due to lack of sufficient knowledge on how to handle the issue. Previous studies conducted by Bloch and Rozmovites (2021), O'Gurek et al. (2018), and Gard et al. (2020) concurred with the research findings from the American College of Obstetricians and Gynecologists (2018) who

note lack of confidence or knowledge in clinicians. Clinicians can also help patients manage chronic conditions and the conditions that may arise during pregnancy such as hypertension and diabetes to prevent further complications (CDC, 2022).

Summary

The reviewed literature agrees that first, hypertensive disorders are linked to a higher incidence of baseline cardiovascular illnesses, highlighting possibilities for primary cardiovascular preventative measures. When compared to women of other ethnic backgrounds, Black women have a higher number of basic cardiovascular chronic conditions such as hypertension, preexisting diabetes, and obesity (Chornock et al., 2021). SDoH affect everyone and should be addressed (NASEM, 2021). According to the National Academies of Sciences, Engineering, and Medicine (2021), SDoH include both positive and negative aspects of the conditions in which people are born, grow live, work and age and can be protective of good health (p. 32). However, many people exhibit the negative aspects of SDoH that contribute to increased morbidity and mortality (NASEM, 2021). Furthermore, the reviewed literature suggests the need for and importance of addressing SDoH. Research suggests education seminars and trainings have been effective on heightening clinicians' knowledge, attitudes, and behaviors in screening, managing, and providing resources to address SDOH when providing care.

Chapter III

Purpose/PICO Clinical Question/Objectives

Purpose

The purpose of this quality improvement project was to assess for change in healthcare clinicians' knowledge, attitudes, and behaviors in relation to the effects of social determinants on hypertension prevention and control in pregnant Black women at an outpatient OBGYN office after implementation of an educational intervention. Most patients seen at this clinical site are of Hispanic decent with 90% predominantly Spanish speaking. Just like pregnant Black women, pregnant Hispanic women have an increased risk for hypertension when compared to their White counterparts (CDC, 2021). Should these clinicians encounter pregnant Black women the purpose is for these clinicians to be prepared. The goal is to implement an educational intervention and assess for changes in knowledge, attitudes, and behaviors of these healthcare clinicians and personnel after attending an evidence based educational seminar. The results of this QI project will be to provide a screening tool and information that aims to minimize the SDoH that contribute to the healthcare and social inequalities that negatively impacts this population of women.

PICO Question

If health care clinicians (P) are provided and educational intervention on social determinants of health and its impact on Black pregnant women (I), will change occur in their knowledge, attitudes, and behaviors in providing patient counseling strategies that aim to prevent preeclampsia during pregnancy in this population of women (O)?

Population: Healthcare clinicians and personnel.

Intervention: An educational intervention on the SDoH that can affect pregnant Black women.

Comparison: Before and after the seminar.

Outcomes: Changes in participants' knowledge, attitudes, and behaviors in providing patient counseling strategies that aim to prevent preeclampsia during pregnancy in this population.

Objective

The primary objective of this project included: (a) to develop an evidence based PowerPoint presentation on mortality rates in pregnant Black women and the SDoH that may affect this outcome to improve health care clinicians knowledge attitudes and behaviors towards this population; (b) to develop a pre- and posttest to assess for any changes that took place after the implementation of the educational intervention; (c) to address and discuss with participants any questions/concerns regarding the presented information.

SWOT Analysis

A Strength, Weakness, and Opportunities and Threats (SWOT) analysis was used to assist with the organization in this educational quality improvement project. Strengths included the resources provided by the university such as online database to find evidence-based research articles. Strengths of the practice where the project will be implemented is the patient population of pregnant women. Weakness may include the small population of providers and staff within the practice, and a small population of pregnant Black women seen at this facility.

Opportunities of the study is that the healthcare personnel deal with pregnant women daily. The practice site does not have any current protocols in place for addressing SDoH. Chronic hypertensive pregnant patients are on medication, if a patient becomes high risk, they

follow the maternal fetal risk guidelines. The educational presentation was held in person to guarantee participation and attendance. The quality improvement project can provide opportunities for the healthcare clinicians and personal to learn and implement change in their practice. It can also bring awareness, help identify the areas that need to be addressed for clinicians, help guide the development of future education opportunities, and help develop policies. This project can also help identify the resources needed for clinicians to successfully address SDoH when providing care. Improving the knowledge of these participants will be a major step in addressing the SDoH that can affect hypertension prevention and control in pregnant Black women.

A threat to this project may be low participation rates. However, staff were highly encouraged to attend.

Chapter IV

Definition of Terms

- **Social Determinants of Health (SDoH)** – the conditions in the environment where people are born, live, work, learn, worship, play and age that affect many different health, functioning and quality-of-life outcomes and risks (Healthy People, n.d.).
- **Health Promotion** – the process of enabling people to increase control over and to improve their health (WHO, n.d.).
- **Health Inequity** – systematic differences in the health status of different population groups (WHO, 2018).
- **Hypertension** – Blood pressure that is higher than normal (CDC, 2021). Normal blood pressure is less than or equal to 120/80 (CDC, 2021).

Chapter V

Conceptual Underpinning and Theoretical Framework of the Project

The spirit level theory developed by British epidemiologists Richard Wilkinson and Kate Pickett (2010) framed the development of this study. Since the theory is based on social inequality and the effects they can have on health, it can be used as a framework on how to improve the knowledge, attitudes, and behavior of clinicians regarding ways of hypertension prevention and control among pregnant Black women. The theory associates' people's views and experiences of social status with health in that belonging to an unequal society causes stress and poor health. The spirit level theory links poor health to people's perceptions of their social hierarchy position (Delhey et al., 2017). The theory suggests that living in settings with social inequality influences people to continuously compare themselves, their possessions, and living standards to other people, which puts them at risk of chronic stress and poor health (Delhey et al., 2017). At the societal level, steep disparities in income and social status impact social cohesion and weaken the social bond. A weak social bond is also perceived as a risk factor for poor health. Employment is another essential health determinant because of its social consequences.

