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Exploring the Impact of Public Health Messaging on Maternal Health Engagement in the US: A Focus on Racial Disparities and Persuasive Evidence; by Shelby Mokricky; April 29, 2024

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Maternal Health Engagement in the US:
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Abstract

With the current rise of maternal mortality rates in the United States, particularly among Black women, this project aimed to understand more about how the content of maternal health campaigns affects participants' desire to create action and change. We examined two factors, the type of persuasive evidence presented, anecdotal stories or statistical information, and whether the message discussed the racial disparities in maternal mortality or not. Using Cloud Research's Connect Platform 500 survey participants were randomly assigned to read one of four public health campaigns, then asked to complete a series of questions relating to their support of combating maternal mortality, their emotions towards the issue, their (potential) actions they would take towards the reduction of maternal mortality, and what they demand of their leaders. The findings indicate that anecdotal evidence has a larger impact than statistical evidence on participants' demanding change from their leaders and willingness to donate money towards this issue. The effectiveness of the anecdotal persuasive evidence is consistent with previous research. Additionally, the manipulation of the salience of racial disparities within the campaigns did not have strong effects. Future research should explore the role of heuristic thinking and developing connections with the audience in the observed effects of anecdotal evidence on participants' demands for their leaders to take action on this issue and increased donations. Moving forward, health campaigns might consider featuring more anecdotal stories.

Keywords: Maternal Mortality, Public Health Campaign Messages, Anecdotal Supportive Evidence

Chapter 1: Introduction

Maternal mortality is a silent issue that has gone unaddressed in the United States for too long. Maternal mortality, as defined by the CDC, is defined as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes" (CDC, 2023a). Maternal mortality not only leaves infants without mothers but leaves gaps in society. Birth giving should be a natural and safe process that does not result in mothers dying. The Harvard T.H. Chan School of Public Health's Dr. Ana Langer emphasized the immediacy of the issue "because it's been estimated that a significant portion of these deaths could be prevented" (American Heart Association News, 2019; St. Clair, 2020). The ability to reduce these rates is within our means, but there needs to be people who acknowledge the disparity and systems put into place that focus on solutions.

In the United States, maternal mortality rates are continuing to increase. While there has been a steady incline in neonatal health outcomes, over the past 30 years, there has been a decrease in maternal health outcomes. Since 1987, the US has had a steady increase in maternal deaths. In 1987, the US government, via the CDC, began tracking maternal deaths in this country through an initiative called Pregnancy Mortality Surveillance System (CDC, 2023a). This initiative conducts research related to national population data regarding the rates, factors, and causes of maternal mortality (CDC, 2023a). In 1987, when the data collection first began, there were approximately 7.2 deaths per 100,000 live births. In 2021, the rate increased to 32.9 deaths per 100,000 live births (Hoyert, 2023). With the rate of maternal deaths increasing, it is more important that there be further research to understand maternal mortality and how to promote public engagement with maternal health issues.

Compared to other countries of the world, the US falls significantly behind its industrialized counterparts, like Sweden, Canada, Australia, the Netherlands, Spain with rates (respectively) between 4 and 12 deaths per 100,000 live births (Douthard et al., 2021; WHO et al., 2023). The US has one of the highest rates of maternal mortalities among nations classified as "high income countries with robust published data" on these statistics (WHO et al., 2023). This means that within its realm of comparable countries, the US doubles or triple its rates of deaths.

Furthermore, the United States also differs from other countries in that it has a racial disparity between groups. Not only are the US's rates for maternal mortality higher than some of its high-income peers, but the US also experiences a unique phenomenon of its gap along racial and ethnic groups. Racial and ethnic minority groups have higher rates of maternal mortality than White women. These rates are not just slightly more worrisome for women of color, but in some cases women of color are 2.5 times more likely to die in childbirth because of their race (CDC, 2023b). In comparison to White women, Black women have a rate of 69.9 deaths per 1000,000 live births while non-Hispanic White women have a rate of 26.6 deaths per 100,000 births, and Hispanic women at a rate of 28.0 deaths per 100,000 live births in 2021. In the US, the disparity of rates of maternal mortality is alarming and becoming increasingly so (Hoyert, 2023).

With this current research in mind, there is a push forward to have a greater grasp in understanding why these disparities occur and understanding more about potential solutions. This current research will explore the effects of public health messaging relating to maternal mortality and how these campaigns promote and inspire action with the public. In doing this

project, we will focus on two factors associated with campaigns regarding the issue of maternal mortality in the United States. Namely, we are exploring the role of identifying the racial disparity in maternal mortality as well as the type of persuasive evidence utilized in the health campaigns. Through this project, we are looking to understand more about public engagement in terms of activism inclinations, support for and expectations of leaders relating to maternal health, and willingness to financially contribute to an organization focused on promoting maternal health. The following comprises the current literature that surrounds the topic of maternal mortality, persuasive rhetoric, and what inspires individuals to take action.

Women of Color: Double Jeopardy and Intersectional Invisibility

A central element to this research project is to understand the role of racial disparities and acknowledge the gaps in the engagement in maternal health messages. One line of research suggests that highlighting the role of race and the disproportionate rates of maternal mortality for Black women relative to White women may not serve as a way to engage the public. By utilizing social theories relating to racism and sexism, we are able to predict why certain public health messages will promote more social acts over others.

The idea of *double jeopardy* came about by the feminist scholar Frances M. Beal. Beal's scholarship established that Black women face barriers of being both Black and a woman (Beale, 1970). This experience of receiving both discrimination from racism and sexism means that they experience "Double Jeopardy" as described by Beale (Beale, 1970). This effect of double jeopardy results in women of color being doubly disadvantaged in social circumstances, especially in health care. Black women are more likely to report worse health conditions compared to their White peers at various ages (Kirby & Kaneda, 2013; Thomas et al., 2011). Not

to mention that women of color, including Black, Indigenous, and women of Hispanic ethnic origin, are likely to experience more comorbidities (that is, the presence of more than one health condition) with their health status than White women (National Healthcare Quality and Disparities Report, 2021; Torst et al., 2023; Valderas et al., 2023). Even when they are not recognized as the main group facing these issues, Black women are at the forefront of battling such difficulties. This additive model of quantifying discrimination helps to predict why individuals might care less about Black women in health care, especially when it comes to maternal health. In our research, we predict that the compounding bias of sexism and racism that Black women face, might result in people caring less about the issue of maternal mortality, if the messages make clear that they disproportionately experience maternal mortality.

While the issue of double jeopardy and maternal mortality is quite compelling, there is other research that suggests that including information on the disproportionate number of Black women dying from pregnancy related causes will not have an effect on the participant's desire to create action from the public health message: at times, Black women can experience a sense of invisibility. While Black women experience this double disadvantage of double jeopardy, there still is an overall lack of acknowledgement of this social discrimination (Beale, 1970). Women of color are not perceived to be the prototypical model for either Blackness or femininity, as a result they are oftentimes rendered invisible (Goff et al., 2008, Rosch 1975). Society might not even begin to address the social effects of racism and sexism and render this additional burden invisible. Sesko and Biernat investigated this idea of *intersectional invisibility* (Sesko & Biernat, 2010). The application of intersectional invisibility is the belief that "...individuals perceive women of color as less representative than men of color and White women of their respective racial and gender categories, leading to the formation of a *perceptual invisibility* to women of

color" (Remedios & Snyder, 2015; Wong et al. 2022). As a result of not being the prototypical model of the race and sex, Black women are rendered invisible, and the issue becomes not relevant enough for the public to engage with the issue.

