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Racheal Lakine-Harden

University of Missouri-St. Louis, rdl7qc@mail.umsl.edu

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Implicit Bias Training for Perinatal Nursing

Racheal Lakine-Harden

Bachelor of Science in Nursing, Chamberlain College of Nursing, 2012

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in partial fulfillment of the requirements for the degree
Doctor of Nursing Practice with an emphasis in Family Nurse Practitioner

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Advisory Committee

Susan Dean-Baar, PhD, RN, FAAN
Chairperson

Cathy Koetting, PhD, DNP, APRN

Samantha Kohler, MSN, RN

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Abstract

Problem: Maternal and fetal morbidity and mortality is a rising health care crisis in the United States. Black women are disproportionately affected. Clinician implicit bias and medical racism have been named as factors in this crisis. Recommendations to address this public health peril include; educating and raising awareness among front-line perinatal nursing staff on implicit bias and its consequences for Black women. The purpose of this project is to evaluate the impact of implicit bias training on nurses' awareness of implicit bias, attitudes, and beliefs about disparities, and the likelihood to engage in behaviors to reduce or address racial bias and promote health equity.

Methods: A descriptive cohort design with a convenience sample of nurses employed on a women's services unit in a midwestern urban hospital was utilized. Participants were administered a pre-education Implicit Association Test (IAT), to establish baseline awareness of their own biases and a pre-education survey. Educational modules on implicit bias in perinatal care were assigned to participants. A post-education IAT and survey were administered. An analysis of participants' survey results was performed. The primary outcome of interest was the level of implicit bias awareness among staff nurses as determined by pre-and post-training surveys.

Results: A total of 31 pre-education surveys and 28 post-education surveys were returned. 30 participants engaged in the implicit bias education modules. On the questions related to the engagement behaviors of nurse participants, all results indicated statistical significance based on an alpha value of .05. No significant difference was found on the other items. Participants indicated a mean of 4.37 (SD=0.74) on the post-education question "I feel more aware of implicit bias and its effects on perinatal outcomes."

Implications for practice: This quality improvement project resulted in mixed results.

However, the questions related to the engagement behaviors of the individual nurse all resulted in statistical differences when comparing the pre-and post-survey results.

Participants' mean scores indicate they feel more aware of implicit bias and its effects on perinatal outcomes after having participated in the education. This reflects a positive response to the training and suggests the training achieved its overall intended result.

Implicit Bias Training for Perinatal Nursing

The health and well-being of pregnant women are important markers for the quality of healthcare. A Healthy People 2020 goal is to decrease pregnancy-related adverse outcomes in the United States. (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion [DHHS], 2014). However, over the last two decades, maternal mortality has grown significantly. Across the United States, Black women are 3 to 4 times more likely to experience pregnancy-related deaths than white women (Arrington et al., 2021). The Centers for Disease Control and Prevention (CDC) reported the 2019 pregnancy-related death rate in Missouri was 28.5 deaths per 100,000 live births (CDC, 2019). In Missouri, Black women were found to be disproportionately affected with 65 deaths per 100,000 live births when compared to the general mortality rate (CDC, 2019). Additionally, Black women are two times more likely to suffer severe maternal morbidity. These numbers reflect an increasing crisis and immediate attention is necessary.

While maternal death rates of all women in the United States (U.S.) have risen, the disparity that exists in the data for Black women, from varying socioeconomic backgrounds is staggering. The disparity cannot be solely attributed to differences in educational attainment, as the disparity exists even after controlling for these factors (Tanner et al., 2020). Black women have historically suffered from inequity in health care in the U.S. (National Academies of Sciences, Engineering, and Medicine [NASSEM], 2020, p.4). This inequity seems to be a key driver in the maternal mortality crisis, as evidenced by the framework developed by Malawi et al. (2021). This framework positions racism, not race, as the root cause for racially inequitable healthcare outcomes. Understanding the causes of this crisis is necessary to begin the work required to reverse

this public health trend. Although the cause of racial health disparities is multifactorial, decades of research has found clinician implicit bias to play a contributing role (Hamm et al., 2020). This highlights the need for solutions to tackle implicit bias in clinical training and practice to reduce inequities (Moreish & Kiernan, 2020).

Implicit bias is defined as thoughts and feelings that exist outside of conscious awareness and subsequently can affect human understanding, actions, and decisions unknowingly (Saluda & Bryant, 2021). This bias can affect a clinician's perceptions and decisions, thereby creating disparities in access, patient-provider interactions, treatment decisions, and health outcomes (Howell et al., 2018). Implicit bias is an attitude in which the person does not realize they hold.

Black women have reported coping with confusion, lack of knowledge about their health, difficulty in communicating with providers, and, for some, perceived socioeconomic and racial bias in their care (Roman et al., 2017). This illustrates the ramifications of implicit bias to minority women and their relationship to the healthcare system. Evidence-based implicit bias training could play a critical role in improving the quality of patient-doctor communication and promote greater support for major systemic changes in medicine (Green et al., 2021).

Implicit bias training and education in clinical settings is critical to promoting awareness of how bias affects care and puts Black women's lives at risk (Moreish & Kiernan, 2020). Acknowledging that these biases exist and recognizing them when they arise are essential first steps in the reversal of maternal disparities. Recently decision-makers have shed light on the need for implicit bias training in maternal care settings. Policymakers in California have recently passed the California Dignity in Pregnancy and

Childbirth Act Senate Bill-464 (2019), which mandates implicit bias training for all perinatal healthcare workers, making it the first state to do so (Green et al., 2021). Other states are currently considering mandating this type of training as well. According to the American College of Obstetricians and Gynecologists (ACOG) (2018) obstetrician-gynecologists and other healthcare providers should be encouraged to engage in activities to help eliminate racial disparities in the healthcare of women.