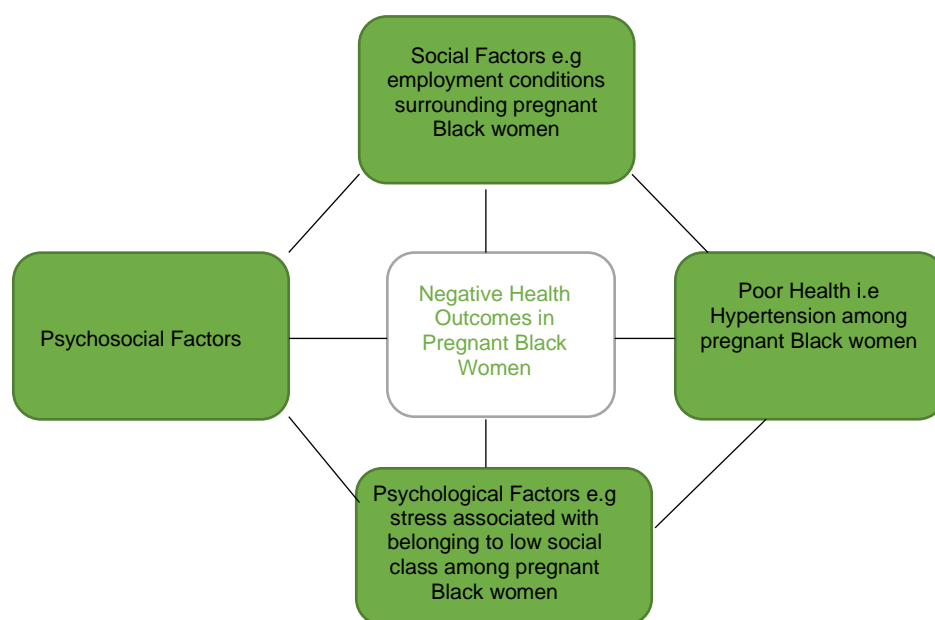
In line with the current study, pregnant Black women are among the minority groups in the U.S. and are at risk of influences of social inequality. The stress from SDoH they may encounter can put them at risk for developing hypertension. Psychosocial determinants of health may also affect treatment adherence amongst Black people (Kang et al., 2018). It is estimated that 43% to 65% are non-adherent, which is concerning because nonadherence can lead to increase future health risk (Kang et al., 2018).

Conceptual Model

Figure 1 depicts the conceptual model by providing a visual representation of the theoretical constructs that guided this research. The model highlights the interconnected relationships that psychosocial/social factors can influence one's health. The model relates to the study as it can be used to understand the connections between the multiple factors that can affect health among pregnant Black women. In the center is negative health outcomes in pregnant Black women surrounded by all the factors that are connected to putting these women at risk for adverse events. Previous research conducted highlights the importance of clinicians and healthcare personnel being aware of the various non-medical factors that can affect one's health. Social factors and health behaviors contribute to non-communicable disease epidemics such as diabetes, obesity, and hypertension (Beech et al., 2021). Figure 1 illustrates the key pathways through which various determinants of health can affect wellness in individuals such as pregnant Black women.

Figure 1

The Interconnected Relationships of Psychosocial and Social Factors in Pregnant Black Women



Methodology

Study Design

To apply evidence in practice such that a tangible impact on patient and community healthcare quality can be made, it was necessary to operationalize the evidence through the selection of a methodology to implement practice change. A review of the purpose and PICO question developed for this QI project indicates that an intervention (provider knowledge) was used, and a pre- and post-assessment of provider knowledge was employed to assess outcomes from the intervention. There was no control used in the methodology, and comparison for the project included an assessment of baseline and posttest knowledge, attitudes, and behavior scores of the project's participants; therefore, a quantitative methodology was utilized.

The project followed a quasi-experimental research design. Since participants for this QI were not randomly selected and were voluntarily selected from a group of clinicians currently working at a single private practice, a quasi-experimental research design was used. A QI project was conducted to assess the impact of an educational intervention on the SDoH that can affect hypertension prevention and control in pregnant Black women. A pre- and post-survey intervention was used to understand the impact of the educational intervention over a 2-week time frame. The educational seminar consisted of education on hypertension, the effects of hypertension in pregnancy, maternal death rates in pregnant Black women, SDoH and their importance in health, a screening tool to utilize and free resources for patients.

Setting and Sample

The QI project was conducted at an outpatient OB/GYN practice that offers patient care services to pregnant women. Although the primary population of patients consists of Hispanic women, all ethnic backgrounds are welcome. Other healthcare clinicians who may encounter the

target population were invited to participate. Recruitment of participants occurred over 2 to 3 weeks and involved outreach using an email to provide clinicians and healthcare personnel with some background information regarding the quality improvement project (Appendix III). In total, 14 healthcare clinicians and personnel currently working in the clinical setting agreed to participant in the project.

Procedures/Intervention

The project began by acquiring permission from the office manager at the practice site to provide the educational presentation to the healthcare clinicians and personnel working at the site. The site approval letter can be found in Appendix IV/V. Once approval for the project was obtained, Institutional Review Board (IRB) approval for the project was sought from Florida International University (FIU) (Appendix II). Following IRB approval for the project, recruitment began. This was done by the office manager who sent out invitations to participate in the study drafted by the author for those in the practice that contained instructions for completion and informed consent. The invitation included a brief introduction of the author and project plan attached to the email. Invitations were also sent out by the author to other healthcare providers who can attend the seminar via Zoom. Once acceptances were made, an email was sent followed by electronic consent to be obtained by participants. Once consents were obtained, the surveys followed via Qualtrics.

Measures/Instruments

The pre- and post-intervention surveys were utilized via Qualtrics to measure the changes in participants' knowledge, behaviors, and awareness in identifying the risk factors and assessment of SDoH in pregnant Black women. The questions used in the pre- and post-intervention surveys were the same.

The pre-survey including demographic data and current knowledge if any, attitudes, and behaviors was then obtained electronically prior to the educational seminar. The educational seminar included a PowerPoint presentation provided in person at the practice during a scheduled lunch break on July 13, 2022. The educational seminar included what social determinants are, evidence-based examples of its importance and the role they play in healthcare, hypertension in pregnant Black women, the importance of addressing SDoH, and a tool in how to assess and integrate the structural social needs of Black pregnant women. The total presentation was delivered in approximately 15-20 minutes to keep the participants engaged. Once the educational seminar was completed, the participants had 2 weeks to apply their knowledge to practice. A posttest was then given 2 weeks post presentation to assess for changes in knowledge, attitudes, and behaviors. Participants who opted not to complete the posttest during the follow-up period had their data excluded from the final analysis. Data collected from the pre- and posttests were evaluated and entered in GraphPad Prism version 9.4.1 for evaluation.

Protection of Human Subjects

The DNP student and mentor collaborated in obtaining the email addresses of each potential participant. Participants were recruited by email to participate in the educational session. The email contained information of the program description as well as electronic informed consent. All investigators apart of the quality improvement project have completed an online Collaborative Institutional Training Initiative Program (CITI) training. The project obtained approval by the Florida International University's Institutional Review Board (IRB) prior to implementation on June 13, 2022. Participation in this project was completely voluntary, and participants had the right to refuse or withdraw at any time. All healthcare personnel

participating in the quality improvement project were provided with the researcher and IRB contact information.