Double Jeopardy and *intersectional invisibility* provide two different yet valuable theories that describe the experience of Black women in the United States. Both theories detail the experience of racism and sexism, and also not being prototypical of their race or gender that they can be rendered invisible. Furthermore, being subject of prejudice and rendered invisible can both serve as supportive theories to explain why Black women have higher rates of maternal mortality. In this research, these theories result in different predictions for how highlighting racial disparities might affect the effectiveness of our messages. The first being the double jeopardy theory suggests that making race apparent, as opposed to making race non-salient, might result in less responsiveness to the appeal. The second being intersectional invisibility theory would suggest that whether race is made salient of not, neither will affect the outcomes. In this study, we can predict the effectiveness of the public health message and how individuals might not desire to take action; Black women might be vulnerable to people caring less about them because of theories like double jeopardy and intersectional invisibility as perpetrated through racism and sexism.

Social Dominance Orientation

In addition to exploring the role of highlighting the racial disparity in maternal mortality awareness campaigns, we are also exploring the social dominance orientation of the participant. Social Dominance Theory was first developed in the 1990's by Jim Sidanius and Felicia Pratto to explain certain types of group conflict and group-based inequality (Pratto et al., 1994). While

group-based hierarchies are essential to most societies, this phenomenon occurs when group consensus propagates their group's superiority over another group (Hoyt & Simon, 2016; Levin et al., 2012; Pratto et al., 1994; Sidanius & Pratto, 1999). SDO can describe an individual's "general attitudinal orientation toward intergroup relations" referring to one's preference for hierarchy between groups (Pratto et al., 1994, p.742). This can refer to things like gender, race, ethnicity, age, or other social groups. According to Pratto et al. (1994), those who are "more social-dominance oriented will tend to favor hierarchy-enhancing ideologies and policies, whereas those lower on SDO will tend to favor hierarchy-attenuating ideologies and policies" (p. 742).

Social Dominance Orientation can be used as "a measure of support for inequality between social groups and has been shown to play a central role in a range of intergroup attitudes, behaviors, and policy preferences" (Ho et al, 2015). SDO is a predictor of certain intergroup attitudes and behaviors and can be utilized as an individual difference variable (Ho et al., 2015; Sidanius, 2013). Social Dominance Orientation can predict "prejudicial attitudes toward social groups, including attitudes toward Blacks and women" (Hoyt & Simon, 2016). In this research we will examine if participants' SDO moderates their response to messaging that does or does not include information on race. We predict that those with higher ratings of SDO, that is those who prefer hierarchy in society, will be less likely to care about and engage with the issue of maternal mortality, especially when presented with the information that acknowledges the disparity between races.

Persuasion: The Role of Anecdotes and Statistics

In addition to looking at whether identifying the racial disparity in maternal mortality matters for the effectiveness of public health messaging, we are also exploring the role of evidence in the persuasive appeal. The tools of rhetoric date back to Aristotle and his interpretation of how individuals can utilize various tools to persuade individuals (Lutzke & Henggeler, 2009). Since Aristotle's creation of the Rhetorical triangle, *logos*, *pathos*, and *ethos* have all been considered necessary tools for persuasion. *Logos* appeals to the reason and thought, *ethos* appeals to the writer's characters, and *pathos* appeals to the emotions and values of the audience (Lutke & Hennggeler, 2009). All of these forms of presentation of information can be utilized to present information strategically. While these tools are extremely specific to the effectiveness of an argument, their principles can be applied to this project as well. In this study, the idea of *pathos* and *logos* will be central to the construction of the argument. In terms of the evidence and persuasive appeal of the campaigns, the statistical evidence will be equivalent to the *logos* of the argument; whereas the *pathos* corresponds to the attitudes and emotions of the individual and relate to the anecdotal evidence of the project. The anecdotal evidence appeals to emotional rhetoric and may gain sympathy from those reading the messages.

In this research, we are exploring two types of evidence that public health messages employ: statistical or anecdotal. The difference between statistical evidence and anecdotal evidence is that statistical evidence is often seen as impartial information, while the anecdotal approach can center around an individual's perspective or experience. Freling et al. (2020) defined this difference in the following way: "Statistical evidence is broadly defined as empirically quantifiable information about objects, persons, concepts, or phenomena, whereas anecdotal evidence includes narratives, personal anecdotes, case histories, personal stories, and

testimonies." These two different types of rhetorical appeals could provide different forms of support from individuals, depending on what they value (Jost et al. 2004). While they might differ in their appeal, there are times where one is more impactful than others depending on the content of the information presented; for example, in a meta-analysis of 61 papers focused on measuring the effectiveness of either anecdotal or statical evidence, results varied depending on the issue or topic and dependent variable (Freling et al., 2020). Moreover, Freling et al. (2020) shows that when the emotional engagement of the topic is high, statistical evidence is less likely to persuade than anecdotal. Additionally, Kopfman et al. (1998) found that anecdotal messages elicit a stronger affective response than statistical messages which elicit a cognitive and systematic response. In application to this project, it is likely that participants will be persuaded to engage more with the project when presented with anecdotal information because of the topic's emotional engagement and attitudinal response. (Freling et al., 2020; Kopfman et al., 1998).

In health care interventions and medical actions, like treatment plans and patient decision-making tools, anecdotal evidence tends to be more effective than statistical evidence (Freling et al., 2020; Winterbottom et. al, 2008). Additionally, Winterbottom et. al. (2008) in their systematic review of statistical versus anecdotal evidence, their conclusion is that first person presentation of the anecdotes is more effective than third-person anecdotes. When the individual finds the message easier to identify with, then they are more likely to be persuaded by the anecdotal message (Weber & Martin, 2006). In relation to maternal mortality, individuals might be more persuaded by the anecdotal evidence than the statistical evidence. The emotional component of the anecdotal evidence might sway individuals to have a belief that one's individual experience matters and that it inspires them to commit to actions.

However, when it comes to preventative health, where it is more influenced by one's individual behavior, there is less of a clear difference between anecdotal and statistical evidence (Freling et al., 2020; Zebregs et al., 2015). When beliefs and choice-oriented attitudes are considered, there tends to be more of a sway toward statistical evidence being a stronger influence than anecdotal evidence (Zebregs et al., 2015). Individuals might appeal more to statistical evidence when they are more closely related to choice, belief, and individual action such as seat belt wearing and avoiding tanning beds. Furthermore, when considering other health conditions, like organ donation, statistical evidence is more effective than anecdotal evidence when discussing the need for organ donation (Weber & Martin, 2006; Kopfman et al. 1998). This alternative account means that certain circumstances might be more effective for statistical evidence than persuasive evidence. In this situation where health is centered around prevention and choice-oriented, statistics become more persuasive; however, when it comes to maternal health where there are fewer preventive and precautionary measures, the anecdotal appeal might be more persuasive.

Overall, the effectiveness of different types of evidence used to support the claim are context dependent. Like Reynolds and Reynolds believe, the "message strategies and tactics need to also be weighed within the broader context of the message environment" and must consider the additional circumstance of the information presented (Reynolds and Reynolds, 2002, p. 431). Given the emotional connection and perspective of the anecdotal evidence, this type of anecdotal message could be the most effective when promoting engagement with the issue of maternal health. This is because they are more likely to gain the empathy of individuals that inspires them to take action.

Public Engagement in Maternal Health Issues

In this research, we take a three-pronged approach to assess public engagement in maternal health issues: demand for leader action related to maternal health issues, activism inclinations, and willingness to financially contribute to an organization focused on maternal health.

Demand for Leader Action

There are leaders across a variety of sectors that might help to address the issue of maternal mortality. As much as there is a focus on how health leaders are able to support and address the issue, it extends further beyond just the context of health. There must be collaboration and engagement from multiple groups that can work to address this issue. In our research, we refined the discussion down to three groups of leaders: healthcare leaders, political leaders, and media leaders.