Efforts are needed to reduce poor maternal and fetal outcomes for African American women. Greater efforts are needed to educate front-line nursing staff on factors compounding this crisis and help nurses address biases they may hold and how this affects patient care. The purpose of implicit bias training is to bridge the gap from the unawareness of bias to the ability to recognize bias in others and within ourselves to mitigate personal biases and identify how discrimination may occur (Gopal et al., 2021). Educating perinatal nursing staff on the impact racial bias can have on patient outcomes and, the influence these attitudes can have on care decisions is a healthcare imperative.

The Alliance for Innovation on Maternal Health (AIM) developed the Reduction of Peripartum Racial and Ethnic Disparities Patient Safety Bundle. This bundle consists of five themes; 1) the inability to assess disparities because they are not reliably measured, 2) lack of recognition of disparities at both the personal and systems-level, 3) the importance of knowing the magnitude of racial and ethnic disparities that exist, 4) communication barriers, and 5) differences in the structure of care (Howell et al., 2018). Implicit bias and implicit bias training exist within themes two; lack of recognition of disparities at both the personal and systems level, and three; the importance of knowing the magnitude of racial and ethnic disparities that exist, respectively. It is important to

note that implicit bias is different from explicit bias and conscious discrimination.

Education on implicit bias is to create a culture of awareness and change, not guilt or offense.

The facility where this project will take place serves a majority African American population. Recently the facility has established a commitment to proactive diversity and inclusion initiatives. The purpose of this commitment is to understand and confront bias, understand and build diversity, and create a culture of inclusion. Evidence of this commitment includes; the establishment of a diversity and inclusion council at the facility, diversity, equity, and inclusion e-learning bundles available to all employees, required learning modules on implicit bias and its impact in the healthcare setting, and the development of Justice, Equity, Diversity and Inclusion (JEDI) champions at each hospital within the organization. Additionally, the organization has established a diversity, inclusion, and health equity strategic plan with key initiatives to meet its 2023 vision, these include; leadership and workplace diversity, inclusive culture, education and learning, multicultural healthcare services, Culturally and Linguistic Appropriate Care (CLAS), health equity, and diverse community engagement. Subsequently, this project, with its focus on health equity, and, bias recognition and mitigation, aligns with the goals and vision of the facility and the organization as a whole.

The purpose of this project is to evaluate the impact of implicit bias training on nurses' awareness of implicit bias, attitudes, and beliefs about disparities, and the likelihood to engage in behaviors to reduce or address racial bias and promote health equity. The goal of this project is to implement an implicit bias training program, and a pre-and post- education implicit association test, among perinatal staff on an inpatient

women's services unit, over a 5-week period from January 2022 to February 2022. The primary outcome of interest is the level of implicit bias awareness among staff nurses as determined by pre-and post-training surveys. Data collection includes; number of nurses completing training, demographics of nurses completing training (age, years of experience, racial or ethnic identity), and pre/post-training survey. The study question for this project is: For perinatal nurses, does implicit bias training increase awareness of racial inequities in maternity care.

Literature Review

A search of current literature on the topic of implicit bias in perinatal nursing was conducted. The databases used were PubMed, CINAHL, MEDLINE, and the Cochrane library. The search terms used were: *implicit bias or unconscious bias or racial bias and pregnancy or pregnant or prenatal or antenatal or perinatal or maternal* with the Boolean operator AND. After the initial search, a total of 530 publications were generated between the databases. Of these publications, 86 were from PubMed, 223 were from CINAHL, 218 were from MEDLINE, and three were from the Cochrane library. The inclusion and exclusion criteria for the search were then applied. The inclusion criteria were only US-based studies, published between 2016-2021, and peer-reviewed articles. After the inclusion was applied, the refined search generated a total of 389 publications, 86 were from PubMed, 143 were from CINAHL, 157 were from MEDLINE, and three were from the Cochrane library. Abstracts were reviewed to determine applicability. From these publications, 10 were selected for the literature review. These 10 articles were selected based on relevance to the subject, clinical studies

were selected rather than commentary articles, and preference was given to articles specifically pertaining to the perinatal population.

The literature is clear, disparities in maternal outcomes exist for Black women and their newborns. Of the recommendations in the literature to decrease this disparity, implicit bias assessments, training, and education among nurses and providers are consistently mentioned. Common themes were found in reviewing the literature. All of the studies in the literature review discuss the importance of a knowledgeable and self-aware body of healthcare workers as it pertains to bias and racial inequities. Among the publications, potential causes of the disparate maternity morbidity and mortality crisis were described and analyzed. Key interventions to curb the crisis were given.

Qualitative studies provide a better understanding of the experiences of Black women receiving perinatal care and insight into factors leading to the disparity. These qualitative studies provide, in detail, the perspective of minority women, navigating the perinatal care experience (Altman et al., 2020; Roman et al., 2017; Vedam et al., 2019). In a study conducted by Vedam et al. women were given surveys and interviewed to measure experiences with perceived mistreatment during perinatal care. Women of color who gave birth in hospitals reported higher rates of mistreatment than white women who gave birth in hospitals. In the same study, Black women, Hispanic women, Asian, and Indigenous women were twice as likely as White women to report being ignored by a healthcare provider, having their request refused, or failing to respond timely, regardless of birth setting. Vedam et al. assert their analysis underscores the negative impacts of race and social vulnerability are intertwined and cumulative, those who are already at risk for the worst outcomes, also experience higher levels of mistreatment.

This same theme is explored in a qualitative study by Roman et al. (2017). In this study low-income, Black women were interviewed to identify basic and global themes about experiences of perinatal care. Many women described perceived provider judgmental attitudes and stereotypes of pregnant women because they are Black and poor. They reported being dismissed by their provider and even stated they decided not to ask questions out of fear of being perceived as difficult. Participants particularly perceived bias during the labor, delivery, and postpartum hospitalization experience. The authors recommend health equity training for providers to better understand the perceptions and needs of women living in difficult life circumstances, and the need to address racial bias to reduce persistent disparities in the healthcare of Black women.