Benefits

The benefit of this QI project was to increase the participants' knowledge, attitudes, and behaviors in assessing and understanding the SDoH that can affect pregnant Black women. The participants had the opportunity to gain knowledge on maternal death rates in this population, SDoH and its affects and were provided with resources to combat this ongoing problem. It was expected that this QI project will benefit society by providing clinicians with information and resources about the social determinants that affect hypertension prevention and control in pregnant Black women in hopes to improve health outcomes amongst these women.

Risks

This quality improvement project may include "minimal risk" to the participants such as physical or psychological harm that is normally encountered in the daily lives of healthy persons. The participants were notified on the consent form and surveys that while this study is voluntary and there are no known alternatives other than not taking part in this study. No identifiable data will be presented in presentations and publications. Each participating personnel was assigned a unique unidentifiable ID number when completing the pre/post surveys to remain anonymous.

Data Collection

The data collected for this project was in the form of a pre and post survey. Both the pre and post survey, and electronic consent was delivered to each healthcare clinician and the staff in this practice and other healthcare clinicians willing to participate. A demographic survey was used to obtain a descriptive understanding of those participating in the study and included general information such as gender, age, race, highest level of education, and years of experience

(Appendix I). Additionally, the pre-intervention survey assessed the participants' knowledge, attitudes, and behaviors regarding SDoH and pregnant Black women, such as how often they assessed for SDoH and their awareness of death rates in these women. The data assisted in identifying how the educational presentation intervention improved their knowledge, attitudes, and behaviors on the proposed topic. Once recruitment and consents were confirmed, the pre-survey was administered via email through Qualtrics immediately prior to the education seminar, and the post-survey was administered via email 2 weeks after the seminar to assess for any change in attitudes, knowledge, and behaviors amongst the healthcare personal at this practice. A pre-/posttest was specifically created for this project (Appendix I).

Data Analysis

Data and analysis were obtained from the results of the pre- and post-survey. Data from the pre- and post-survey were entered into GraphPad Prism 9.4.1 by Dotmatics to obtain data analysis reports. The DNP candidate scored the data with a percentage and mean from both surveys. The scores were grouped according to the topic domain and compared for improvement. Descriptive statistics were used to analyze demographic data. Scores from the surveys were analyzed using a paired *t*-test to compare mean knowledge, attitudes, and behavior values for each pre- and post-intervention. Using the paired *t*-test, *p*-values were also obtained. An alpha level of 0.05 was used for all statistical tests.

Data Management

The data will be kept confidential and only myself and those on the project team will have access to results. Data and results were saved to a password-protected document that only the author had access to. According to Qualtrics, all data is secure with enterprise-grade security

features including encryption, redundancy, and continuous network monitoring. All data collected for the project will be destroyed within 3 years following project completion.

Chapter VII

Results

The purpose of this quality improvement project was to evaluate the impact of providing an educational session on the effects of SDoH on hypertension prevention and control in pregnant Black women for clinicians. Specifically, it sought to determine if providing an educational session will improve clinicians' knowledge, attitudes, and behaviors when assessing for and understanding the impact of SDoH in pregnant Black women. Twenty potential participants were invited to participate. Fourteen completed the pre survey and attended the educational session; of the 14, 10 completed both the pre- and post-intervention surveys.

Demographics

Table 1

Pre-Survey/ Post-Survey Participant Demographic Data

	Pre-Survey Count (n=10)		Post Survey Count (n=10)	
<u>Gender</u>				
Male	3	(30%)	3	(30%)
Female	7	(70%)	7	(70%)
Non-binary/third gender	0	(0.00%)	0	(0.00)
Prefer not to say	0	(0.00%)	0	(0.00)
<u>Age</u>				
18-24	2	(20%)	2	(20%)
25-40	6	(60%)	6	(60%)
41-55	1	(10%)	1	(10%)
55+	1	(10%)	1	(10%)
<u>Education Level</u>				
Highschool/GED	0	(0.00%)	0	(0.00%)
Associates	1	(10%)	1	(10%)
Bachelors	2	(20%)	2	(20%)
Masters	5	(50%)	5	(50%)
Doctorate/PhD	2	(20%)	2	(20%)
<u>Ethnicity</u>				
Hispanic/Latino	9	(90%)	9	(90%)
Black/African American	0	(0.00%)	0	(0.00%)
White or Caucasian	1	(10%)	1	(10%)
Native Hawaiian/ Other Pacific Islander	0	(0.00%)	0	(0.00%)
American Indian/Alaskan	0	(0.00%)	0	(0.00%)
Prefer not to answer				
<u>Years in the medical field</u>				
Less than a year	2	(20%)	1	(10%)
1-2 years	0	(0.00%)	1	(10%)
3-5 years	3	(30%)	3	(30%)
6-10 years	3	(30%)	3	(30%)
11-20 years	1	(10%)	1	(10%)
20+	1	(10%)	1	(10%)

Pre/Post-Survey Demographic Sample

The participants' demographics are exhibited in Table 1. Of the 10 participants in the pre/post- intervention sample, three (30%) were male, and seven (70%) were female. Of these participants, two (20%) were 18 to 24 years old, six (60%) were 25 to 40 years old, one (10%) was 41 to 55 years old, and one (10%) was older than 55 years old. The participants' education

levels varied with one (10%) having an associate degree, two (20%) having a bachelor's degree, five (50%) having a master's degree, and two (20%) having a Doctorate/PhD degree. Nine (90%) identified as Hispanic/Latino, and one (10%) identified as White/Caucasian. As for the years in the medical field, the participants medical experience ranged from less than a year to more than 20 years. More specifically, two (20%) had 2 years or less years of experience, three (30%) have 3 to 5 years of experience, three (30%) have 6-10 years of experience, one (10%) has 11-20 years, and one (10%) has twenty plus years of experience.

Seventy-two percent of the original participants completed the educational intervention. The 28% who did not complete the pre- and post-survey were removed from the dataset based off their anonymous unique identifier assigned. When comparing the demographic data pre- and post-intervention, almost all the answers remained the same. However, one participant changed their years of medical experience in the post-survey from less than one year to 1-2 years.

Pre- and Post-Intervention Results

Knowledge

Pre-Intervention

The number of respondents in the pre-intervention was 10. Eight out of the 10 respondents (80%) answered the query for the definition of SDoH as being economic and social elements that impact health. Moreover, 60% of the participants had received educational training on SDoH. On the other hand, four clinicians had not obtained training on SDoH. Ninety percent of the respondents acknowledged that the Black populace had the highest risk for contracting complications linked with SDoH. Furthermore, 30% of the participants were moderately knowledgeable of the potential risk factors of high BP in pregnant Black women. Of the 10 participants, 40% understood that pregnant Black women were two to three more times likely to

die, and 50% knew that 60% of the deaths are often preventable. In response to knowledge on screening tools, 50% stated they were unaware of such tools, and 70% were unaware of the Healthy Start free home visit program offered.