Recently, there has been a stronger effort in the US government to educate the public and further address the issues of maternal mortality (CDC, 2023a). The Center for Disease Control and Prevention (CDC) in recent years has played a strong role on behalf of the US government in addressing the rates of maternal mortality. For example, the CDC has developed programs and campaigns like the HearHer campaign, ERASE MM, Pregnancy Mortality Surveillance System, Perinatal Quality Collaboratives and LOCATE tools, amongst other smaller campaigns to address maternal mortality (CDC, 2023a). These five main funnels for education, prevention, and analysis allow for health care and medical leaders to be able to further understand the issue in detail. One of the key points about these campaigns is that they center around awareness and collection of data for further promotion, awareness of the issue, and its complexities.

Although there has been significant effort from the nation's public health service for greater health promotion, state governments are taking more of an interest in the rates of maternal mortality at a population level. Currently, at the state-level there are thirty-six perinatal quality groups (CDC, 2023c). State-funded perinatal qualitative collaboratives look to gather state level population data to be able to better understand the issues that affect birth givers in their state; however, individual healthcare providers and health care leaders must also take an interest in this issue as well (CDC, 2023b). For example, health care leaders on an individual basis must also have an interest in working to reduce the rates of maternal mortality for their patients. The CDC recommends that health care providers educate their patients on the dangerous maternal warning signs when pregnant and have open conversations about their questions and chronic conditions, and train non-obstetric care providers to inquire about pregnancy history of the previous year (CDC, 2023b). Health leaders have an important role in the reduction of maternal mortality rates.

Not only is there work completed by health care leaders, but leaders in the political context as well. At a local political level such as city, county, and state, individuals can demand that their political leaders address social issues that influence maternal health such as housing, transportation, food insecurity, and racial and climate justice (CDC, 2023b). In June of 2022, a brief from the White House addressed how the Biden administration is addressing maternal health (The White House, 2023). This public address looks to establish the current administration's path forward and their plan to combat the increasing national maternal mortality rate. Some of their recommendations include extending postpartum Medicaid Coverage, the "birthing friendly" hospital initiative, holding cabinet officials meeting on maternal health, and hosting an official day to celebrate maternal health (The White House, 2023). The White House

alongside individual politicians are creating agendas to garner support from their constituents. For example, congresspeople have gathered together to propose The Black Maternal Health Momnibus Act to invest in social determinants of health, provide funding for community-based organizations, and eleven other agenda items (Adams & Underwood, 2023). Political leaders can have a role in representing their followers to push for health-related policy change and can be a key factor in motivating the actionability of their followers.

Leadership in the media is also crucial to garner support for the issue of maternal mortality. In early 2018, articles about Serena Williams's birth story flooded the world about her traumatic, near-death birthing experience (Haskell, 2018; Salam, 2018). The day following the delivery of her daughter, Williams experienced many complications and detailed her distressing, near-death experience. The story of Serena Williams's birth story became mainstream, and it brought public awareness to issues of women of color dying disproportionately due to pregnancy related causes. The public began to engage with themes about maternal mortality and the disparity between different racial and ethnic groups because of the publication of Williams's testimony.

Williams' cover article in Vogue came to the public's attention via printed articles, online articles, social media, and television broadcasts, and so on; with so many platforms for media leaders to share and spread information, the options for information sharing are endless. For example, Nagler et al. (2016) discusses how local news media outlets can be prime sources for downstream discussion of health disparities and social determinants of health. They explain that access to health focused news stories written in minority and vulnerable communities needs to be addressed the disparities and other social determinants of health. They believe that news media

can be "...contributing to this knowledge deficit, whether by discussing these issues narrowly or ignoring them altogether" (Nagler et al., 2016). The news media can be an important source for information for minority communities, and even through social media. Recently, Aruah et al. (2023) assessed the effectiveness of maternal health campaigns via Twitter and how it can be a powerful tool to amplify voice and share perspectives. Regardless of the type of media utilized, media leaders can have a role in disseminating the information and content of the information in regard to health concerns, even maternal health, and the disparity of maternal mortality (Aruah et al. 2023; Nagler et al., 2016; Zamawe et al., 2016).

Though there is work currently underway by leaders in all three sectors, there is still much work to be done. While some Americans are informed about the current issue of maternal mortality, there is still much needed to encourage more engagement with the issue. Once individuals learn more, then they will call into action their leaders to demand more support. For example, they might require their political leaders to place a larger emphasis and push for policy change or call for improved practices that prioritize their patients and caregivers' demands from healthcare leaders. Leaders or "wielders of power" will want their followers' support in order to maintain power and status (Burns, 2012, p. 7). Leaders require their constituents' (or followers') trust as it is a direct predictor of follower's support (Parker, 1989). Constituent advocacy can be a large motivating factor for leaders if their followers call for action and can sway their decisions to inspire reforms.

Activism and Donations

In addition to looking at how the maternal mortality public health messages will influence what people will demand of their leaders, we are also looking to further understand

how the messages related to maternal mortality will influence their activist intentions and donation behaviors. When informed about moments of injustice, individuals are oftentimes motivated to rectify such actions (Hoyt et al., 2017; Jost et al., 2008; van Zomerman et al. 2008). These moments of injustices can spark "moral outrage" and inspire people to act in order to want to fix and prevent future inequalities (Hoyt et al., 2017). However, these action steps will require individuals to come together as a group to address these problems (Jost et al., 2008). This study will incorporate a version of the activism orientation scale into the survey questionnaire to understand if and what actions individuals are motivated to complete when informed of the health disparity (Corning & Meyers, 2002; Hoyt et al., 2017). While some individuals might not be motivated to complete such actions of activism, some individuals will want to choose to engage. We predict that this motivation to commit the actions of activism will be moderated by their orientation of Social Dominance.

While engaging in activism would be one method to address the issue, another course of action that individuals might take is through monetary donations. While some individuals might not engage with the donation measure, others may be inspired to take action because of the injustice and disparity between groups (Andreoni et al. 2017; Saxon & Wang, 2013). Similar to the desire to act because of inequality, some may find the donation option to be more impactful to the community (Saxon & Wang, 2013). With opportunities to share their donations with the communities through social media and crowdfunding sites, like Facebook or GoFundMe, sometimes peer pressure becomes an overwhelming influence on people's desire to donate financially (Meer, 2011; Saxon & Wand, 2013). People deciding to give or not to give becomes influenced by their relationship with the action and themselves (Andreoni et al, 2017; Meer, 2011). Andreoni et al. (2017) suggests that "...giving is initiated by a stimulus that elevates

sympathy or empathy in the mind of the potential giver" and conditions the individual to develop a positive feeling by giving or feelings of guilt by not giving. When faced with the opportunity to donate monetarily, individuals will either gift because of the established social ties, as seen through university giving campaigns, or dramatically avoid the stimuli of giving, such as the avoiding the Salvation Army bell ringer at Christmastime (Andreoni et al, 2017; Meer, 2011). Regardless of whether the individual decided to give or not, social, and internal pressures determine their decision to donate. When faced with the decision to donate to maternal health causes individuals might feel pressure to donate because of the social pressure to do so.

The Current Research

In this study, we will focus on addressing how public health messaging might be an avenue for promoting stronger public engagement for maternal health issues in the US. Specifically, we will focus on two factors within the context of health messaging: racial disparity in maternal mortality and the type of persuasive evidence. Through this experimental research, we are seeking to understand more about how public health messaging can best promote engagement with the profoundly serious issue of maternal mortality. We are examining how the different messages that either do or do not mention racial disparities and that use either anecdotes or statistics, influence participants' support for and expectations of leaders, activism inclinations, and monetary donations to an organization supporting maternal health.