Similarly, in a study by Altman et al. (2020) Black women described their pregnancy and birth experiences and highlighted ways to improve individual patient interactions with health care providers, including obstetricians, nurse-midwives, and nurses. In this study, participants recommended, among other things, provider education, specifically, effective implicit bias trainings. A major strength of this study was the diversity among women of color interviewed. The women came from varying socioeconomic backgrounds, which differs from the study by Roman et al. (2017) which focuses on women from lower socioeconomic levels. This emphasizes the evidence that Black women across all socioeconomic levels experience disparities and bias in the healthcare system.

From these qualitative studies, a common theme is illustrated among the participating women. There are barriers between Black women and their healthcare providers. These barriers contribute to the risk of adverse pregnancy outcomes, due to

unconscious biases which have the potential to alter the provider-patient relationship despite class and income level. This finding affirms other works discussing implications for research in health equity. According to Carter et al., (2021) health equity interventions should not be limited to or focused on the patient, but rather on providers, clinicians, and healthcare systems.

Several studies utilized, or recommend the Implicit Association Test (IAT), developed by Harvard University, to assess implicit bias in healthcare workers (Arrington et al., 2021; Gatewood et al., 2019; Hassen et al., 2021; Morris et al., 2019; Brockett-Walker et al., 2021). The purpose of this assessment tool is to measure “attitudes and beliefs that people may be unwilling or unable to report” (Project Implicit, 2011). Arrington et al., (2021) implemented components of the Reduction of Peripartum Racial/Ethnic Disparities Bundle for perinatal nurses at a community hospital. The bundle was created by the Alliance for Innovation on Maternal Health (AIM). The bundle consists of efforts to increase staff awareness of perinatal racial and ethnic disparities through a series of activities including a Health Equity Party, implicit bias workshop, Snack and Learn sessions, online modules, grand rounds, and a Health Equity Committee. Specifically, the implicit bias workshop consisted of taking the IAT, viewing AIM webinars on decreasing racial disparities in maternity care, online modules, reviewing National Standards for Culturally and Linguistically Appropriate Services Standards in Health and Health Care, and a staff reflection on how to reduce the impact of their own implicit bias on care. The IAT was utilized to raise bias awareness among the staff.

Gatewood et al., (2019) implemented implicit bias training on nursing students. The purpose was to raise awareness of implicit bias and discuss ways to minimize its effects. Students participated in interactive activities and discussions on implicit bias as well as completed a self-assessment utilizing the IAT. The great majority of students found the training and activities helpful, stated their awareness of bias was increased, and felt that a better understanding of their bias would be helpful in their nursing career. After completion of the activities, students reported increased mindfulness of their own bias, surprise at IAT results, and plans to expose themselves to groups of people different from themselves.

In a scoping review focused on developing or implementing antiracism interventions in outpatient settings by Hassen et al., (2021) study interventions were separated into categories based on the level of the intervention. The levels consist of individual, interpersonal, community, organizational, and policy-level interventions. Individual-level interventions were prevalent among the articles at 51%. Of the 37 articles included in this review 20 interventions were at the individual level. These individual-level interventions focus on transforming attitudes and behaviors in individuals and consist of self-reflection tools, unconscious/implicit bias training, and implicit association test. This level of intervention targets individual clinicians, which according to Carter et al., (2021) is required to analyze root causes within ourselves and our communities. Hassen et al., do recommend additional anti-racism strategies for implementation including; the use of a long-term multi-level approach, embed racial equity policies and procedures, and mandatory anti-racism education and training.

Implicit bias as a cause of racial disparities is not unique to perinatal nursing. According to Howell et al., (2018) the effects of implicit bias are especially relevant in healthcare environments where cognitive overload and/or stress are high, including labor and delivery departments as well as emergency department settings. Brockett-Walker et al., (2021) conducted a review of emergency room physicians' implicit bias by implementing a pre- and post-IAT per shift. The purpose of this study was to assess whether there were differences in pre-and post-shift levels of implicit and explicit racial bias. Pre- and post-shift IAT scores showed moderate pro-White/anti-Black racial bias and did not differ significantly except for after extremely busy shifts when post-shift scores showed higher anti-Black bias. Brockett-Walker et al., (2021) go on to recommend incorporating implicit bias curricula in medical and nursing education to raise learner awareness of implicit biases and how bias can adversely impact patient care.

In a systematic review by Morris et al., (2019) the theme of implicit bias is utilized to explore health disparities among the LGBTQ community. A major strength of this study is it provides opportunities to introduce implicit bias reduction training into medical, nursing, and dental school curricula. Also, this review serves as a blueprint for future study on bias toward the LGBTQ community, whose members also face discrimination and mistrust of the medical community. However, while the review is beneficial in some respects, it is limited in its generalizability to the black perinatal population as a whole. Although black women and the LGBTQ community have some intersections, as there are black women who are members of the LGBTQ community, the heterogeneity among the group limits the interpretation and wide applicability of the findings to the current study population.

Although social determinants of health such as socioeconomic factors, transportation, and education, are related to health disparities they alone cannot explain the differences in maternal morbidity and mortality outcomes for black women. In a retrospective cohort study by Tanner et al., (2020) of women with at least a bachelor's degree, who had delivered a baby between 2011 and 2013, education attainment was not shown to decrease racial disparities in maternal or neonatal outcomes. These results suggest that maternal education, a proxy of socioeconomic status, alone does not account for the disparity in maternal and neonatal adverse outcomes (Tanner et al., 2020).

This analysis is of critical importance as it suggests that health inequalities are not the fault of patients themselves, and are part of a larger societal problem, often racism (Carter et al., 2021). Although the intersection of race and lower socioeconomic levels often compound disparities, race in itself is often an exacerbated risk factor in healthcare disparities. This theme is also illustrated in the study by Altman et al., (2020) in which the black women interviewed came from varying socioeconomic backgrounds, nevertheless, they recommended implicit bias training for clinicians to reduce judgment, stereotyping, and discrimination.