Post-Intervention

Nine out of the 10 respondents knew that SDoH were economic and social factors affecting health. All (100%) of the clinicians had stated that they have obtained training on SDoH. Ninety percent of the post-intervention participants indicated that Black women had the highest risks associated with SDoH. Seventy percent successfully stated that Black women are two to three times more times likely to die during pregnancy, and 60% stated that 60% of said deaths are preventable. The percentage of participants' responses to knowledge of SDoH is illustrated in Table 2 below.

Table 2*Participants' Knowledge of SDoH Pre- and Post-Intervention Scores*

Question	Pre-Intervention (n=10)	Post Intervention (n=10)	% Change
What are Social Determinants of Health?			
-I am not sure	0 (0.00%)	0 (0.00%)	0
-Economic conditions that influence health	0 (0.00%)	1 (10%)	10 ↑
-Social conditions that influence health	2 (20%)	0 (0.00%)	20 ↓
- Economic and social conditions that can influence health*	8 (80%)	9 (90%)	10 ↑
I have received educational training on social determinants of health throughout my career			
-True*	6 (60%)	10 (100%)	40 ↑
-Neither true nor false	4 (40%)	0 (0.00%)	40 ↓
- False	0 (0.00%)	0 (0.00%)	0

Which population below has the highest percentage of risk to negative outcomes related to SDoH in pregnant women?			
-Caucasians	0 (0.00%)	0 (0.00%)	0
-Blacks*	9 (90%)	9 (90%)	0
-Hispanics	1 (10%)	1 (10%)	0
-Asians	0 (0.00%)	0 (0.00%)	0
How knowledgeable are you of the potential risk factors associated with high BP in pregnancy?			
-Not knowledgeable	0 (0.00%)	0 (0.00%)	0
-Slightly knowledgeable	2 (20%)	0 (0.00%)	20 ↑
-Moderately knowledgeable*	3 (30%)	6 (60%)	30 ↑
-Very knowledgeable*	4 (40%)	3 (30%)	10 ↓
-Extremely knowledgeable*	1 (10%)	1 (10%)	0
How much more likely are Black women to die during pregnancy when compared to others?			
-5-6 times more likely	6 (60%)	2 (20%)	40 ↓
-2-3 times more likely*	4 (40%)	7 (70%)	30 ↑
-Less than 1 x more likely	0 (0.00%)	1 (10%)	10 ↑
What percentage of maternal deaths are preventable?			
-20%	1 (10%)	0 (0.00%)	10 ↓
-45%	2 (20%)	3 (30%)	10 ↑
-60%*	5 (50%)	6 (60%)	10 ↑
-80%	2 (20%)	1 (10%)	10 ↓
Are you aware of the different assessment tools to assess for SDoH such as PREPARE and the AAFP social needs screening tool?			
-Yes*	3 (30%)	7 (70%)	40 ↑
-Maybe	2 (20%)	2 (20%)	0
-No	5 (50%)	1 (10%)	40 ↓

Are you aware of the Free Healthy Start home visit program?			
-Yes*	3(30%)	9 (90%)	60 ↑
-Maybe	0 (0.00%)	1 (10%)	10 ↑
-No	7 (70%)	0 (0.00%)	70 ↓
The minimum package of patient education on HTN should include: (Mark all that apply)			
-Risk factors*	9 (19.57%)	9 (19.57%)	0
-Self screening*	9 (19.57%)	10 (21.74%)	2.17 ↑
-Numbers to call for questions*	10 (21.74%)	9 (19.57%)	2.17 ↓
- Resources for help and emergencies*	9 (19.57%)	9 (19.57%)	0
- How to use a BP cuff *	9(19.57%)	9 (19.57%)	0

Note: *= correct answer

Paired Sample *t*-Test

A two-tailed paired sample *t*-test was used to examine if the mean difference of knowledge from the pre- and post-intervention scores was significantly different from zero. The result of the two-tailed paired sample *t*-test was significant based on an alpha value of 0.05, $t = 3.3955$, and $p = 0.0094$. The findings suggest the mean difference from the pre- and post-survey was significantly different from zero. The mean score answered correctly was higher post-intervention. The results are presented in Table 3.

Table 3

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	61.11	84.44	3.3955	0.0094
SD	24.72	14.24		

Behaviors

Pre-Intervention

Of the participants, 80% of the healthcare clinicians and personnel indicated they had access to SDoH tools. In addition, 70% of the participants agreed that they knew how to screen for SDoH. One (10%) participant illustrated that they had no comprehension regarding the screening for SDoH. Nine (90%) of the respondents showed that they followed various protocols when caring for clients with hypertension, and 100% agreed that they routinely provide their patients with education on self-blood pressure monitoring. Of the 10 participants, 30% agreed to screening for safe housing, neighborhood, and transportation needs with each person, while 60% agreed to assessing for education/language and literacy skills with each patient. Twenty percent stated that they assess for job security, and 70% agreed that they assess for health behaviors with each patient. As for assessing for social support, only 50% stated that they did while 70% stated that they refer patients to outside resources when needed.

Post-Intervention

Eighty percent of the clinicians indicated that they had access to SDoH tools. Eighty percent of the respondents also showed that they comprehended how to screen for SDoH. Moreover, nine (90%) clinicians illustrated that they adhered to a standardized routine when caring for patients who had potential impacts of SDoH. However, only 90% stated that they routinely provide their patients with education on self-blood pressure monitoring, which is down 10% from pre-intervention. Of the 10 participants, 40% agreed to screening for safe housing, neighborhood, and transportation needs with each person, while 60% agreed to assessing for education/language and literacy skills with each patient. Thirty percent stated that they assess for job security and 80% agreed that they assess for health behaviors with each patient, which is a

10% increase from pre-intervention. As for assessing for social support, 70% stated that they did, and 70% stated that they refer patients to outside resources when needed. The percentage of participants responses to each question regarding behaviors is illustrated in Table 4 below.

Table 4

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

Question	Pre-Intervention (n=10)	Post Intervention (n=10)	%Change
There are available social determinants of health screening tools for clinicians and clinical staff to use in my clinical practice	8 (80%)	8 (80%)	0
-True*	2 (20%)	2 (20%)	0
-Neither true nor false	0(0.00%)	0 (0.00%)	0
-False			

For the following statements, please choose strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), or Strongly Disagree (SD).

