EVALUATING INNOVATIVE APPROCHES TO ENAGAGING STUDENTS IN LEARNING ABOUT BLACK MATERNAL MORTALITY RATE

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ABSTRACT

African American women in the United States are three to four times more likely to experience preventable pregnancy-related deaths than women in any other race group. A growing body of research shows that systematic and medical racism, low health literacy and power-imbalance in doctor-patient relationship in healthcare delivery are the major contributing factors of pregnancy-related deaths in Black women. The death rate of Black women due to complications related to pregnancy and childbirth – known as Black Maternal Mortality Rate – was 44.0 per 100,000 live births in 2019, which then increased to 55.3 in 2020 and 68.9 in 2021. In an effort to improve health risks, reduce inequalities in healthcare settings, and achieve better maternal health outcome, pre-medical students must learn about contributing factors of high death rates of African American women. This study will explore the use of branching scenario of h5p module to raise awareness among pre-medical students about underlying causes of high Black mortality rate with emphasis on unconscious bias – deeply ingrained assumptions against certain group of people – and to equip them with skills that will be valuable for their future career in medicine. The implementation of interactive, scenario based H5P module in the study is expected to significantly improve the pre-medical students' understanding of challenges, faced by African American women during pregnancy, by fostering curiosity about this real-world issue through active engagement, reflection, and reconstruction of experiences.

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Introduction:

Disparities in healthcare, which are sometimes referred to as health inequities, persisted despite unique advances in healthcare technology and services. Unequal distribution of health status among racial and ethnic groups in the U.S. population has been a persistent health concern for many decades which shifts our perspective away from individual risk factors to the conditions that impact the population health as a whole (Lee et al., 2020). The Center of Disease Control and Prevention defines health disparities as the preventable differences in the overall health outcomes among various racial and ethnic groups. In other words, when diseases are more prevalent in certain population groups as compared to others, this occurrence is known as health disparity (*Health Disparities*, n.d.). *Healthy People 2010* (n.d.) highlights disparities as "differences that occur by gender, race or ethnicity, education or income, disability, geographic location or sexual orientation" (p.14). Disparities also manifest in disease progression, severity of symptoms, disease prevalence and mortality that are experienced by socially disadvantaged populations. Statistics typically show that African Americans, Hispanic Americans have higher death rates of infants than White and Asian Americans. Not only do African Americans have the highest premature death rate from heart diseases and stroke, but also African American women are more likely to die during pregnancy and childbirth. Likewise, significant disparities among people of color are evident in various health conditions including asthma, diabetes, hypertension, HIV/AIDS, and tuberculosis etc. (Hall et al., 2015).

The health status of individuals or populations is usually measured using a variety of indicators that include but not limited to the birth rate and frequency of deaths, prevalence of specific diseases, life expectancy, quality of life, risk factors of diseases, accessibility to healthcare facilities, and health insurance coverage, etc. (*Healthy people 2010,* n.d.). Research

suggests that the differences in health outcomes typically stem from a mix of social determinants of health which are further intensified by the challenges like structural or systemic racism and discrimination in healthcare itself (Riley, 2012). Social determinants of health are the non-medical factors that powerfully influence health outcomes that include but are not limited to the conditions in which people are born, grow, work, live and age. The five domains of social determinants of health are economic stability, access to quality education, access to quality healthcare, neighborhood and community. For example, quality of life is impacted by income, job opportunities, housing, transportation, neighborhood, access to nutritious food, clean air and water, literary skills, environment and social support are linked to health disparity. A specific population group who don't have access to the grocery store to buy fresh, healthy, nutritious food are more likely to exhibit health conditions like diabetes, heart diseases and obesity (*Healthy People 2030,* n.d.).