Chapter 2: Methods

Participants and Procedures:

  The project was conducted online via a Qualtrics survey. Participants were recruited through the Connect platform on CloudResearch (Hartman et al., 2023). We surveyed participants who are 18 or older recruited through CloudResearch with a goal of 125 participants per condition for a total of 500 participants. Participants were compensated with $1.00 for completing the survey. The participant breakdown being 248 being women, 250 men, 2 nonbinary participants (Mean age = 38.91 years, age range = 18 to 75; 248 women, 250 men, 2 nonbinary or other gender; 64 Black or African American, 3 Native Hawaiian or Pacific Islander, 357 White, 42 East-Asian, 11 South Asian, 5 Native American, 2 Middle Eastern or North African, 40 Hispanic or Latinx, and 6 Biracial or Multiracial, 3 self-selected text answers, and 1 decline to answer).

  After giving their consent, participants were randomly assigned to read one of four public health campaigns which featured an image and text. Following the presentation of each health campaign message, participants were asked to describe the main idea of the message which functioned as an attention check. Then, participants answered a series of questions relating to their support of combating maternal mortality, their emotions towards the issue, their (potential) actions they would take towards the reduction of maternal mortality, and what they would expect of their leaders. Participants were then asked if they wanted to donate to an organization supporting the reduction of maternal mortality through education and awareness campaigns. Lastly, all participants completed a series of demographic-related questions.

Health Campaign Messages

In order to test our research questions, we created four different health campaigns that manipulated two factors: form of evidence and race salience. The four message conditions were: an anecdotal message that acknowledges racial discrepancies, an anecdotal message that does not mention race, a statistics-focused message that does not acknowledge the race disparities, and a statistics-focused message that does acknowledge the race disparity.

The campaigns were created using images from the CDC's "Hear Her" Campaign and other stock images (CDC*a*). The images were stitched together using Adobe Photoshop to create a unified looking singular image that could be utilized in a variety of settings and environments be that doctors' offices or municipal settings. The inclusion of the Hear Her campaign logo and the CDC logo were added to legitimize the campaign images. The images that accompanied the campaign without race made salient are shown in Figure 1 and Figure 2, and the image accompanying the campaign with race made salient is shown in Figure 3 and Figure 4. These images, in addition to the words underneath the images, created a full campaign.

Figure 1

Race Non-Salient Conditional Campaign Image with Statistical Evidence

Many people die each year in the U.S. from pregnancy-related complications. Deaths can occur during and up to a year after pregnancy (CDC).

The World Health Organization defines maternal mortality as a death of a pregnant person occurring during pregnancy or up to 42 days after birth. The U.S. rate for maternal mortality in 2021 was 32.9 maternal deaths per 100,000 live births, which is more than ten times the estimated rates of some other high-income countries, including Australia, Austria, Israel, Japan, and Spain which all hovered between 2 and 3 deaths per 100,000 in 2020 (WHO, 2023).

Figure 2

Race Non-Salient Conditional Campaign Image with Anecdotal Evidence

Many people die each year in the U.S. from pregnancy-related complications. Deaths can occur during and up to a year after pregnancy (CDC).

Kayla's pregnancy progressed normally until 32 weeks when she began to experience swelling and knew "something didn't feel right." She says, "I have two other kids, and I knew that something was off with this pregnancy. This one felt different." When swelling and headaches continued to worsen over the next couple of weeks, she knew something was wrong. Kayla continued to talk with her family and friends about her symptoms and knew that she needed to talk with a doctor about her concerns. With her symptoms, Kayla was diagnosed with Preeclampsia. She kept searching for answers and finally found a high-risk doctor who provided her with the care she needed to manage her symptoms and make it through her pregnancy safely. In her 38th week, Kayla gave birth to a healthy baby. Kayla's story reminds us that maternal health matters throughout the entire pregnancy and birthing process.

Figure 3

Race Salient Conditional Campaign Image with Statistical Evidence

Many people die each year in the U.S. from pregnancy-related complications. Deaths can occur during and up to a year after pregnancy. Black, American Indian, and Alaska Native people who are pregnant and postpartum are more likely to die from pregnancy-related complications than others. Most of these deaths are preventable. (CDC).

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Figure 4

Race Salient Conditional Campaign Image with Anecdotal Evidence

Many people die each year in the U.S. from pregnancy-related complications. Deaths can occur during and up to a year after pregnancy. Black, American Indian, and Alaska Native people who are pregnant and postpartum are more likely to die from pregnancy-related complications than others. Most of these deaths are preventable. (CDC).

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The texts featured in the campaigns were curated to focus on a statistical or anecdotal message and race salience in the context of the maternal mortality disparity. The textual content of all the campaign images stated, "Many people die each year in the U.S. from pregnancy-related complications. Deaths can occur during and up to a year after pregnancy." This type of textual evidence provided context and information around the health campaign. The two health campaigns that acknowledged the racial disparity featured the previous text as well as the following, "Black, American Indian, and Alaska Native people who are pregnant and postpartum are more likely to die from pregnancy-related complications than others. Most of these deaths are preventable" (CDC). This second set of textual evidence focuses on the racial health gap and brings the idea of the racial disparity to the forefront of the health campaigns.

The statistical condition either included statistical evidence from the WHO maternal mortality data comparing the US to other countries or did not. This statistical evidence demonstrates where the United States sits compared (about 32.9 deaths per 100,000 live births) to other countries (about 2-4 deaths per 100,000 live births) and how the situation in the US is different from other countries.

The anecdotal condition focused on a fictional story, inspired by the evidence from the CDC's Hear Her Campaign. The message was curated from women's stories who have been featured on the CDC's webpage. The story featured in the anecdotal condition described a woman, Kayla, and her trouble during her third trimester of her third pregnancy and that she sought out specialty care because she knew that her symptoms were not standard. This provides an example of what it is like for women who undergo difficult childbirth experiences.

An important detail of the anecdotal evidence was deciding on a name for the woman who was featured. We sought a name that was not primarily associated with one racial or ethnic

group, but a popular name across many groups. The name Kayla was chosen as it is a popular name across many racial and ethnic groups, including Black, Non-Hispanic Black, Non-Hispanic White, and Asian and Pacific Islander (New York City Health, 2014). This name needed to be a name that would have been popular in the 1980's, 1990's and early 2000's; the name Kayla was ranked in the top 100 names across all three of those decades, including being the 12th most popular name in the 1990's (Social Security Administration). This would be about the age range of most women having children today.

Measures

The full measures and entire survey can be found in the Appendix. All measures are adequately reliable (see Table 1).

Social Dominance Orientation (SDO)

Participants responded to the 8-item measure of SDO from Ho et al. (2015) that was modified from Pratto et al. (1994). Participants used a 7-point scale from strongly disagree to strongly agree and responded to questions such as "No one group should dominate in society" and "We should do what we can to equalize conditions for different groups."

Support for Maternal Mortality Reduction Efforts

Participants answered a 4-item measure about the severity of maternal mortality in the US. This scale was developed by modifying a scale from Wiwad et al. (2019). They responded on a 7-point scale from strongly disagree to strongly agree to items such as" Maternal mortality is not a serious problem" and "I am very disturbed by the amount of maternal mortality in the United States today."

Demand for Leadership Action

Participants were asked to indicate their support for and expectations of leaders in relation to maternal mortality issues. They responded to a series of eleven items, using a seven-point scale (from strongly disagree to strongly agree) The scale was developed with the understanding of the importance of political, health and media leaders' impact on this health issue. Sample items include, "Political leaders (e.g., city council members, mayors, state representatives, etc.) should work to lower rates of maternal mortality" and "Media leaders (e.g. news outlets, journalists, social media, etc.) should be responsible for helping people understand more about maternal mortality."