- I know how to screen for social determinants of health	3 (30%)	3 (30%)	0
SA*	4 (40%)	5 (50%)	10 ↑
A*	2 (20%)	2 (20%)	0
U	0 (0.00%)	0 (0.00%)	0
D	1 (10%).	0 (0.00%)	10 ↓
SD			

- I have and follow a proper standardized screening protocol and diagnosis routine when attending clients with hypertension

SA*	4 (40%)	4 (40%)	0
A*	5 (50%)	5 (50%)	0
U	1 (10%).	1 (10%)	0
D	0 (0.00%)	0 (0.00%)	0
SD	0 (0.00%)	0 (0.00%)	0

- I routinely provide my clients with education on self-examination for blood pressure elevations

SA*	4(40%)	4 (40%)	0
A*	6 (60%)	5 (50%)	10 ↓
U	0 (0.00%)	1 (10%)	10 ↑
D	0 (0.00%)	0 (0.00%)	0
SD	0 (0.00%)	0(0.00%)	0

How often do you assess for safe housing, neighborhoods and transportation needs with each patient?

-Never	3 (30%)	2 (20%)	10 ↑
-Sometimes	4 (40%)	2 (20%)	20 ↓
-About half the time	0 (0.00%)	2 (20%)	20 ↑
-Most of the time*	3 (30%)	3 (30%)	0
-Always*	0 (0.00%)	1 (10%)	10 ↑

How often do you assess for education/language and literacy with each patient?

-Never	1 (10%)	2 (20%)	10↑
-Sometimes	3 (30%)	1 (10%)	20 ↓
-About half the time	0 (0.00%)	1 (10%)	10 ↑
-Most of the time*	2 (20%)	5 (50%)	30 ↑
-Always*	4 (40%)	1 (10%)	30 ↓

How often do you assess for job security with each patient

-Never	2 (20%)	1 (10%)	10 ↓
-Sometimes	5 (50%)	1 (10%)	40 ↓
-About half the time	1 (10%)	5 (50%)	40 ↑
-Most of the time*	2 (20%)	3 (30%)	10 ↑
-Always*	0 (0.00%)	0(0.00%)	0

How often do you assess for healthy behaviors with each patient?

Never	0 (0.00%)	0 (0.00%)	0
-Sometimes	2 (20%)	0 (0.00%)	20 ↓
-About half the time	1 (10%)	2 (20%)	10 ↑
-Most of the time*	3 (30%)	4 (40%)	10 ↑
-Always*	4 (40%)	4 (40%)	0

How often do you assess for social support and coping skills?

-Never	0 (0.00%)	0 (0.00%)	0
-Sometimes	3 (30%)	0 (0.00%)	30 ↓
-About half the time	2 (20%)	3 (30%)	10 ↑
-Most of the time*	1(10%)	6 (60%)	50 ↑
-Always*	4 (40%)	1 (10%)	30 ↓

How often do you refer each patient to outside resources when needed?

-Never	0 (0.00%)	0 (0.00%)	0
-Sometimes	0 (0.00%)	2 (20%)	20 ↑
-About half the time	3 (30%).	1 (10%)	20 ↓
-Most of the time*	4 (40%)	3 (30%)	10 ↑
-Always*	3 (30%)	4 (40%)	10 ↑

Note: *= correct answer

Paired Sample *t*-Test

A two-tailed paired sample *t*-test was used to examine if the mean difference of the behaviors from the pre- and post-intervention scores was significantly different from zero. The result of the two-tailed paired sample *t*-test was not quite significant based on an alpha value of 0.05, $t = 1.8605$, and $p = 0.0957$. The findings suggest the mean difference from the pre- and post- survey was not significantly different from zero, indicating not much change in behaviors post intervention. The mean score answered correctly was slightly higher post- intervention. The results are presented in Table 5.

Table 5

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

	Pre-Survey	Post-Survey	t value	p-Value
Mean	64	69	1.8605	0.0957
SD	25.03	20.25		

Attitudes

Pre-Intervention

Of the participants, seven (70%) were confident about their literacy expertise. Additionally, 80% of the participants were optimistic about their evaluation capabilities for the patients' housing and transport. However, a lower proportion of six (60%) respondents were confident in their abilities to evaluate the patient's occupation security. Furthermore, 70% of respondents felt prepared to assess for SDoH factors in pregnant Black women. Eighty percent agreed that assessing for SDoH in pregnant Black people is of importance, while 60% stated that they make the time to assess for SDoH with each patient. Seventy percent agreed that information about SDoH is important to improve patient care. Lastly, 40% disagreed that having access to patients' financial needs would not change their medical decision making, indicating that access to patient's financial needs would change the way they make medical decisions that best fit the patient's abilities and needs.

Post-Intervention

Eighty percent of the clinicians were confident about their literacy capabilities. In this case, 90% of the clinicians were sure regarding their assessment methods for the patient's housing and transport, which is a 10% increase from pre-intervention. Forty percent of the participants had confidence in their capabilities of evaluating patient occupation security. However, all respondents agreed they were prepared to assess for SDoH in pregnant Black

women. Ninety percent agreed that assessing for SDoH in pregnant Black people is of importance, while 70% stated that they make the time to assess for SDoH with each patient, which is a 10% increase from pre intervention. Ninety percent agreed that information about SDoH is important to improve patient care. Lastly 50% disagreed that having access to patient's financial needs would NOT change their medical decision making. The percentage of participants' responses to attitude of SDoH is illustrated in table 6 below.

Table 6

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

Question	Pre-Intervention (n=10)	Post Intervention (n=10)	%Change
How confident do you feel when assessing for education/language and literacy skills?			
-Extremely not confident	0 (0.00%)	1 (10%)	10↑
-Somewhat not confident	1 (10%)	0	10↓
-Neither confident nor not confident	1(10%)	1 (10%)	0
-Somewhat confident*	2 (20%)	7 (70%)	50↑
-Extremely confident*	6 (60%)	1 (10%)	50↓
How confident do you feel when assessing for safe housing, neighborhoods and transportation needs with each patient?			
-Extremely not confident	2 (20%%)	1 (10%)	10↓
-Somewhat not confident	0 (0.00%)	0 (0.00%)	0
-Neither confident nor not confident	0 (0.00%)	3 (30%)	30↑
-Somewhat confident*	6 (60%)	6 (60%)	0
-Extremely confident*	2 (20%)	0 (0.00%)	20↑
. How confident do you feel when assessing for job security?			
-Extremely not confident	1 (10%)	0 (0.00%)	10↓
-Somewhat not confident	1 (10%)	1 (10%)	0
-Neither confident nor not confident	1 (10%)	3 (30%)	20↑
-Somewhat confident*	5 (50%)	5 (50%)	0
-Extremely confident*	2 (20%)	1 (10%)	10↓
I feel prepared to assess for Social Determinants of health in pregnant Black women			
-Strongly Agree*	3 (30%)	7 (70%)	40↑
-Somewhat agree*	4 (40%)	3 (30%)	10↑
-Neither agree nor disagree	1 (10%)	0 (0.00%)	10↓
-Somewhat disagree	2 (20%)	0 (0.00%)	20↓
-Strongly Disagree	0 (0.00%)	0 (0.00%)	0
I understand it is important to assessing for social determinants of health in pregnant women			
-Strongly Agree*	8 (80%)	8 (80%)	0
-Somewhat agree*	0 (0.00%)	1 (10%)	10↑
-Neither agree nor disagree	1 (10%)	0 (0.00%)	10↓
-Somewhat disagree	0 (0.00%)	1 (10%)	10↑
-Strongly Disagree	1 (10%)	0 (0.00%)	10↓