Evidence of population-specific differences in the disease, quality of health and access to healthcare collected over the past 3 to 4 decades is compelling. Educational level and financial status are closely related to health outcomes of population groups. People living in People living in poverty with the least education exhibit the worst health status (*Healthy People 2020*, n.d.). They are more likely exposed to conflicts, threats and violence, and experience chronic stress due to lack of appropriate resources to respond in an appropriate manner (Adler et al., 2017). Existing literature suggests that differences in the occurrence of illness and death, including diabetes, cardiovascular diseases, obesity and low birth weight are associated with an individual's income and educational level. People with higher incomes have access to resources that contribute to healthier lifestyles. For instance, higher income enhances a variety of factors that promote healthy living i.e., affording housing in a safer environment and having better

access to quality healthcare services (*Healthy People 2020,* n.d.). Although, there is a clear association between socioeconomic status and the health outcomes, recent research studies have recognized systemic racism and racial discrimination as one of the contributing factors in the occurrence of health disparities.

Studies show that health conditions of racial and ethnic minority populations, or people of color, have been negatively impacted by the centuries of racism in the United States. For instance, Non-Hispanic/Black Americans live four less than that of White Americans. (*Racism and Health*, n.d.). Likewise, CDC shoes that Black Women in the United States are three to four times more likely to experience preventable pregnancy and childbirth related deaths than women in any other race group, according to the Centers of Disease Control and Prevention (*Maternal Mortality Rates in the United States*, n.d.). There are many factors that contribute to deaths of Black women during pregnancy or childbirth per 100,000 live births – known as Black maternal mortality rate – that include but not limited to low income, poor socioeconomic status, barriers in accessing quality health services and social determinants of health i.e., education, screening, food, public health, medication and transportation. This maternal death rates of African American women are alarmingly high and continues to climb in the United States, but this cannot be fully explained by factors related to low socioeconomic status alone (Lister et al., 2022). There is increasing recognition that racial discrimination in healthcare delivery stemming from complicated series of concerns including but not limited to unconscious bias, power dynamics between doctor-patient relationship and low health literacy are the major contributing factor of high Black maternal mortality rate in the United States.

Research on Black maternal mortality is important because recent studies show that approximately 63.2% maternal deaths of African American are preventable. This stark reality

highlights the urgent need for targeted educational interventions that can help improve the maternal health outcome of African American women. Recognizing the pivotal role of early education in shaping future physicians, this research targets pre-medical students, with the goal of improving their awareness and enhancing their understanding of the unique challenges faced by pregnant African American women. The is a lack of targeted educational intervention regarding understanding and mitigating the unconscious biases in maternal healthcare despite increasing awareness of Black maternal health disparity. Braveman et al. (2011) writes that every human being has a right to access healthcare in order to achieve their optimal health status regardless of their race or ethnic group, skin color, nationality, citizenship, religion, gender, gender identity, sexual orientation and socioeconomic status This research serves as a fundamental tool to address critical issues like medical racism, low health literacy, and the power differences between healthcare providers and Black patients, and how these issues negatively impact the overall maternal health outcome of African American women. Moreover, the primary purpose of the research project is to increase awareness of racial disparities in healthcare, equip future doctors with valuable skills and building bridges of understanding between patient and physician. This study focusses on developing and evaluating an intervention that will assist pre-medical students to learn about the challenges faced by black women during their pregnancy. This research project has the potential to improve the health outcome of Black women during pregnancy and childbirth by making pre-medical students aware of systematic racism and healthcare inequalities that contribute to negative maternal health outcome, ensuring that motherhood remains a joyous and safe journey for the women of every color.

Literature Review:

Entry into the motherhood is the fundamental right for every woman, yet this beautiful life experience is overshadowed by increasing risks for pregnant and postpartum women around the globe. Women from various ethnic groups experience maternal disparity worldwide. The key findings from the UK Confidential Enquiry into Maternal Deaths (i.e., the national programme that collects and processes data of every maternal death in the UK) and the USA Pregnancy Mortality Surveillance System (i.e., the system that calculates the mortality ratio related to pregnancy), for more than three decades, have indicated that Black, Asian, American Indian, and Alaskan native women face increased risk of dying during pregnancy or within six weeks postpartum as compared to women of White ethnic background. However, the data collected during 2019-2021 in the UK showed that the risk of maternal complication for women from Black and Asian ethnic origin was 3.8 and 1.8 folds higher respectively than White women (Vousden et al., 2024). According to Flander (2000), the maternal mortality rates of non-Hispanic, Hispanic and Black women were 6.0, 10.3 and 25.1 deaths per 100,000 live births from 1972 to 1992 in the United States. The maternal mortality rate of African American women is on rise in various regions around the world, although the degree and underlying causes differ by region.