Other interventions aimed at eliminating or reducing the effect of implicit bias were identified in the literature. Eliminating differences in managing patients by creating standard protocols has been found to improve outcomes and decrease disparities in maternal outcomes (Green et al., 2021). The effects of standardized protocols were analyzed in a quality improvement study by Main et al., (2017, as cited in Hamm et al., 2020). Implementing the standardized national hemorrhage safety bundle for postpartum hemorrhage management, resulted in a 28.6 percent reduction in hemorrhage. Using this

evidence Hamm et al., (2020) aimed to standardize labor induction protocol in an effort to mitigate differential patient management. Findings showed a significant decrease in c-section delivery rate in black women when the induction protocol was utilized compared with the non-intervention group. No difference in c-section rates was found in non-black women. Additionally, Hamm et al., found a significant reduction in neonatal morbidity among black women when the induction protocol was used, no difference in non-black women was found. Quality improvement initiatives in maternal care have effectively reduced mortality, so should similar efforts designed to rid bias from the care Black women receive (Moreish & Kiernan, 2020).

In summary disparities in maternal morbidity and mortality exist overwhelmingly for Black women. Racism and implicit bias within the healthcare system have been named as compounding and contributory factors in this healthcare crisis. Barriers to patient-physician communication, perceived discrimination, and mistreatment have all been reported by Black women navigating perinatal care. Assessing, educating, and training healthcare staff on implicit bias and its effects on Black women and their newborns has been shown to be beneficial in raising awareness, mindfulness, and understanding among clinicians. These are the first steps in solving a growing health equity problem. Individual-level interventions, which focus on transforming attitudes, are required to get to the root cause of biases and aid in eradication, or at the very least reduction to improve health equity. While most results in the literature report clinician acceptance of implicit bias education and positive feedback, reluctance to admit bias, questioning the legitimacy of the IAT, and dismissive attitudes were found to exist. As such, hard work is required on the behalf of clinicians and healthcare systems, to face

bias and implement interventions that lead to real solutions. Other interventions were also recommended in the literature to tackle implicit bias including, standardized protocols which act to limit differences in the care a patient may receive based on race. These types of quality improvement bundles were shown to decrease adverse outcomes for Black women in cesarean sections and hemorrhage. The initiation of a similar type of bundle, developed by AIM, which focuses on implicit bias reduction in perinatal care settings, was shown to be effective in beginning the attitude transformation of clinicians.

The framework of choice for this study is the Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care (Iowa Model). The Iowa Model is a popular and practical guide for the evidence-based practice process (Iowa Model Collaborative, 2017). The Iowa Model was chosen because it addresses evidence-based practice for clinicians at all levels of care, including perinatal care. This model also uses a team-based multiphase process, which will be beneficial in gathering information, stakeholder buy-in and support, team engagement, and organizing the implementation process. The Iowa Model for evidence-based care emphasizes teamwork, designing, and piloting a change and utilizes evidence-based practice to guide decision-making. The Iowa Model emphasizes assembling, appraising, and synthesizing the body of existing evidence to design evidence-based change initiatives which mirrors the approach necessary for planning and implementation of this project. Many groups have used the Iowa Model within healthcare, including clinicians, educators, administrators, and researchers (Iowa Model Collaborative, 2017). These factors make the Iowa Model an ideal framework to guide this study.

Methods

Design

In this methods section, an overview of the study design, setting, sample, data collection, approval process, and procedures will be described. This quality improvement project utilizes a descriptive cohort design. Participants were administered a pre-education IAT to establish baseline awareness of their own biases and a pre-education survey. Educational modules on the topic of implicit bias in perinatal care were assigned to participants for completion. After completion, a post-education IAT and survey were administered. The pre-and post-survey was a version of the Delivering Care to Diverse Patients Provider Survey. An analysis of participants' survey results was performed. The primary outcome of interest was the level of implicit bias awareness among staff nurses as determined by pre-and post-training surveys.

Setting

The setting for this project was a 15-bed inpatient perinatal services unit in an urban midwestern hospital. The unit utilizes a labor, delivery, recovery, postpartum (LDRP) model of care in which the patient stays in the same room the entire stay from labor to discharge home. Staffing on the unit utilizes a mother-baby model in which the postpartum mother and her newborn are cared for together by one nurse and referred to as a couplet. There are approximately 36 full or part-time nurses and three nurse practitioners (NP) employed on the unit. The unit has an average of 81 deliveries a month. The hospital is located in a large metropolitan area with a county population of over 990,000 (U.S. Census Bureau, 2019). Specifically, the hospital is in the northern section of the county. Of the seven hospitals in the county offering OB-GYN services, it

is the only one located within the northern section of the county. The unit serves a majority African American population.

Sample

A convenience sample of nurses employed on the unit was utilized. Inclusion criteria consisted of current employment on the unit, either full or part-time, as either a labor and delivery or mother-baby nurse. Exclusion criteria consisted of PRN, travel, or agency nurses. The sample size was 37 nurses. Potential nurse participants were introduced to the project at a routine team meeting in January 2022. At this meeting, the project and its purpose were explained to the staff. Following the presentation, an email invitation for participation was sent to eligible nurses in January 2022. Data collected from participants included demographic including; age, years of experience as a Registered Nurse, racial or ethnic identity, IAT completion, and pre-and post-education survey responses.