Action and Activism Inclinations

The Action and Activism scale was developed by modifying questions from Hoyt et al. (2017) and their wealth inequality activism scale, van Zomeren et al. (2008) and their measures of activism, and Wormald's (2013) civic activities scale. Participants indicated their likelihood to participate in 10 sample activities that would support maternal health and the reduction of maternal mortality rates on a 9-point scale (from Extremely Unlikely to Extremely likely). Sample items include "Work or volunteer with a community-based organization that works to lower rates of maternal mortality" and "Educate myself more on the problem of maternal mortality."

Donations

Participants were informed of an organization, Birth in Color, which focuses on policy advocacy, community centered care, research, training, and education. Participants were asked what portion of their $1 payment they would want to donate to the organization. They could choose any amount in 25-cent increments ranging from keeping the entire $1 for themselves

("donate none, keep all") to donating the entire $1 to the organization ("donate all, keep none"). After completing this question, participants were informed that they get to keep their payment regardless of their previous decision and that a donation in the amount they chose would be made to the organization by the research team.

Emotions: Mother-focused emotions and system-focused emotions

Participants were asked about their emotions in response to hearing about someone's struggles with significant maternal health concerns. They were asked about their emotions towards the mother and her family and their emotions toward the US Healthcare System. This measure was developed from Goudarzi et al. (2020). Participants were asked to indicate the extent to which they experience feeling the emotion on a 5-point scale ranging from not at all to extremely. When asking about emotions toward the mother and her family, participants responded to the emotions of sadness, pity, and empathy. When responding to their emotions toward the larger health care system, they responded to the emotions of anger, sadness, and disgust.

Chapter 3: Results

See Table 1 for descriptive statistics for variables including scale reliabilities, means, standard deviations, and intercorrelations. All scales were adequately reliable. Below, we test our research questions.

Table 1

Means, Standard Deviations, Reliability, and Bivariate Correlations

Variable	M	SD	α	1	2	3	4	5	6	7
1. Support	5.71	1.14	.83	–						
2. Leadership	5.70	1.06	.93	.71**	–					
3. Activism	4.97	2.21	.95	.39**	.62**	–				
4. Donation	24.25	34.58	–	.21**	.33**	.38**	–			
5. SDO	2.56	1.38	.92	-.52**	-.54**	-.31**	-.21**	–		
6. Emotions (Mom)	3.80	1.00	.81	.53**	.56**	.47**	.22**	-.31**	–	
7. Emotions (System)	3.28	1.18	.82	.55**	.51**	.47**	.22**	-.33**	.56**	–

$^ = p < .05$; $* = p < .01$; $** = p < .001$.

Our analytical approach to testing our research questions was threefold. First, we examined if the two experimental manipulations had any independent or interactive impact on any of the outcome variables. Next, we explored the question of whether participants' SDO moderates their responses to the race salience manipulation. Finally, we examined whether emotional responses might help explain any of the observed effects of the manipulations.

Do the experimental conditions independently or interactively predict the outcomes?

Support for Maternal Mortality Reduction Efforts

To examine if participants' support for maternal mortality reduction efforts were influenced by experimental conditions, we conducted a one-way analysis of variance (ANOVA) test, with both experimental conditions (racial disparity: 1=present, 0= absent; persuasive evidence: 1=anecdotes, 0 = statistics) predicting the outcome. There were no significant main effects or interaction effects on the outcome variable of support for maternal mortality reduction efforts ($ps > .304$).

Demand for Leadership Action

Next, we conducted a similar ANOVA test looking at the outcome of support for leaders. There was a significant effect of persuasive evidence (F (1, 496) = 4.64, $p = .032$, $\eta^2 = .01$; see Figure 5). Participants in the anecdotal condition reported significantly greater levels of support for and expectations of leaders (M = 5.80; SD= .97) relative to those in the statistics condition (M = 5.60; SD=1.14). There was no significant effect for the racial disparity condition ($p = .887$) and no significant interaction ($p = .780$).

Figure 5

Demand for Leadership Action
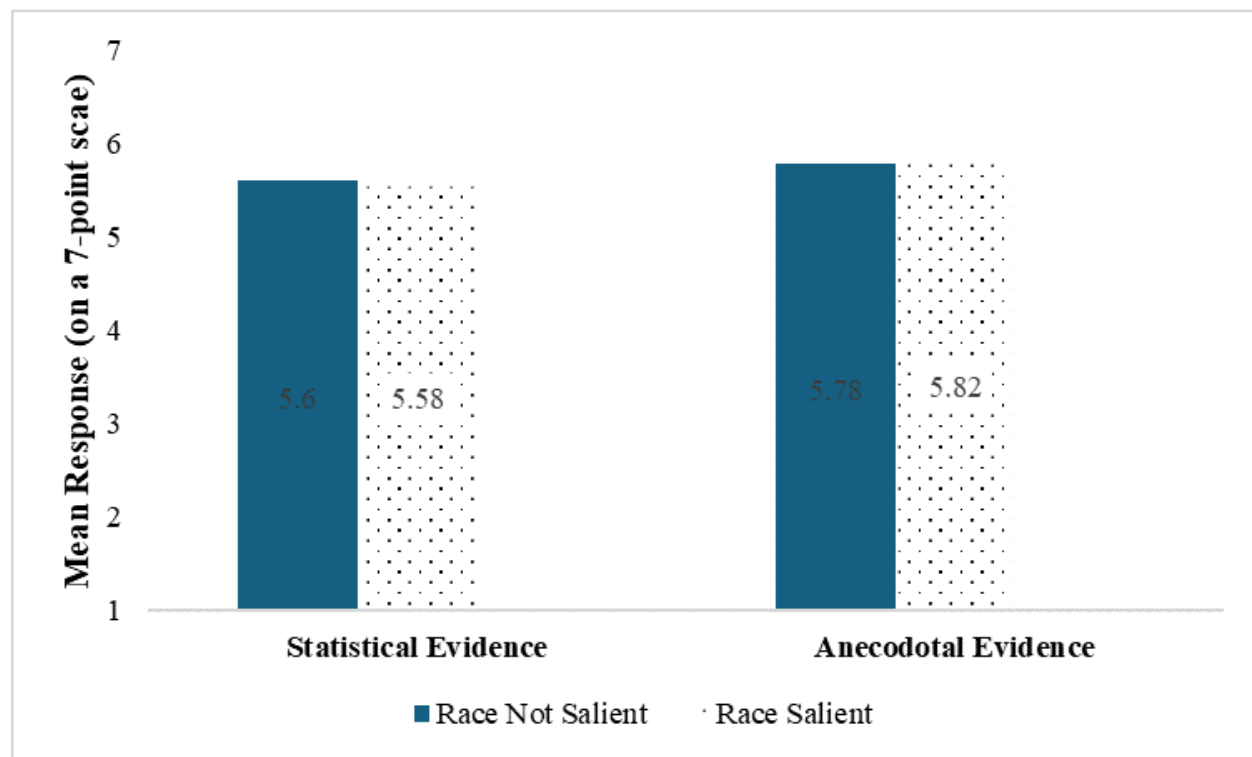
Activism Inclinations

Next, we examined the effect of experimental conditions on participants' reported activism intentions. We once again conducted a one-way ANOVA. First, there was no significant main effect for either the racial disparity condition ($p=.949$) or for the anecdotal story condition ($p=.608$). Next, there was a marginally significant interaction between the experimental conditions ($F(1, 496) = 3.18$, $p = .075$, $\eta^2 = .01$). Although it was only marginally significant and we must take caution in interpreting it, we explored the nature of this interaction. As can be seen in Figure 6, the pattern of means shows that those in the anecdotal evidence condition reported greater inclination to engage in activism relative to those in the statistical evidence condition

when racial disparities were made salient, but the pattern was reversed when there was no mention of race. None of these conditional effects were significant.