I make time to assess for social determinants of health in every pregnant patient I encounter			
-Strongly Agree*	2 (20%)	6 (60%)	40↑
-Somewhat agree*	4 (40%)	1 (10%)	30↓
-Neither agree nor disagree	2 (20%)	1 (10%)	10↓
-Somewhat disagree	2 (20%)	2 (20%)	0
-Strongly Disagree	0 (0.00%)	0 (0.00%)	0
Information about social needs is important to improve patient care and communication.			
-Strongly Agree*	7 (70%)	9 (90%)	20↑
-Somewhat agree*	0 (0.00%)	0 (0.00%)	0
-Neither agree nor disagree	1 (10%)	0 (0.00%)	10↓
-Somewhat disagree	2 (20%)	1 (10%)	10↓
-Strongly Disagree	0 (0.00%)	0 (0.00%)	0
Having access to patients social and financial needs would NOT change my medical decision making?			
-Strongly Agree	3 (30%)	3 (30%)	0
-Somewhat agree	0 (0.00%)	0 (0.00%)	0
-Neither agree nor disagree	3 (30%)	2 (20%)	10↓
-Somewhat disagree*	2 (20%)	2 (20%)	0
-Strongly Disagree*	2 (20%)	3 (30%)	10

Note: *= correct answer

Paired Sample *t*-Test

A two-tailed paired sample *t*-test was used to examine if the mean difference of attitudes from the pre- and post-intervention scores was significantly different from zero. The result of the two-tailed paired sample *t*-test was not significant based on an alpha value of 0.05, $t = 1.1062$, and $p = 0.3052$. The findings suggest the mean difference from the pre- and post-survey was not significantly different from zero. The mean score answered correctly was slightly higher post-intervention, indicating a slight change. The results are presented in Table 7.

Table 7

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

	Pre-Survey	Post-Survey	t value	p-Value
Mean	68.75	75	1.1062	0.3052
SD	13.56	17.73		

Chapter VIII

Discussion

The overall findings of this project suggest that following the implementation of an educational intervention, healthcare clinicians' and personnel's knowledge, attitudes, and behaviors can improve regarding the SDoH that can affect pregnant Black women. 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. Nine out of the 10 respondents knew that SDoH were economic and social factors affecting health. Ninety percent of the post-intervention clinicians and personnel indicated that Black women had the highest risks associated with SDoH, 70% successfully stated that Black women are two to three times more likely to die during pregnancy, and 60% stated that 60% of said deaths are preventable.

Furthermore, the data obtained for this QI project does indicate that clinician education on SDoH does improve knowledge and indicates that an educational intervention should be used to increase knowledge. While it is not possible to state with certainty that increased provider knowledge will lead to changes in practice, based on current literature, there is reasonable evidence to suggest that this outcome will eventually occur. Crear-Perry et al. (2021) stated that by incorporating a focus on SDoH and health inequities into medical education and clinical training, it may help create cultural understanding of patients and change the way clinicians recognize the SDoH that produce health outcomes.

Data from the survey provided beneficial information and an insight into clinicians' knowledge and perception of SDoH barriers for pregnant Black women and common misconceptions and areas of weakness for care in this population. After speaking with some

clinicians post survey, the majority were surprised at the alarming number of deaths and the percentage of preventability of such deaths. Clinicians stated they knew Black women were at higher risks for complications but did not know the risk of higher maternal mortality rates in this population. Thus, the data showed that it would be crucial for clinicians to get involved with healthcare educators as well as the organizations to implement policies and practice change.

Data from the attitudes and behaviors section were not as significant. Further data could be tracked longitudinally to determine if knowledge, attitudes, and behaviors are retained and further advocated for implementing resources to positively impact pregnant Black women in clinical settings throughout various communities. Providing a similar intervention is a practice with a higher population of black women may have positive results. Apart from this QI project, it would be helpful to expand the number of nurses and healthcare clinicians involved in education while also expanding the project to different practice sites to determine if the results are similar. This QI project can support instrumental change and impact local, national, and global communities.

Chapter IX

Limitations

Several limitations were found that may have affected the QI project findings. Although the research yielded valuable data, a larger sample size would be beneficial in further studies. Larger sample sizes could benefit the statistical breakdown of the data and lead to the development of more significant research outcomes. The project consisted of a small convenient sample of clinicians from a single healthcare facility that consisted of 14 participants that completed the pre survey, where only 10 participants completed the post survey. The small population sample was partly due to a language barrier with majority of the staff at the practice location. Furthermore, without a control group, it is hard to conclude that the positive change in clinicians' knowledge, attitudes, and behaviors was based solely on the educational intervention or additional training. Consistency lacked in some questions from pre to post survey, which may have shown lack in interest or rush when answering post intervention questions.

The DNP candidate developed the survey questions from evidence-based literature reviews. However, the educational intervention time was limited. The survey tool had also not been assessed for reliability and validity. Lack of randomization in the sample suggests that the sample used was not representative of the larger population (clinicians who provide care for Black pregnant women). Also, during the pre- intervention, the participants may have been uninterested and less careful in considering their responses, but after attending the educational intervention, they may have taken the posttest more seriously. As a result, the results of this project may not be generalizable to other health care clinicians working in diverse practice settings.

Chapter X

Implications for Advanced Practice Nursing

Cultural competence is an important aspect to healthcare. Healthcare clinicians and personnel should be aware of and understand the different Social Determinants of Health that can negatively affect the health and wellness of individuals, particularly pregnant Black women. Knowledge and awareness are important parts of clinicians' role as the patients' advocate. In some cases, the SDoH that are affecting the patient are easily identifiable, but often, they are not. That is why it is important to understand and know how to assess for them. Based on this small sample population, the lack of knowledge in the pre-survey and the improvement in knowledge and awareness after the educational intervention are apparent. There were also improvements in attitudes and behaviors post-intervention. APRN programs should implement SDoH training into their curriculums and screening for SDoH should be standardized in all patient care.