Data Collection/Analysis

Data collection for this project included; completion of implicit bias education modules, completion of pre-, and post-education IATs, and responses from pre-and post-education surveys completed by nurse participants. The IAT is an assessment tool, developed by Harvard University, which measures attitudes and beliefs individuals may be unaware of or unwilling to report (Project Implicit, 2011). The IAT measures bias associated with factors such as race, sexuality, gender, disability, and age. The IAT has been used in many studies related to implicit bias within the healthcare community. Given the sensitive nature of the IAT, participants were only asked if an assessment was completed, participants were not asked the results of their assessment. Pre-education

surveys (Appendix A) were emailed directly to the work-issued email address of each nurse. The survey utilized was a version of the Delivering Care to Diverse Patients Provider Survey developed by Burgess et al. (2019). This survey was developed to assess beliefs healthcare providers may hold about disparities in healthcare and to assess their awareness and engagement on addressing these factors (Burgess et al., 2019). Written approval was also obtained from Diane Burgess to use the Deliver Care to Diverse Patients Provider Survey (personal communication on September 15, 2021). Two sets of questions were asked on the survey. The first set of questions assessed nurses' attitudes and beliefs about disparities. These questions were assessed on a 7-point Likert scale from "Not at all" to "A great deal". The second set of questions focused on nurses' likelihood to engage in behaviors to reduce or address racial bias and promote health equity. These questions were assessed on a 5-point Likert scale from "strongly disagree" to "strongly agree". Following the completion period for the education modules, nurses who started modules and those who completed the entire training were sent a link to the post-education survey (Appendix B). An additional question was added to the post-education survey to assess participants' awareness of implicit bias in perinatal care. This question is not from the Burgess survey and was only assessed on the post-training survey. This question also was assessed on a 5-point Likert scale.

The educational modules were distributed by Diversity Science. Diversity Science is an organization composed of consultants and practitioners, whose aim is to build inclusive organizations and combat bias and inequity-related health disparities (Diversity Science, 2021). Diversity science developed the Dignity in Pregnancy and Childbirth Project (Appendix C), which are evidence-based interactive e-learning modules with a

focus on implicit bias and reproductive justice and meet the requirement for California's Dignity in Pregnancy and Childbirth Act and have been made free to access (Diversity Science, 2021). The PI for this project served as the course manager. Thru the Diversity Science course website, progress on and completion of assigned training modules were tracked by the course manager. Progression on and completion of the assigned modules were collected by the course manager and stored on an Excel spreadsheet.

Data were analyzed using descriptive statistics, to describe the sample and inferential statistics including t-test, Chi-square, and ANOVA to compare pre-and post-education survey results and sample characteristics. This data was used to evaluate participants' awareness and perception of the role disparities have on patient outcomes and activities nurses can engage in to address bias and disparities.

Approval Process

Approval for this project was obtained through the institutional review board (IRB) of the hospital where the project took place and the University of Missouri-St. Louis IRB before the start of the project. Nurse participation in the surveys was voluntary and the surveys were set up in Qualtrics to protect the confidentiality of respondents. Nurse participation in the educational modules was recommended by the unit and hospital leadership as part of the current diversity initiative. Risks in this project were minimal as all educational modules and surveys are components of evidence-based programs and/or validated instruments regularly used in clinical practice. Other minimal risks included the possible identifiability of nurses' confidential answers to surveys.

Procedures

The PI and the manager of the unit met in July 2021 to discuss the implementation of an implicit bias curriculum to disseminate to nursing staff. In August and September, the PI convened with key stakeholders, including the facility mentor, the assistant chief nursing officer, the department director, the department manager, and the department educator, to gain support for the project and discuss ideas on project development and implementation. In September, the PI attended a conference on implicit bias in perinatal care, hosted by AWHONN to gain insight and recommendations on current industry goals on handling implicit bias in healthcare workers.

The PI obtained written approval from Diversity Science to use their educational modules for this project. An account was set up for all nurses employed on the unit by Diversity Science for access to modules. The PI was made the course manager with access to adding users, deleting users, and tracking progress and completion.

The educational component consisted of three modules; two of the modules were 15-minutes each, and one module was 30-minutes, totaling one hour. The modules focus on implicit bias awareness and equitable perinatal care. Each module details the story of a woman of color navigating her childbirth experience and the potential bias and inequity she faces in the process. Historical perspectives, stereotypes, implicit bias education, implicit bias reduction strategies, clinician behaviors, and patient-centered care are key topics covered within the course. Module one focuses on laying the groundwork for change, module two addresses racism, not race, as a causative factor in inequitable maternal outcomes, and module three encourages the learner to take action and develop an action plan for change. The modules were recommended education for all staff on the

unit and were available for all nurses regardless of their participation in the IAT and surveys. Modules were to be completed during work time.

After the project received the required approvals, the PI attended unit staff meetings to discuss the project and its purpose with the nurses employed on the unit. At this meeting, the educational modules were described, the training's relationship to the diversity initiative within the hospital was discussed, and staff engagement and participation in the project and surveys were requested. This meeting served as an informational and question-and-answer session about the program to achieve cohesion in the process. Surveys were created on the Qualtrics website. The surveys were anonymous and unable to be tracked to respondents. In January 2022, staff nurses were sent an email invitation to participate in the survey. The email included a brief introduction, instructions, and the link to the pre-education IAT, pre-education survey on Qualtrics, and the educational modules on the Diversity Science platform. On the pre-education survey, participants were asked if they completed the pre-education IAT. No information on the results of the IAT was collected, only if the participant completed it. Initially, participants were given three weeks to complete the pre-education IAT, pre-education survey, and complete the training. This deadline was extended by two weeks, for a total completion period of five weeks. During this period, reminder emails were sent to all eligible nurses at weekly intervals. A reminder bulletin was given to unit charge nurses to read at the beginning of each daily shift briefing.

Progress and completion of the education were tracked via the Diversity Science group account and stored on a customized Excel spreadsheet. Once the completion period ended, those nurses who participated in the education, regardless of whether all modules

were completed, were sent an email with links to complete the post-education IAT and post-education survey. The post-education survey asked participants if they completed the post-education IAT and if their IAT result had changed from the pre-education IAT result. The post-education survey also asked participants how many of the education modules they completed. Participants were given a two-week period to complete these activities. These activities were also allowed to be completed during work time. The entire data collection period was 7-weeks, from late January 2022 until March 2022.