Figure 6

Likelihood to Engage in Activism Relating to Maternal Health
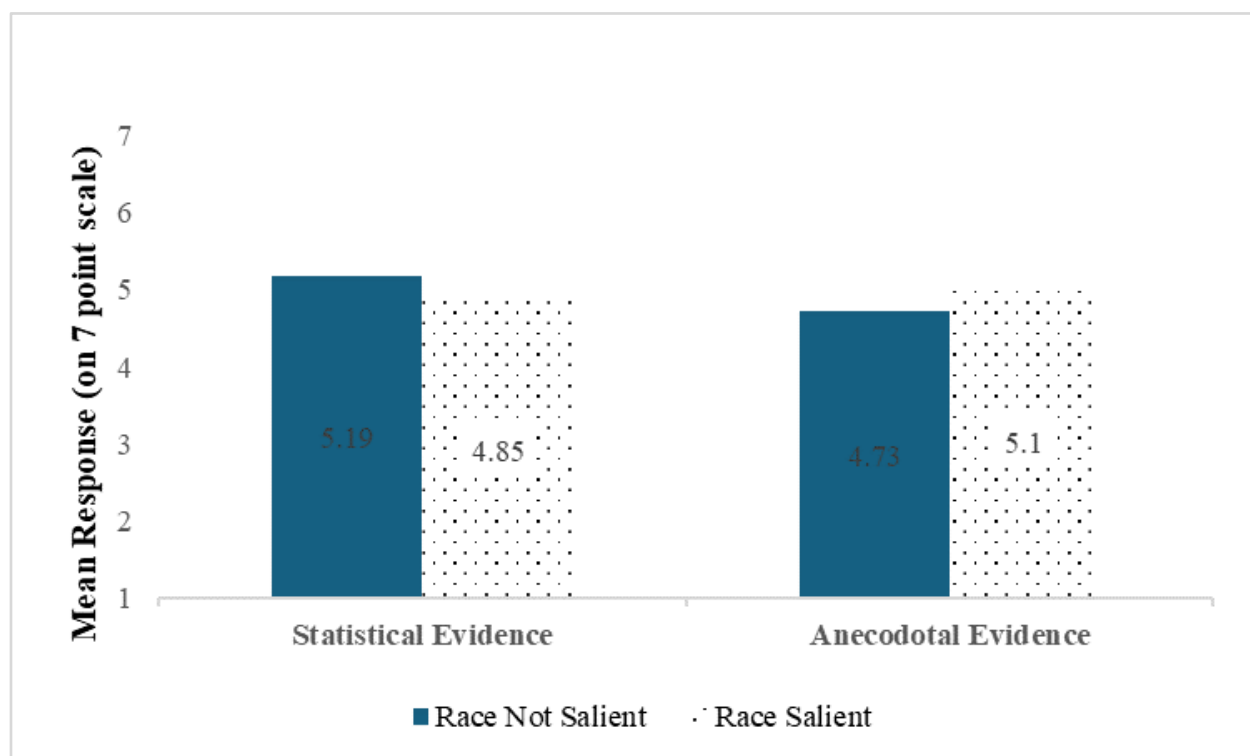
Donations to an organization focused on maternal health

To examine if participants' decisions to contribute financially to an organization supporting maternal health would be affected by the conditional message, we conducted a one-way ANOVA test. Individuals were marginally more willing to contribute to the maternal health organization when they received the anecdotal message ($F (1, 496) = 2.72$, $p = .100$, $\eta^2 = .01$; see Figure 7). In the anecdotal condition, individuals contributed more to the organization (M=26.81 cents, SD=35.95) than individuals in the statistical evidence condition (M=21.71 cents,

SD=33.04). There was no effect of the race salient condition and no interaction between the two experimental conditions.

Figure 7

Participants' Desire to Donate to Maternal Health Organizations
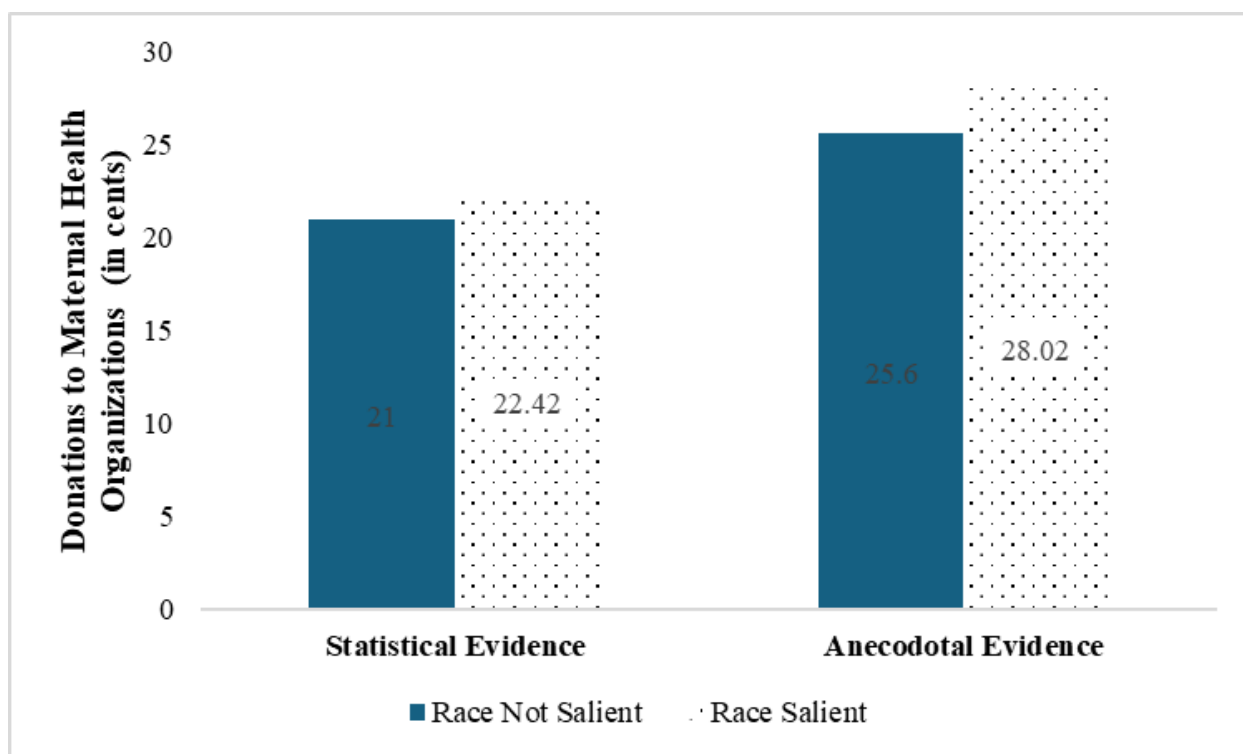
Does SDO moderate the impact of the race salience condition on any of the outcome variables?

As can be seen in Table 1 social dominance orientation predicted all 4 of our primary outcomes. Specifically, the more participants endorsed hierarchy in society, the less they supported maternal mortality reduction efforts, the less they expected efforts to reduce maternal mortality from their leaders, the less they indicated activism intentions, and the less they donated to an organization focused on combating maternal mortality.