Ongoing research highlights that, among other developed and wealthy countries, African American women experience higher rates of maternal mortality in the United States. This issue is specifically unique to the US because of historical legacy of slavery and forced migration which have profound effects to black maternal and infant overall health and well-being. Black maternal deaths are deep rooted in the institution of slavery, as the institution of slavery established the foundation for systematic racism that continues to persist in various institutions including

healthcare sector. From sixteenth to nineteenth century, many Africans were brought to America through Atlantic slave trade for forced labor and plantations (Njoku et al., 2023). Enslaved Africans experienced extremely harsh treatment in South Carolina including severe physical punishment, vast amount of labor and unbearable physical conditions and. Enactment of stricter laws against enslaved Africans restricted their gatherings, movements, and their rights to carry arms. The purpose of this legislation was to prevent them get education and fight for their legal rights. Njoku et al. (2023) further mentions that the reproductive abilities of enslaved African women were exploited for economic gains during the period of slavery. Enslaved African women of child-bearing age were often treated merely as tools to produce more slaves while neglecting their rights to get nutritious food, stable housing, and other health-related needs. Physicians also supported the interests of slave owners rather than the health of enslaved African women which played an effective role in institutionalizing the medical bias and neglecting their health-related needs.

Moreover, later in the nineteenth century, Jim Crow enacted laws in Southern States of the United States that persisted until the mid-twentieth century. This legislation significantly affected the health of African Americans along with their employment, education, and access to other public facilities (Njoku et al., 2023). According to *Smithsonian's National Museum of American History* (n.d.), Jim Crow laws legalized racial segregation which separated people of color from White people in jobs, schools and public gatherings. These laws were created to minimize the social contact between Whites and people of color, and to reinforce the social and legal system of White supremacy. The racial segregation had a significance consequence on healthcare access, as the healthcare facilities that were segregated by law often provided inferior care to Black patients, if any care offered at all. From 1960 to 1964, the rate of infant mortality

in the states where these laws were enforced was almost twice as high as those in the non-Jim Crow states. This systemic inequality was instrumental in creating health disparities, which are essential to understand the ongoing differences in overall health outcomes among various racial groups today (Njoku et al., 2023). Bond et al. (2021) highlights that every individual should have basic human rights such as right to live, right to be treated without discrimination, equal treatment under the law and the right to achieve the best overall health status. However, the violation of these rights are the underlying causes of preventable deaths of African American women during pregnancy and childbirth.

Furthermore, research highlights that the stress stemming from racism and unfair treatment is associated with hypertension which contributes to pregnancy-related complications such as preeclampsia, as frequent stress increases allostatic load (i.e., cumulative wear and tear on body overtime). Compared to women in any other race group, U.S. based Black women have a higher risk of developing high blood pressure or hypertension during pregnancy – a serious health condition known as preeclampsia – is one of the leading causes of deaths during pregnancy (MacDorman et al., 2016-2017). As explained by study, 60% of maternal deaths caused by preeclampsia are preventable by effectively employing strategies that uproot the risk factors of the preeclampsia. In addition, postpartum cardiomyopathy – a rare, fatal health disorder that is characterized by heart failure – can lead to deadly outcomes for Black mothers. Data suggest that U.S. born Black women express more severe symptoms of underlying diseases that lead to maternal death as compared to White women.