Results

There was a total of 37 eligible participants among the nurses on the unit. A total of 31 pre-education surveys were returned between January 24th and February 25th, 2022. A total of 28 post-education surveys were returned between February 28th and March 13th, 2022. A total of 30 participants engaged in the implicit bias education modules. Of those participants, 23 completed all three modules, four completed two modules, and three completed one module. The pre-education survey sample was predominately white ($n=20$, 64.52%), with a most frequently observed age category of 25-44 ($n= 24$, 77.42%), and the number of years as a nurse was most frequently reported as 1-5 years, and 6-10 years, both with a frequency of 10 (32.26%). The post-education survey sample was also predominately white ($n=17$, 60.71%), had a most frequently observed age category of 25-44 ($n=23$, 82.14%), and the most frequent number of years as a nurse category was 1-5 years ($n= 10$, 35.71%) (Table 1).

A Chi-square Test of Independence was conducted to examine whether pre/post-education survey group and race, age, and the number of years as a nurse were independent. The results of the Chi-square test for race, age, and the number of years as a

nurse were not significant based on an alpha value of .05. This suggests race, age, and the number of years as a nurse in the pre-and post-education groups were not significantly different.

Table 1

Demographic Data

| Variable | Pre | | Post | | X ² | p |
|------------------------|-----|-------|------|-------|----------------|------|
| | n | % | n | % | | |
| Race | | | | | 1.18 | .881 |
| Black/African American | 6 | 19.35 | 5 | 17.86 | | |
| White | 20 | 64.52 | 17 | 60.71 | | |
| Asian | 3 | 9.68 | 3 | 10.71 | | |
| Other | 2 | 6.45 | 2 | 7.14 | | |
| Prefer not to answer | 0 | 0.00 | 1 | 3.57 | | |
| Age | | | | | 0.27 | .966 |
| 18-24 | 1 | 3.23 | 1 | 3.57 | | |
| 25-44 | 24 | 77.42 | 23 | 82.14 | | |
| 45-64 | 3 | 9.68 | 2 | 7.14 | | |
| 65 and older | 3 | 9.68 | 2 | 7.14 | | |
| Years as a nurse | | | | | 0.18 | .981 |
| 1-5 | 10 | 32.26 | 10 | 35.71 | | |
| 6-10 | 10 | 32.26 | 8 | 28.57 | | |
| 11-20 | 6 | 19.35 | 6 | 21.43 | | |
| Over 20 | 5 | 16.13 | 4 | 14.29 | | |

Note. Due to rounding errors, percentages may not equal 100%.

On the pre-education survey, 90.32% (*n* = 28) of survey respondents indicated they completed a pre-education IAT. Results of the post-education survey indicated 50% (*n* =14) reported completing a post-education IAT. Of the survey respondents who completed a post-education IAT, 85.71% (*n* =12) reported their IAT result did not

change. Only 7.14% ($n = 2$) of respondents reported a change in their IAT results. However, 50% ($n = 14$) of those who answered this question did not complete a post-education IAT.

A two-tailed independent samples t -test was conducted to examine for differences on the questions related to nurses' attitudes and beliefs about factors contributing to disparities between the pre-and post-education groups. There was no significant difference in responses between the pre-and post-education groups (Table 2).

Table 2
Nurses' Attitudes and Beliefs About Disparities

| Item | Pre | | Post | | t | p |
|--------------------------------|------|------|------|------|-------|------|
| | M | SD | M | SD | | |
| Patient Behaviors | 3.90 | 1.74 | 4.04 | 1.53 | -0.31 | .758 |
| Provider Behaviors | 4.48 | 1.59 | 5.11 | 1.42 | -1.58 | .120 |
| Social and Economic Conditions | 5.29 | 1.55 | 4.54 | 1.50 | 1.89 | .064 |

Note. Two-tailed independent samples t -test $N = 59$. Degrees of Freedom for the t -statistic = 57. D represents Cohen's d .

A two-tailed independent samples t -test was also performed on the “I am in a position to make a difference in the quality of care that racial and ethnic minority patients receive” question. The result was not significant (Table 3). The pre-education survey mean was high (4.48) already starting high, which provided less opportunity for variation in post-education survey results for this particular question.

A two-tailed independent samples t -test was also conducted to examine the questions related to the engagement behaviors of nurse participants. There were four questions in this category:

- Talk with colleagues about ways to address the specific needs of ethnic and minority patients.
- Work with a community group to address a local health problem.
- Participation in a quality improvement project to increase the quality of care for racial and ethnic minorities.
- Engage in other activities related to improving health or promoting health equity for racial and ethnic minorities.

Table 3
Position to Make a Difference and Engagement Behaviors

| Item | Pre | | Post | | <i>t</i> | <i>p</i> |
|--|----------|-----------|----------|-----------|----------|----------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | | |
| Position to make a difference | 4.48 | 0.89 | 4.54 | 0.88 | -0.22 | .823 |
| Talk with colleagues | 3.29 | 0.90 | 3.96 | 0.90 | -2.84 | .006 |
| Work with a community group | 2.42 | 1.23 | 3.52 | 0.85 | -3.90 | <.001 |
| Participate in a quality improvement project | 2.84 | 1.27 | 3.78 | 0.85 | -3.35 | .001 |
| Engage in other activities | 3.16 | 1.13 | 4.11 | 0.58 | -4.11 | <.001 |

Note. N= 59. Degrees of Freedom for the *t*-statistic = 57.

Of these four questions, all results indicated statistical significance based on an alpha value of .05 (Table 3).

The survey question “I feel more aware of Implicit Bias and its effects on perinatal outcomes” was asked only on the post-education survey. This question had a mean score of 4.37, and a standard deviation of 0.74. An analysis of variance (ANOVA) was conducted to determine whether there were significant differences in this question by the number of modules completed. The results of the ANOVA were not statistically significant, $F(2, 24) = 1.20, p = .320$, indicating there were no differences in responses to this question related to how many modules were completed.