In order to examine whether participants' SDO moderated their response to the race salience manipulation, we conducted a series of moderation analyses using Hayes' (2018) PROCESS macro-Model 1, with SDO and race disparity salience condition predicting each of the four primary outcome measures, controlling for the evidence condition. For demand for leadership action, activism intentions, and donations, there was no significant interaction of SDO and race salience condition (ps > .222). However, for support for maternal mortality reduction efforts, there was a marginal interaction (B = -.11, SE= .06; p=.089; 95% CI=-.23,.02). The conditional effects revealed that while SDO significantly and negatively predicted support in both race conditions, the association was stronger in the race salient condition (see Figure 6).

Figure 8

Support for Maternal Reduction Efforts and Social Dominance Orientation
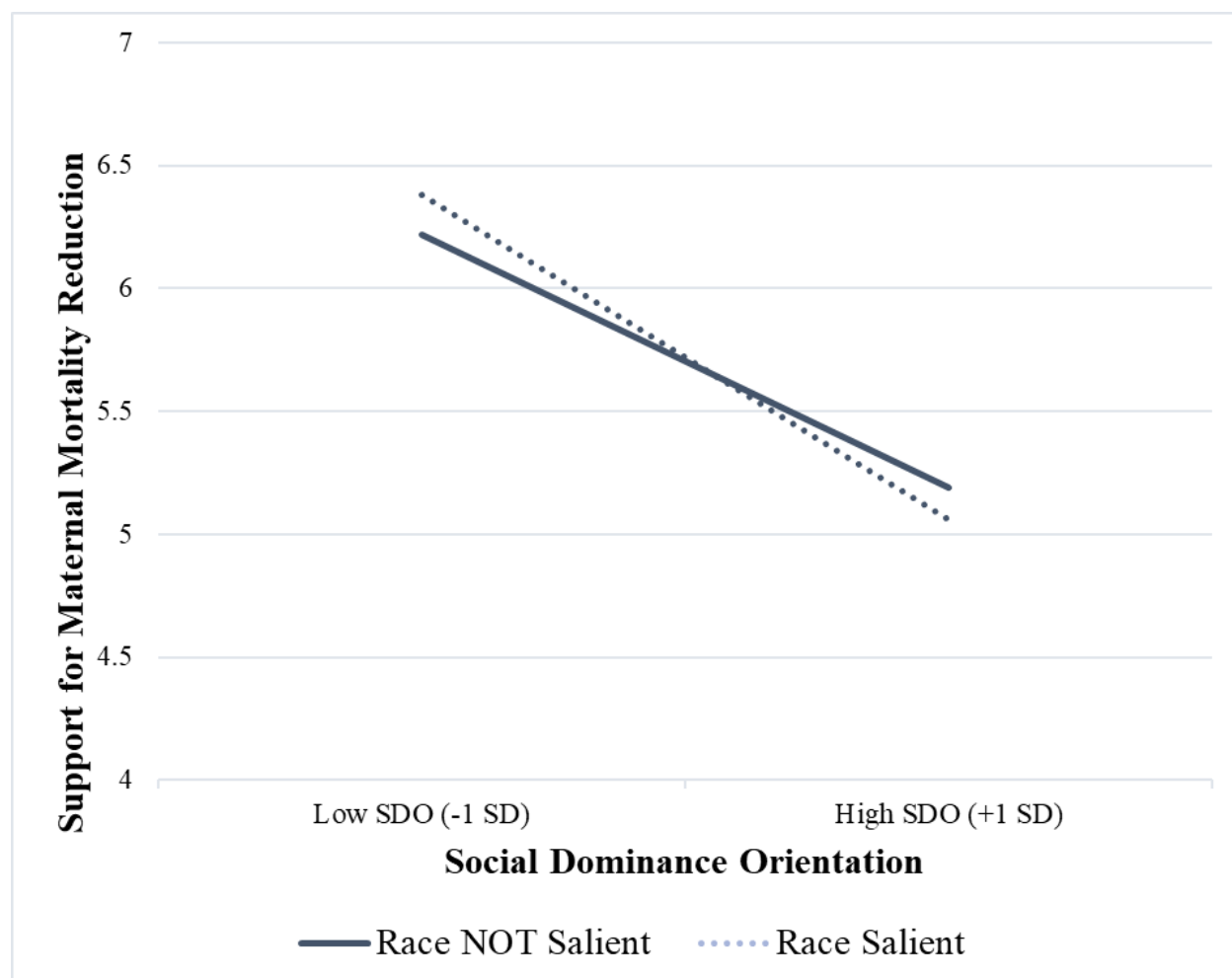
Do emotional responses help explain the effects of persuasive evidence?

Mother and System Focused Emotions

In order to examine if participants' emotional responses might help explain the effects of persuasive evidence on support for and expectations of leader and donation behaviors, we conducted a one-way analysis of variance (ANOVA) tests to examine if either experimental condition had an effect on the emotions (racial disparity: 1=present, 0= absent; persuasive evidence: 1=anecdotes, 0 = statistics). There were no significant main effects of racial disparity

(ps > .374) or persuasive evidence (ps > .375), and no interactions (ps > .516) for either of the emotion variables.

In sum, there was no significant effect of experimental conditions on support for maternal mortality reduction efforts. However, anecdotal persuasive evidence increased demand for leadership action and marginally increased donations. We also found this pattern for activism intentions but only when race was made salient; we found anecdotes associated with decreased activism intention when race was not salient. Next, although SDO predicted all variables, it only moderated the effect of the race salience manipulation on one outcome variable, demand for leadership action. SDO more strongly predicted responses when race was salient, with high SDO being less likely to demand action and low SDO being more likely to. Finally, the effect of anecdotes on demand for action and donation were not explained by emotions.

Chapter 4: Discussion

The aim of this project was to explore the impact and role of persuasive evidence and racial disparities in maternal mortality public health campaigns. With the rising rates of maternal mortality in the US and because women of color are 2.5 times more likely to die in childbirth than White women, the importance of the issue is becoming ever more apparent (Hoyert, 2023). In this research, we examined factors that might help galvanize people to demand and contribute to action on this issue. The primary aim of this research project was to understand the implications of different types of maternal mortality health campaigns for how individuals respond and the extent to which they demand and contribute to action to reduce maternal mortality. We designed an experimental study where participants were exposed to one of four public health messages about maternal mortality. These messages were crafted to compare anecdotal versus statistical evidence, and to assess the impact of acknowledging versus ignoring racial disparities. This was followed by a set of survey questions that evaluated participants' desire to create action and demand change. In totality, the goal of this study was to further understand the role of persuasive evidence and racial disparity in maternal mortality campaigns.

The main findings of the study suggest that while there were no significant effects of experimental conditions on support for maternal mortality reduction efforts, there was an increased demand for leadership action and marginal increase for donations in the anecdotal, compared to the statistics condition. Additionally, there was a marginally significant interaction between the factors on activism intentions such that anecdotal evidence was associated with a greater inclination to engage in activism, relative to statistical evidence, when racial disparities were made salient, but the pattern was reversed when there was no mention of race. Next, although SDO negatively predicted all variables, it only moderated the effect of the race salience manipulation on one outcome variable, support for maternal mortality reduction efforts. SDO

more strongly predicted responses when race was salient, meaning that participants with a higher SDO were less likely to demand support and action from their leaders. Finally, the effects of the anecdotal messages on increasing both demand for action and donations were not explained by changes in emotions.