This project was conducted primarily at a single healthcare facility over a 2-week period. Further research on larger scale over a longer period should be conducted to determine if providing an educational intervention on the SDoH that can affect hypertension prevention and control in pregnant Black women improve assessment and patient outcomes as maternal death rates in this population are still on the rise. Additional research with a larger scale could also help researchers understand any barriers to assessing for SDoH in various practice settings, as well as develop different training content for healthcare clinicians and personnel. Although the sample population consisted of mostly Hispanic healthcare clinicians and personnel taking care of mostly Hispanic patients, it is important that these clinicians as well as all clinicians are better educated and able to understand and assess the needs of other populations. Therefore, facilities should have yearly educational sessions such as workshops on cultural competence and the

SDoH that can affect certain populations. Advanced practice nurses can collaborate with educators and policy makers to change policies and influence change within the education curriculum to include SDoH training in all healthcare programs and standardized SDoH screening for all patients.

Dissemination and Sustainability

APRNs must continue to be active in contributing evidence-based guidelines and standards to improve healthcare outcomes for patients. This QI study's results are appropriate for dissemination within various settings such as the interventions practice setting, similar facilities, and professional nursing research conferences. Project findings were presented at the Nurse Practitioner Council Meeting "Strategies to Strengthen Healthcare Delivery Through Quality Improvement Initiatives." A poster presentation was also presented at the 8th Annual Florida Nursing Association (FNA) Nursing Research & Evidence-Based Practice Conference. In the Spring of 2023, findings will be presented at another FNA conference. A manuscript will also be submitted to the *Journal of The American Association of Nurse Practitioners*. An important focus is on the sustainability of this evidence-based project within the healthcare organization. It is essential to continue promotion of the QI projects educational intervention within the community to help improve awareness and knowledge.

Chapter XI

Conclusion

This quality improvement project demonstrated the benefit of increased provider knowledge following an educational presentation on the SDoH that can negatively affect pregnant Black women. Maternal death rates in Black women are at an increased rate and often preventable. Although this quality improvement project does have some notable limitations, there is enough evidence to support a practice change based on the current evidence, indicating that educating health care clinicians and staff about social determinants of health in maternal outcomes, the value of care coordination, cultural competency, and negative stereotypes, are critical measures to address. Better screening, evaluation and follow-up are essential. By providing routine educational training on the effects of SDoH on vulnerable populations such as pregnant Black women to healthcare clinicians and personnel can positively impact this population. Furthermore, research suggests education seminars and trainings have been effective on heightening clinicians' knowledge, attitudes, and behaviors in screening, managing, and providing resources to address SDOH when providing care. Lastly, the results of this QI project show the positive impact on a smaller population. These findings suggest healthcare professionals may benefit from yearly educational seminars on SDoH to improvement maternal outcomes in Black women. Furthermore, by incorporating SDoH training at the academic level in curriculums such as in the bachelor's in nursing (BSN) programs and advance practice provider programs (Family Nurse Practitioner and Women's Health Nurse Practitioner), these students can apply their knowledge early in their careers.

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Appendix I

INTRODUCTION

This quality improvement project aims to determine the impact of educational interventions for healthcare clinicians and healthcare personnel on improving the prevention, screening, and diagnosis of hypertension for Black pregnant women as they relate to Social Determinants of Health.

Please answer the questions below to the best of your ability. This will help to ensure that areas of knowledge gaps are covered in the intervention. The questions are structured differently, and instructions are provided on how to answer each question. These questions are meant to test knowledge, attitudes, behaviors and perceptions on screening, diagnosis and management, and patient education on the effects of Social Determinants of health in hypertension prevention and control in pregnant Black women.

Your responses and comments will help to improve future educational interventions and programs; as well as assess how much knowledge you have acquired by participating in this educational intervention.

- *Please do not write your name or other personal information on this questionnaire*
- *Your answers are anonymous and will be kept confidential*
- *Your participation is voluntary and will not have any bearing on your position*

Demographics

1. How would you describe your gender?
 - a. Male
 - b. Female
 - c. Prefer not to answer
2. What is your age range?
 - a. 18-24
 - b. 25-40
 - c. 41-55
 - d. 55+
3. What is your highest education level?

- a. Highschool/GED
 - b. Associates
 - c. Bachelors
 - d. Masters
 - e. Doctorate/PhD
4. What is your ethnicity?
- a. Hispanic/Latino
 - b. Black/African American
 - c. White or Caucasian
 - d. Native Hawaiian/ Other Pacific Islander
 - e. American Indian/ Alaskan Native
 - f. Prefer not to answer
5. How long have you been in the medical field?
- a. Less than a year
 - b. 1-2 years
 - c. 3-5 years
 - d. 6-10 years
 - e. 11-20 years
 - f. +20 years

Knowledge

1. What are Social Determinants of Health?
 - a. I am not sure
 - b. Economic conditions that influence health
 - c. Social conditions that influence health
 - d. Economic and social conditions that can influence health
2. I have received educational training on social determinants of health throughout my career.
 - a. True
 - b. False
 - c. Unsure
3. Which population below has the highest percentage of risk for negative health care outcomes related to Social Determinants of health in pregnant women?
 - a. Caucasians
 - b. Blacks
 - c. Hispanics
 - d. Asians
4. How knowledgeable are you of the potential risk factors associated with high blood pressure in pregnancy?
 - a. Not knowledgeable
 - b. Somewhat knowledgeable
 - c. Very Knowledgeable
5. How much more likely are Black women to die during pregnancy when compared to others?
 - a. 5-6x more likely
 - b. 2-3 times more likely
 - c. Less than 1 time more likely

6. What percentage of maternal deaths are preventable?
 - a. 20%
 - b. 45%
 - c. 60%
 - d. 80%
7. Are you aware of the different assessment tools to assess for social determinants of Health such as PREPARE and the AAFP social needs screening tool?
 - a. Yes
 - b. No
8. Are you aware of the Free Healthy Start home visit program for pregnant women in Florida?
 - a. Yes
 - b. No
9. The minimum package of patient education on hypertension should include: (Mark all that apply)
 - a. Risk factors
 - b. Self-screening
 - c. Numbers to call for questions
 - d. Resources for help and emergencies
 - e. How to use a BP cuff

Behaviors

10. There are available social determinants of health screening tools for clinicians and clinical staff to use in my clinical practice.
 - a. True
 - b. False
 - c. I am not sure
11. For the following statements, please choose strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), or Strongly Disagree (SD);

Statement	SA	A	U	D	SD
I know how to screen for social determinants of health					
I have and follow a proper standardized screening protocol and diagnosis routine when attending clients with hypertension					
I routinely provide my clients with education on self-examination for blood pressure elevations					

12. How often do you assess for safe housing, neighborhoods and transportation needs with each patient?
 - a. Never
 - b. Almost never
 - c. Sometimes
 - d. Frequently