Discussion

This quality improvement project resulted in mixed results. The questions related to nurses' attitudes about disparities resulted in no statistically significant difference when comparing the pre-and post-survey results. However, the questions related to the engagement behaviors of the individual nurse all resulted in statistical differences when comparing the pre-and post-survey results. One possible rationale for this difference in results between the questions is; the questions related to patient and provider behaviors and social-economic conditions are attitude and perception-based. Attitudes and perceptions are deeply entrenched and unlikely to be changed from a single training. Conversely, the questions related to engagement behaviors of the individual nurse showed statistically significant improvement. These questions reflect the willingness of the nurse to modify her own behaviors and therefore are easier to modify than the nurse's attitudes and perceptions of bias. Bias, both implicit and explicit is deeply entrenched, as such these attitudes may require repeated exposure to counter information to see a measurable change.

The mean for social-economic conditions decreased to a more neutral rating in the post-education survey. Although social and economic conditions are associated with differences in racial outcomes, it should be noted, the language in the modules utilized direct terms which addressed race head-on and did not use language focused on social and economic conditions. This difference in language, between the survey and the modules, may have confused some participants and resulted in the more neutral scoring for this item on the post-education survey.

On the pre-education survey participants responded with a high mean on being in a position to make a difference in the quality of care racial and ethnic minorities receive.

The post-education survey mean remained high, as such, no statistical difference was found. This indicates the group of nurses on average already had a positive perception of their ability to make a difference in the care ethnic and minority patients received.

The lower percentage of participants completing the post-education IAT may reflect time constraints during a particularly busy period on the unit. Also, the IAT is time-consuming and requires dexterity and concentration which proved to be bothersome to some participants. Other participants reported disagreement with their pre-education IAT result and/or discomfort with the nature of certain questions on the IAT, which factored into their decision to not complete the IAT again. The IAT, like the survey questions related to nurses' attitudes and beliefs, may be less likely to result in a significantly different change based on one training alone. Further illustrating this point, among those who did participate in a post-education IAT, only two report a difference in their IAT result.

Further observation of the results revealed no difference in the results based on the number of modules completed. This observation suggests a participant who completed only one module answered questions similarly to a person who completed all three modules. It is important to consider, of all the modules, module one is the longest and has been described as the most impactful among discussions on the unit.

Finally, the participants' mean scores on the post-education survey indicate they overall feel more aware of implicit bias and its effects on perinatal outcomes after having participated in the education. This answers the study question, reflects a positive response to the training, and suggests the training reached its overall intended result.

Since the start of this quality improvement project, on the unit, changes related to engagement in activities aimed at addressing implicit bias have begun to take place. Conversations have been observed on topics such as birth equity, bias mitigation, and historical perspectives on implicit bias. This has tremendous implications for future nursing practice. Implementing this project has laid the foundation for nurses to address these issues with each other, and created dialog and self-reflection among unit nurses, regarding implicit bias, birth equity, and reproductive justice where there once was none. Additionally, nurses' post-education survey responses indicate not only increased awareness of implicit bias and its effects on perinatal outcomes but also indicate nurses' willingness to further engage in activities to address these factors in the future.

This study was limited by sample size, as this was a smaller size perinatal unit, and some eligible nurses did not participate. Also, some participants did not complete all portions of the project. A portion of participants who started the project did not complete all the modules, the post-education IAT, and/or the post-education survey. This project was not mandatory, as such, this potentially limited participation, enthusiasm, and sample size. Since participants would not be paid for completing the project outside of work time, all components of the project were to be completed during the work shift, which coincided with a particularly busy time on the unit. Finally, changes in management during the critical planning phase likely had some effect on overall unit engagement and participation.

Going forward, to sustain the change, implicit bias training should be a part of annual education requirements for all staff and new employee onboarding. Due to the lengthy, multi-step nature of this type of training, management should offer

compensation for the completion of this training outside of work time. This will potentially increase participation and completion rate. Also, management should be fully invested in the success of implicit bias initiatives on workplace units. This way, employees will take the lead from leaders and will be more likely to participate.

Conclusion

As maternal morbidity and mortality among Black women remains disproportionately higher than every other race of women, efforts to combat this alarming trend are necessary. The cause of this and other racial healthcare disparities are varied, decades of study in this field have determined implicit bias on the part of healthcare providers and clinicians plays a crucial role. Implicit bias education is a requirement for the perinatal workforce in California, yet this training has had limited implementation in other parts of the country.

Overall, after participation in this project and the associated education modules, perinatal nurses reported feeling more aware of implicit bias and its effects on perinatal outcomes. Nurses also reported willingness to engage in activities related to addressing health equity for racial and ethnic minority patients. The impact of this project has fostered self-reflection, and dialogue among unit nurses, regarding implicit bias, birth equity, and reproductive justice. Nurses on the participating unit have started the conversation that will lead to change for more equitable perinatal outcomes in Missouri.

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Appendix A

Figure 1. *Pre- Education Survey*

Please answer the following questions.

Age: select one

- ◆ 18-24
- ◆ 25-44
- ◆ 45-64
- ◆ 65 and older

Race/Ethnicity: select one

- ◆ Black/African American
- ◆ Hispanic or Latino
- ◆ White (Caucasian)
- ◆ Asian
- ◆ American Indian
- ◆ Other
- ◆ Prefer not to answer

Number of Years as a Nurse: select one

- ◆ Less than 1 year
- ◆ 1-5 years
- ◆ 6-10 years
- ◆ 11-20 years
- ◆ over 20 years

Did you complete the Implicit Association Test (IAT)?