In addition, MacDorman et al. (2016-2017) further suggest that Black women also face obstetric embolism and obstetric hemorrhage that are major causes of death in Black mothers. Obstetric embolism refers to serious birth complication when amniotic fluid (i.e., fluid that

surrounds baby in uterus) gets into the blood stream of pregnant Black women before, during or after the childbirth, while obstetric hemorrhage is defined as excessive bleeding related to pregnancy (MacDorman et al., 2016-2017). According to Martin and Montagne (2017), "A Black women is 22 percent more likely to die from a heart disease than White woman, 71 percent more likely to perish from cervical cancer, but 243 percent more likely to die from pregnancy- or childbirth related causes". These key findings imply that Black women experience life-threatening complication more than women in any other race group.

Based on communications during interviews with Black women, studies have explored and analyzed the circumstances under which US-based Black women experienced reproductive racism and discrimination during their interaction with healthcare staff (Davis, 2020). According to Davis (2020), practicing silence treatments and ignoring racism and discrimination that Black women encounter while interacting with healthcare staff wreak havoc on reproductive health of U.S. born Black women. One of the mechanisms that drive racism in healthcare delivery is unconscious bias or implicit bias that are deeply ingrained stereotypes against certain group of people. Implicit bias plays significant role in high Black maternal mortality rate (Farrelly, 2022). Many researchers now agree that racism has a crucial role in driving these shocking statistics than the race itself (Martin and Montagne, 2017).

These alarming statistics of poor maternal health outcomes of African American women have been prompted actions by policy makers, obstetrics and gynecologists and other physicians to develop interventions to improve the maternal health and well beings of African American women. Bond et al. (2021) states that more than half of the maternal deaths of African American women can be prevented by collaborating with health organizations to uproot the diseases that result in majority of the deaths. Among all complications, cardiovascular diseases is the leading

cause of the death of African American women during pregnancy. In an effort to mitigate this disparity, Black Maternal Heart Health Roundtable was hosted by the Association of Black cardiologists on June 13, 2020. This initiative was the joint task force that included experts from various fields such as healthcare professionals, research, public policy and social justice group aimed at addressing and improving maternal health issues of African American women. The main purpose of this roundtable was to think about how new solutions, public policies and innovative approaches could be designed and implemented to bring improvements in healthcare delivery and better maternal health outcomes of African American women. Moreover, the organization, 4Kira4Mom, was established to address high Black maternal mortality rate and improve maternal health outcomes by advocating for innovative maternal health policies, regulatory improvements and educational approaches to increase awareness about health complications and challenges during pregnancy and highlight the significance of access to quality healthcare. (Bond et al, 2021). A growing body of literature shows that the medical educators are agree that medical education has a vital role to address disparities in healthcare.

White-Davis et al. (n.d.) suggest that educating clinicians and healthcare professionals early on the issues such as racism – prejudice that generally include negative emotional reactions to the members of certain groups – and implicit biases – deeply ingrained assumptions against certain groups of people – equip them with skills that are effective in mitigating biases while providing care to the people of color. In addition, another study by Kureshi et al. (2022) reveals that updating medical school curriculum with cultural competency training module is crucial before creating diverse workforce of physicians to develop culturally competent physicians. It is crucial to train health care professionals by constantly reviewing medical teaching materials to help them develop skills to have meaningful interaction with patient population from races,

ethnicities and cultures. The approaches utilizing the role of medical education in addressing healthcare disparities are very surface level such as passive leaning involving new course and content. Teaching or training pre-medical and/or medical students using active learning strategies or innovative tools are understudied. Braxton et al. (2008) defines active learning as "learning, which entails any class activity that involves students to think about things that they are doing" (p. 1). As active learning involves interactive techniques such as discussions, problem solving, collaboration with peers or direct engagement with the material, instructors who utilize active learning tools in their classroom has a significant impact on the students' social integration. Teachers who encourage their students to engage with the course content using active learning, students understand the course content better which is associated with more interest in the course. Active learning also not enhances the student's satisfaction with the course, but also it allows students to process the information deeply which is effective in building stronger memory of the content.