- e. Always
13. How often do you assess for education/language and literacy with each patient?
- a. Never
 - b. Almost never
 - c. Sometimes
 - d. Frequently
 - e. Always
14. How often do you assess for job security with each patient?
- a. Never
 - b. Almost never
 - c. Sometimes
 - d. Frequently
 - e. Always
15. How often do you assess for healthy behaviors with each patient?
- a. Never
 - b. Almost never
 - c. Sometimes
 - d. Frequently
 - e. Always
16. How often do you assess for social support and coping skills?
- a. Never
 - b. Almost never
 - c. Sometimes
 - d. Frequently
 - e. Always
17. How often do you refer each patient to outside resources when needed?
- a. Never
 - b. Almost never
 - c. Sometimes
 - d. Frequently
 - e. Always

Attitudes

18. How confident do you feel when assessing for education/language and literacy skills?
- a. Not confident
 - b. Somewhat confident
 - c. Very confident
19. How confident do you feel when assessing for safe housing, neighborhoods and transportation needs with each patient?
- a. Not confident
 - b. Somewhat confident
 - c. Very confident
20. How confident do you feel when assessing for job security?
- a. Not confident
 - b. Somewhat confident
 - c. Very confident
21. I feel prepared to assess for Social Determinants of health in pregnant Black women

- a. Strongly Agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly Disagree
22. I understand it is important to assessing for social determinants of health in pregnant women.
- a. Strongly Agree
 - b. Agree
 - c. Undecided
 - d. Disagree
 - e. Strongly Disagree
23. I make time to assess for social determinants of health in every pregnant patient I encounter
- a. Strongly Agree
 - b. Agree
 - c. Undecided
 - d. Disagree
 - e. Strongly Disagree
24. Information about social needs is important to improve patient care and communication.
- a. Strongly Agree
 - b. Agree
 - c. Undecided
 - d. Disagree
 - e. Strongly Disagree
25. Having access to patients social and financial needs would NOT change my medical decision making?
- a. Strongly Agree
 - b. Agree
 - c. Undecided
 - d. Disagree
 - e. Strongly Disagree
 - f. Does not apply to me

Appendix II



Office of Research Integrity
Research Compliance, MARC 414

Deana Goldin

Nina Boria

A handwritten signature in black ink, consisting of the letters "EJ" in a cursive style.

June 16, 2022

**"Improving healthcare clinicians' knowledge, attitudes, and behaviors
in relation to the effects of social determinants on hypertension
prevention and control in pregnant black women: A Quality
Improvement Project"**

IRB-22-0283
111930

06/16/22

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.

discontinued.

or

Special Conditions: N/A

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

EJ

Appendix III



Recruitment email for Improving healthcare clinicians' knowledge, attitudes, and behaviors in relation to the effects of social determinants on hypertension prevention and control in pregnant Black women: A Quality Improvement Project

Dear Healthcare Providers and staff,

My name is Nina Boria, and I am a student from the Graduate Nursing Department at Florida International University (FIU). I am writing to invite you to participate in my quality improvement project. The goal of this project is to improve healthcare clinicians and personnel knowledge in relation to the effects of social determinants on hypertension prevention and control in pregnant Black women. You are eligible to take part in this project because you provide or may provide care and/or help to pregnant Black women.

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 be presented with an approximately 20-minute-long educational presentation. You will then be asked to complete the post-test questionnaire approximately 2 weeks later, which is expected to take approximately 10-15 minutes. No compensation will be provided.

Remember, this is completely voluntary. Snacks will be provided. You can choose to be a part of the study or not and withdraw at any time. If you'd like to participate, please click on the link provided (link for Qualtrics questionnaire). If you have any questions about the study, please contact me via email at nbori006@fiu.edu or call at 516-492-4599.

Thank you very much. Look forward to sharing with you
Sincerely,
Nina Boria

Appendix IV

Kendall OB/GYN CARE, INC.
8200 SW 117th Ave, Suite 310
Miami, FL 33183
786-200-8442



11760 SW 40 St #518
Miami, FL 33175
305-533-2888

June 1, 2022

Deana Goldin, PhD, DNP, APRN, FNP-BC, PMHNP-BC
Associate Professor
Nicole Wertheim College of Nursing & Health Sciences
Florida International University

Dear Dr. Deana Goldin,

Thank you for inviting Birth Etc., Inc to participate in the DNP Project of Nina Boria. 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 clinicians' knowledge, attitudes, and behaviors in relation to the effects of social determinants on hypertension prevention and control in pregnant black women: A Quality Improvement Project". I have warranted her permission to conduct the project at this clinic.

This project intends to evaluate if a providing an educational presentation for participants will change their knowledge attitudes and behaviors when assessing the potential impacts of social determinants of health on pregnant black women. The project will be conducted with the previous consent of potential participants. Prior to the implementation of this project, the Florida International University Institutional Review Board will evaluate and approve the procedures to conduct this project. The office will allow the student to access the facility, obtain consent, deliver the pre-survey questionnaire, provide the educational intervention, and give the post-survey to the participants.

We're certain that Nina Boria will not interfere with the normal office performance, will keep professional manner, and follow the office standards of care. I support the participation of our providers and staff in this project and look forward to working with you.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lissy', written over a thin horizontal line.

Lissy
Office Manager
Kendall OB/GYN CARE, INC.

Appendix V

Birth, Etc Inc
8200 SW 117th Ave, Suite 310
Miami, FL 33183
786-200-8442



May 19th, 2022

Deana Goldin, PhD, DNP, APRN, FNP-BC, PMHNP-BC
Associate Professor
Nicole Wertheim College of Nursing & Health Sciences
Florida International University

Dear Dr. Deana Goldin,

Thank you for inviting Birth Etc., Inc to participate in the DNP Project of Nina Boria. 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 clinicians' knowledge, attitudes, and behaviors in relation to the effects of social determinants on hypertension prevention and control in pregnant black women: A Quality Improvement Project". I have warranted her permission to conduct the project at this clinic.

This project intends to evaluate if a providing an educational presentation for participants will change their knowledge attitudes and behaviors when assessing the potential impacts of social determinants of health on pregnant black women. The project will be conducted with the previous consent of potential participants. Prior to the implementation of this project, the Florida International University Institutional Review Board will evaluate and approve the procedures to conduct this project. The office will allow the student to access the facility, obtain consent, deliver the pre-survey questionnaire, provide the educational intervention, and give the post-survey to the participants.

We're certain that Nina Boria will not interfere with the normal office performance, will keep professional manner, and follow the office standards of care. I support the participation of our providers and staff in this project and look forward to working with you.

Sincerely,

Clarissa Carbo, CNM
Owner
Birth Etc. Inc