- ◆ Yes
- ◆ No

It has been documented that racial and ethnic minorities in the United States, on average, receive lower-quality health care than white patients. In your opinion how much does each of the following factors contribute to these racial and ethnic differences in health care quality?

| | Not at all 1 | A low amount 2 | Slightly 3 | Neutral 4 | A Moderate Amount 5 | Very much so 6 | A Great Deal 7 |
|---------------------------|-----------------|-------------------|---------------|--------------|------------------------|-------------------|-------------------|
| Patient Behaviors | | | | | | | |
| Provider Behaviors | | | | | | | |

| | | | | | | | |
|---------------------------------------|--|--|--|--|--|--|--|
| Social and Economic Conditions | | | | | | | |
|---------------------------------------|--|--|--|--|--|--|--|

| | Strongly Disagree 1 | Disagree 2 | Neutral 3 | Agree 4 | Strongly Agree 5 |
|--|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| I am in a position to make a difference in the quality of health care that racial and ethnic minority patients receive. | | | | | |

Please indicate if you engaged in the following activities over the last 2-months.

| | Strongly Disagree 1 | Disagree 2 | Neutral 3 | Agree 4 | Strongly Agree 5 |
|---|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| I talked with colleagues about ways to address specific health care needs of racial and ethnic minority patients | | | | | |
| I worked with a community group to address a local health problem | | | | | |
| I participated in a quality improvement project at work to increase | | | | | |

| | Strongly Disagree 1 | Disagree 2 | Neutral 3 | Agree 4 | Strongly Agree 5 |
|---|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| quality of care for racial and ethnic minority patients | | | | | |
| I engaged in other activities related to improving the health or promoting health equity for racial and ethnic minority patients | | | | | |

Appendix BFigure 2. *Post-Education Survey*

Please answer the following questions.

Age: select one

- ◆ 18-24
- ◆ 25-44
- ◆ 45-64
- ◆ 65 and older

Race/Ethnicity: select one

- ◆ Black/African American ◆ Hispanic or Latino ◆ White (Caucasian) ◆ Asian ◆ American Indian ◆ Other ◆ Prefer not to answer

Number of Years as a Nurse: select one

- ◆ Less than 1 year
- ◆ 1-5 years
- ◆ 6-10 years
- ◆ 11-20 years
- ◆ over 20 years

How many training modules did you complete?

- ◆ 1
- ◆ 2
- ◆ 3

Did you complete the Implicit Association Test (IAT)?

- ◆ Yes
- ◆ No

Did your results differ from the first IAT?

- ◆ Yes
- ◆ No

It has been documented that racial and ethnic minorities in the United States, on average, receive lower-quality health care than white patients. In your opinion how much does each of the following factors contribute to these racial and ethnic differences in health care quality?

| | Not at all 1 | A low amount 2 | Slightly 3 | Neutral 4 | A Moderate Amount 5 | Very much so 6 | A Great Deal 7 |
|---------------------------------------|-------------------------|---------------------------|-----------------------|----------------------|--------------------------------|---------------------------|---------------------------|
| Patient Behaviors | | | | | | | |
| Provider Behaviors | | | | | | | |
| Social and Economic Conditions | | | | | | | |

| | Strongly Disagree 1 | Disagree 2 | Neutral 3 | Agree 4 | Strongly Agree 5 |
|--|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| I am in a position to make a difference in the quality of health care that racial and ethnic minority patients receive. | | | | | |

Please indicate how likely you are to engage in the following activities over the next 2-months:

| | Not at all Likely 1 | Not Likely 2 | Neutral 3 | Likely 4 | Very Likely 5 |
|--|--------------------------------|-------------------------|----------------------|---------------------|--------------------------|
| I will talk with colleagues about ways to address specific health care needs of | | | | | |

| | Not at all Likely 1 | Not Likely 2 | Neutral 3 | Likely 4 | Very Likely 5 |
|---|--------------------------------|-------------------------|----------------------|---------------------|--------------------------|
| racial and ethnic minority patients | | | | | |
| I will work with a community group to address a local health problem | | | | | |
| I will participate in a quality improvement project at work to increase quality of care for racial and ethnic minority patients | | | | | |
| I will engage in other activities related to improving the health or promoting health equity for racial and ethnic minority patients | | | | | |

| | Strongly Disagree 1 | Disagree 2 | Neutral 3 | Agree 4 | Strongly Agree 5 |
|---|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| I feel more aware of Implicit Bias and its effects on perinatal outcomes | | | | | |

Appendix C

Figure 3. *Description of module content from Diversity Science website*

Studies show that perinatal care providers are committed to, and place a high value on, providing high-quality and equitable care to Black birthing women. Unfortunately, a large body of research shows a major gap between perinatal care providers' value on equitable care and Black birthing women's experiences and outcomes. This course addresses that gap. In addition to the core course, we provide supportive resources for organizational leaders, facilitators/trainers, and other change agents.

- *This course was developed to meet implicit bias training requirements of California Law SB464.*
- *The course is accredited for 1 hour of CME or CEU credits for a fee. Information on accessing the CE exam and receiving credit is provided after you complete the course.*

This course is split into 3 sections. Part 1 is approximately 30 minutes long. Parts 2 and 3, are approximately 15 minutes each.

- **Module 1: Dignity in Pregnancy and Childbirth- Laying the groundwork (30-minutes)**
 - Introduction
 - Lesson 1: Melissa's Story
 - Lesson 2: We Walk in Different Worlds
 - Lesson 3: Stereotypes and Biases
 - Lesson 4: Historical Perspective
 - Lesson 5: Taking Action
- **Module 2: Racism not Race (15-minutes)**
 - Lesson 1: Introduction to Aiysha's Story
 - Lesson 2: Unpacking Implicit Bias
 - Lesson 3: The Empathy Gap
 - Lesson 4: Closing
- **Module 3: Taking Action (15-minutes)**
 - Lesson 1: Introduction to Rose's Story
 - Lesson 2: Reproductive Justice
 - Lesson 3: Bias Reducing Strategies
 - Lesson 4: Patient-Centered Care
 - Lesson 5: Addressing Racism in Healthcare
 - Building an Action Plan

Link to access modules: <https://www.diversityscience.org/training/equal-perinatal-care/>