Research shows that faculty who use the active learning practices reinforce learning in the first-year college students (Braxton et al., 2008). Michael (2006) also highlights that the active learning tends to involve students more actively in the learning process which helps to solidify the knowledge. Understanding the role of active learning in the positive learning outcomes and long-term retention of knowledge, my Capstone aims at developing and evaluating targeted intervention utilizing active learning tool of H5P software, known as branching scenario module of H5P software. H5P website mentions that branching scenario is a content type that involves interactive elements where users make choices and navigate different paths based on their decision. This tool makes the learning content branch based on different paths based on what option or response users choose for the question. Interactive, scenario based H5P module

gives an opportunity to users to engage cognitively and emotionally with the material through critical thinking, reflection and reconstruction of experiences. Using H5P branching scenario module, my project aims to raise awareness of racial disparities in healthcare, equip future doctors with valuable skills and building bridges of understanding between patient and physician. The proposed study focusses on developing and evaluating an educational intervention that will assist pre-medical students to learn about the challenges faced by black women during their pregnancy. This research project has the potential to improve the health outcome of Black women during pregnancy and childbirth by making pre-medical students aware of systematic racism and healthcare inequalities that contribute to negative maternal health outcome.

Methods:

To evaluate the effectiveness of the implementation of active learning tool i.e., H5P branching scenario module as a targeted educational intervention, an interactive educational workshop was designed to test the following hypotheses. The null hypothesis asserts that there is no difference between pre-workshop and post-workshop survey scores for the students in any of the conditions. First alternative hypothesis claims that students in the active learning group are more likely to have higher scores as compared to the students in the passive learning group. Second alternative hypotheses posit that the utilization of interactive, scenario-based H5P module is effective to equip pre-medical students with invaluable skills like active listening, empathy, compassion and advocacy and to educate them about the issues like medical and systemic racism and power-imbalance between doctor-patient relationship.

This study uses a quasi-experimental design involving three groups of pre-medical or pre-health UCR undergraduate students in their freshman, junior and senior years. A total of 6

participants were recruited for this study after IRB approval due to time-sensitive nature of the project. The main purpose for specifically recruiting pre-medical students is due to the relevance of research content to their future roles as physicians. These participants are at critical point in their pre-medical education/journey where such knowledge can significantly shape their perspective and approach to healthcare delivery in more inclusive and responsive manner. The study does not involve the race, gender or age-related inclusion or exclusion criteria, as it aims to encompass a wide range of viewpoints that go beyond the specific demographic, ethnic or racial boundaries. This research study is dedicated to inclusive approach, where participants of any race, ethnicity, gender, age, or first language (with college level English competency) were welcomed to join the study. The purpose to have a diverse group of participants is anchored in the necessity for obtaining comprehensive understanding of the research topic and for having findings that are represent the diverse population instead of a particular subgroup. While the H5P branching scenario module and TED Talk is a digital tool and accessible remotely via link with the participants, this study required participants to engage with module in the in-person settings due to several reasons. Physical presence ensures the smooth and uninterpreted learning experience for the participants without the distractions often present in remote or unsupervised environment. The study took place in one of the Rivera's library group study rooms. No private or identifiable information will be collected.

Among the three groups studied, Group #1 students watched a TED-Talk video addressing the role of medical and systemic racism in poor maternal health outcome of Black women. Group #2 students engaged with the H5P branching scenario module. Group #3 students watched the TED Talk video and engaged with the H5P branching scenario module. This study involved the administration of comprehensive survey that was divide into two phases (i.e., pre-

and post-workshop surveys) to assess the students' awareness of the issues within each group and across groups. Pre-workshop survey was designed to assess the participants' pre-existing knowledge about health disparities, contributing factors of high Black maternal mortality rate and unique challenges faced by Black women during pregnancy. Post-workshop survey was designed to gauge the participants' change in knowledge after engaging with the workshop content based on their group number. Both qualitative and quantitative survey data analysis provided a more complete evaluation of the intervention's effectiveness.

Results:

Qualitative survey findings reveal that before engaging with the content in the workshop, all participants in each group displayed, in response to the open-ended free response questions, minimum understanding of the health disparities and lack of knowledge about the major contributing factors of high Black maternal mortality rate mainly medical and systemic racism and power imbalance between doctor-patient interaction. In the post-workshop qualitative feedback, particularly from the group that interacted with H5P module, participants highlighted their positive experiences with the engaging elements of the module. Participant A mentioned in their response how engagement with the H5P module facilitated critical thinking and provided instant feedback when the best option was selected. Participant B noted that she liked how module redirected her to the previous question when she chose the wrong option. The participants felt more informed after engaging with the module. According to one of the participants, "I think that this module was very informative and helps me understand the concerns of Black women in regards to their maternal care".

Additionally, the quantitative survey data analysis implies that the participants who engaged with the H5P branching scenario module (i.e., Group #2 and Group #3) demonstrated

higher scores in the post-workshop survey as compared to post-workshop survey in the TED talk video group, indicating an increase in awareness about the unique challenges faced by African American women during pregnancy. TED Talk video (i.e., 3 and 2). This data helped quantify the change in knowledge levels across groups as shown in the table 1 and figure 1.

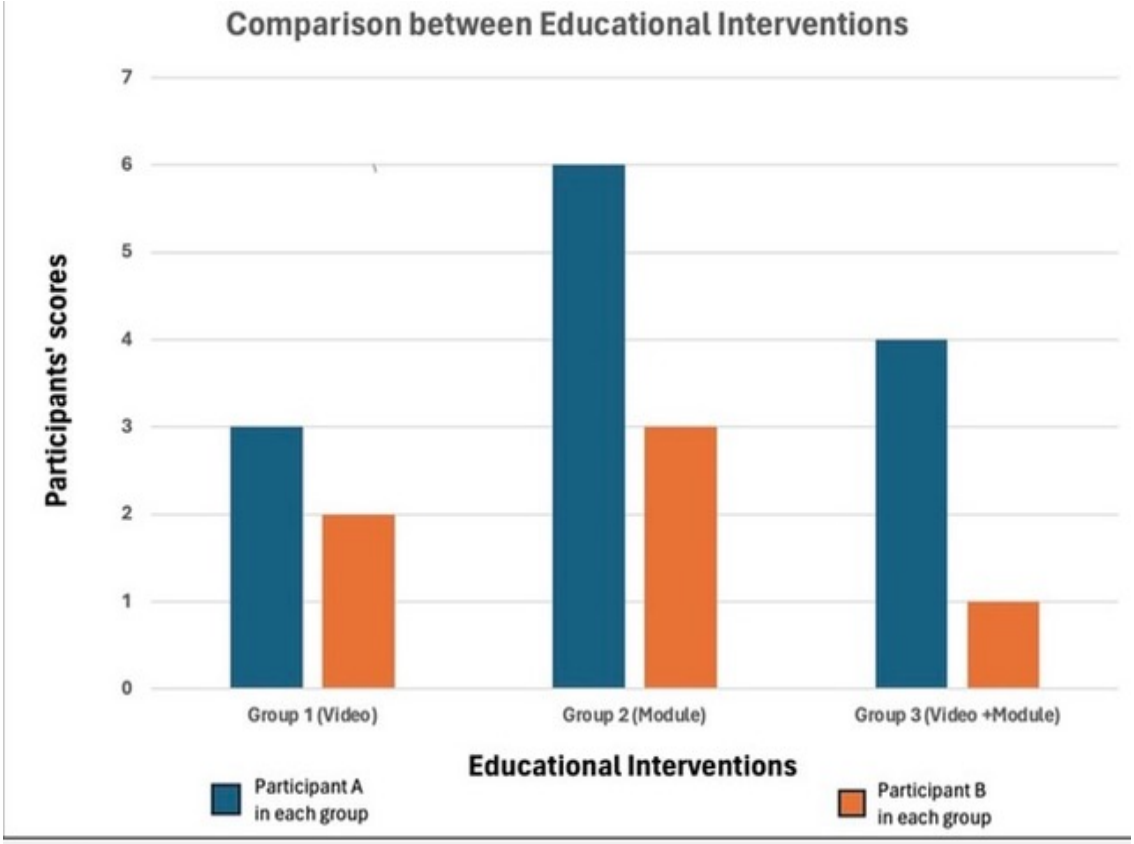


Fig. 1:

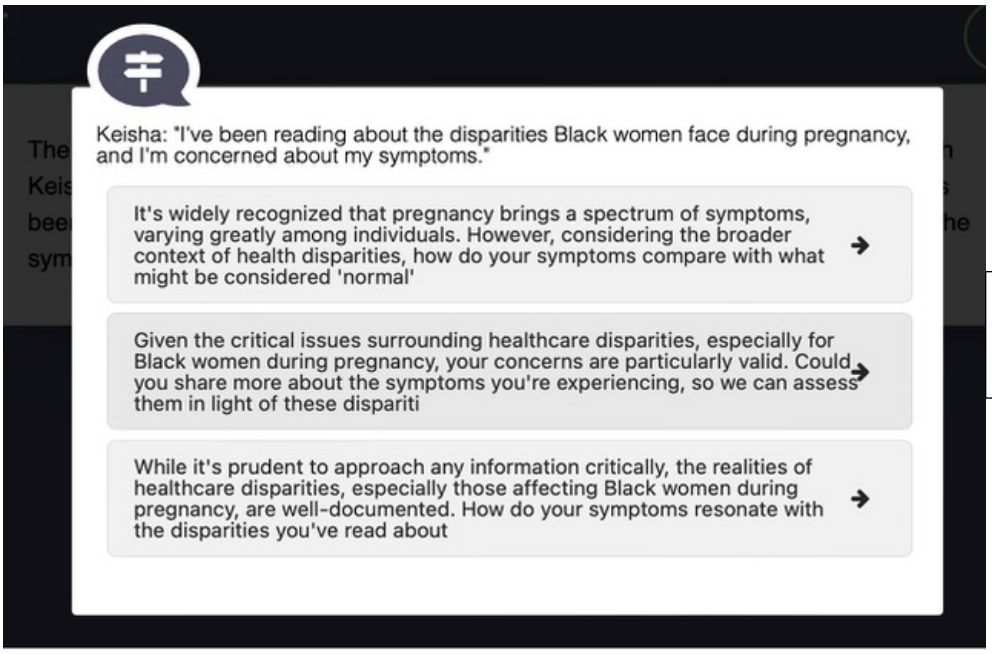
In analyzing the results of pre-workshop and post-workshop survey scores, we found that the difference between pre- and post-workshop survey scores of the participants in the group #2 and group #3 (i.e., 6 and 4) is more than group who watched the TED Talk video (i.e., 3 and 2). This data helped quantify the change in knowledge levels across groups as shown in the table 1 and figure 1.

Group 1 (Video)	Group 2 (Module)	Group 3 (Video + Module)
3	6	4
2	3	1

Table 1:

As a result, null hypothesis (i.e., there is no difference between pre- and post-survey scores in all conditions) can be rejected based on the data collected. Both qualitative and quantitative survey findings provided the complete evaluation of targeted educational intervention i.e., H5P branching scenario module. The researcher view and (an example of) participant view of H5P branching scenario module are shown below.

Branching Scenario Module – Researcher View



Branching Scenario Module – Participant View

Discussion:

The primary goal of this study was to evaluate the effectiveness of H5P branching scenario module in raising awareness of the significant challenges faced by African American women during pregnancy (with emphasis on systemic racism and medical bias) in addition to equipping them with invaluable skills that help them becoming active listener, patient advocate, cultural competent, compassionate, empathetic and informed physicians in future. Both qualitative and quantitative survey key findings support the hypothesis that the participants in the active learning groups were more likely to have a higher score in the post-workshop survey; consequently, the difference between pre-workshop scores and post-workshop scores was greater in the groups that engaged with the H5P module. In other words, the above data reveals that the medical education has a crucial role in shaping future physicians by addressing disparities in healthcare and equipping them with skills that will help them to interact with diverse patient population (White-Davis et al., 2018). It is important to recognize that participants in group #1

who watched the TED Talk video also showed some improvements in the post-workshop surveys.

This highlights the need to incorporate knowledge of existing disparities, especially high Black maternal mortality rate in the curriculum of pre-medical students and medical students, as most students are not aware of healthcare disparities and their major contributing factors. The implementation of active learning techniques are more effective in conveying complex health justice issues like high Black maternal Mortality rate by fostering deep understanding of implicit bias, medical and systemic racism, low health literacy, and power dynamics between doctor-patient relationship. In addition, this study has potential to offer significant benefits to the communities and scientific knowledge in general. Active learning tool i.e., H5P branching scenario module may be implemented in the standard curriculum of pre-medical students and/or medical students. Addressing the major public health issue of health-disparities in the US may play a constructive role in contributing to the long-term solution of preventing the pregnancy-related death by making the participants (future doctors) more aware of harsh realities of medical racism and health disparities.

Limitation and Future Research:

This study, while offering important insights, does have certain limitations, that should be taken into consideration when evaluating key findings. First, due to limited number of participants recruited for this study, a comprehensive statistical analysis was not viable. A small sample size limited the ability to detect the statistically significant differences. Second, due to lack of data on how attentively participants engaged with module, variations in engagement and attention levels may have an impact on their learning outcomes. Third, considering individual

biases, such as prior knowledge or motivation, of the researcher and participants, may have an influence on key findings of the study.

Despite of all the limitations, this study has laid foundation for the further research into the effectiveness of active learning strategies in developing educational interventions aimed at reducing disparities in healthcare. Future researchers may also develop modules that have greater depth of knowledge about all the contributing factors of the high Black maternal mortality rate to better educate pre-medical students. To enhance the reliability of key findings and data precision, future studies should aim to include a larger sample size. Further studies should conduct a comparative analysis of more diverse approaches and different active learning tools to foster deep understanding of health disparities.

Conclusion:

In conclusion, the research demonstrated that utilizing active learning strategies are more influential in raising awareness among pre-medical students about unique complications experienced by African American women during pregnancy or childbirth as compared to passive learning. Key findings revealed that students in the groups who engaged with the active learning tool i.e., H5P branching scenario module exhibited more difference between the pre-workshop and post-workshop survey scores. More difference between the scores implies increase in knowledge about major contributing factors of high maternal mortality rate of African American after engaging with the H5P branching scenario module. This research highlights the significance of incorporating active learning strategies in the curriculum of pre-medical students who are future physicians and leaders of tomorrow. It is evident from the literature review that poor maternal health outcomes can be traced back to the historical America when institution of slavery deprived African slaves of their rights to vote, get freedom, own stable shelter, and to

seek healthcare. Political policies like Jim Crow's laws gave rise to racial segregation which negatively impacted the health outcomes of African American people. Studies also highlight that African slave women were forced to reproduce more slaves, and the physicians in the historical America also preferred the interests of slave owners which potentially gave rise to the medical racism. Slavery and historical legislation contributed the birth of systemic and institutional racism in many sectors including healthcare sectors. Both systemic and medical racism are associated with implicit bias.

The content of the H5P branching scenario module mainly targeted the issues of systemic and medical racism with the aim of educating future physicians about these complex factors. It is important to recognize the major contributing factors of high Black maternal mortality rates results from the combination of social and structural determinants of the health that stems from racism. By addressing these areas, further research can explore the role of different active learning strategies in educating future physicians to mitigate the leading causes that result in preventable pregnancy and childbirth and achieve health equity for all.

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