Theoretical and Practical Implications

Overall, the results indicate that the anecdotal persuasive evidence is more effective than statistical evidence in maternal mortality health campaigns in motivating people to demand action from leaders and to encourage donations. The pattern of results in this study is consistent with the work completed by Winterbottom et al. (2008). This paper suggests that anecdotal evidence could be more persuasive than statistical evidence when it comes to medical decision making. Winterbottom et al. (2008) even noted that first personal narratives are twice as likely to find an effect compared to third person narratives; an area for further research might be the comparison of first and third person narratives in health-related matters. Winterbottom and colleagues have argued that this is a result of heuristic processing being more informative to the decision-making process than systematic processing. Heuristic thinking refers to the quick decision making that occurs from simple decision-making rules that take into account other than the content of the message, whereas systematic processing individuals evaluate and scrutinize the information in relation to other information they have about the subject (Kopfman et al., 1998; Winterbottom et al., 2008). Our findings about the strength of anecdotal persuasive evidence would support this argument that heuristic thinking might be a supportive factor in why participants made decisions calling for more leader action and donating more. Anecdotal evidence could have increased heuristic thinking, in turn, heuristic thinking could have been a mechanism that increased the demand for leader action and donation. Heuristic thinking, in

addition to the individual's underlying thoughts about a subject, informs their decision making about problem solving (Kopfman, 1998; Zebregs et al., 2014).

Similarly, this pattern of results is closely related to the findings of Zebregs et al. (2014). Zebregs and his colleagues hypothesized and supported the claims that statistical evidence has a stronger influence on beliefs and attitude, but narratives have a stronger influence on intention. When anecdotal was more persuasive, they believed it to be because of a stronger influence of intention, as opposed to belief and attitude. In this current study, donations and demands for their leaders to take action could be explained by individual participants' intentional decision making when it comes to maternal health. In looking to understand the mechanism underlying these effects, Zebregs et. al (2014) suggest that narrative responses are associated with increased intentions because of the affective responses associated with narratives which mediate the effect of the evidence on intention (Zebregs et al., 2014). There might require further research into understanding the role of intention on anecdotal evidence in health campaigns.

Zebreg's (2014) study similarly supports Kopfman et al. (1998) paper that suggests narrative evidence in health campaigns creates a different type of cognitive processing and response in participants than would occur when provided the statistical evidence (Kopfman et al., 1998). Kopfman's understanding of this difference between anecdotal and statistical is that anecdotal messages incite the affective response, whereas narrative response incite a cognitive response (Kopfman et al., 1998). Because of this prior research, we also tested the role of emotions in helping explain the effects of the anecdotal message. Contrary to expectations, we did not find that emotions mediated the effect.

Although health campaigns are often curated to create an emotional appeal between the individual and the health campaign message, we found there was no evidence supporting the

effectiveness of anecdotal conditions being driven by emotions in this study (Nabi, 2015). Health campaigns are often created to incite some type of emotional response between the individual and the content within the campaign. This idea of inciting an emotional response is what could inspire people to act and change their beliefs. Three main responses that have been targeted by health campaigns have been fear, as well as guilt, humor, and sometimes anger (Nabi, 2015). In our survey, the emotions-focused question inquired about sadness, pity, empathy felt towards the mother and anger, sadness, and disgust towards the healthcare system. As none of these results were significant, perhaps the wrong types of emotions were given as options for individuals to designate. As Nabi (2015) explains, "The goal is to create an emotional state by highlighting a problem in one's environment. Message information that effectively addresses that problem is then expected to be privileged in the decision-making process." An alternative possibility is that the messages lacked the effectiveness to elicit those certain emotional states from the participants. Moreover, considering the messages were short and limited to a singular story of one individual, it could be possible that the participants lacked the connection to the story character.

In addition to theoretical implications, there are also important practical implications of this research. The first being the pragmatic use of anecdotal persuasive evidence in maternal health campaigns. Anecdotal persuasive evidence seems to be a key motivator. The implementation of these results could be very practical for maternal health campaigns moving forward, especially for what leaders could implement for themselves. For example, if individuals are persuaded by stories when it comes to health campaigns, then health educators and community health groups might focus intentionally on the inclusion of stories in these campaigns for the greatest impact. Additionally, health leaders should consider their expectations of their

followers and commitment to reduce maternal mortality rates. Leaders require their constituents' (or followers') trust as it is a direct predictor of follower's support (Parker, 1989). Constituent advocacy can be a large motivating factor for leaders if their followers call for action and can sway their decisions to inspire reforms. There should be careful consideration into how leaders establish connection and trust with their followers in order to have the greatest impact, whether that be in health, political, or media realm. Leaders might consider utilizing real stories in their work to garner the support of followers. Additionally, utilizing the results for implementing anecdotal stories to see higher donations could be a great way to champion a cause. Although the significance of the effect was marginal, to the extent it is a reliable effect, five cents on the dollar increase is a meaningful effect. It holds the potential of making a discernible difference when thinking about the millions of dollars people spend in campaign and advocacy funds. Leaders, in particular, as well as some organizations can draw upon these results that highlight the effectiveness and success of utilizing anecdotal evidence in these campaigns.

Limitations and Future Research

Certain limitations of this study could be addressed in future research. Future research might entail completing this research in such a way to better understand the psychological mechanisms behind the respondent's choices. For example, we found that the anecdote had an effect on demanding action from leaders and donation behavior, but it did not appear to be driven by the emotions we assessed. In addition to assessing other emotions, future research should look into other mechanisms such as heuristic processing (Winterbottom et al., 2008). Or another potential mechanism might be an increase in feeling close to those whose lives are upended by maternal mortality. Individuals tend to give more when social distance is reduced and when givers know that the donation will be meaningful and impactful in the eyes of the recipient

(Andreoni et al., 2017). The anecdotal evidence may have tapped into a different type of processing for the individual that allowed them to engage in donating more because they might have felt closer to the intended recipient (or someone like the recipient) as they knew of her name and her story about maternal mortality.

There are important opportunities for replication and extension efforts to validate and support this study's results, including maybe having a first person versus third person study. As discussed in the Winterbottom et al (2008) piece, there is evidence that respondents might feel more connected to and inspired by the first-person perspective, as opposed to the third person. This new type of study design could provide great insight into the structure and manner of more effective health campaigns. Along those same lines, it would be interesting to understand more about the intersectional and educational outcome of health campaigns and social media. As seen in the research by Aruah et al. (2023), social media can be an essential tool for individual leaders to utilize to communicate messages and raise awareness about maternal mortality. Aruah and her colleagues found that Twitter, specifically, can be a great tool for advocacy, creating community, and amplifying marginalized voices in maternal health (Aruah et al., 2023). There is great potential for leaders to understand further their role within promoting maternal health. Additionally, the results of this study are significant in that they demonstrate the novelty of one of the outcome variables, the demanding action from the leader. Future research should work to validate the future effects of these self-reports to understand if these demands have any appreciable effects and through what mechanism (voting, publicly expressing the demands, etc.) are most effective.

Future research might also look further into the lack of effect on the racial disparity manipulation. In our study, the race manipulation did not have a profound effect. A possible

explanation of the lack of effect in this manipulation is that women of color face intersectional invisibility and are thus rendered invisible. (Remedios & Snyder, 2015; Sesko & Biernat, 2010; Wong et al. 2022). Black women in particular are rendered invisible because of their perceived lack of prototypicality for their racial or gender group (Remedios & Snyder, 2015; Wong et al., 2022). In our study, the racial disparities manipulation might not have been recognized by participants as something that was more or less motivating than the race non-salient condition possible because this information was overlooked or disregarded by them, consistent with intersectional invisibility. However, given our methodological approach, this is not something we can test with the current study. New research should more directly seek to test whether the lack of effect of the manipulation is a result of intersectional invisibility processes or not. Additionally, because another possibility is that the manipulation was not effective because people are generally aware of the disparity, a new possibility for future research would be to further create mechanisms to test participants' knowledge before or after. Because we did not find an effect, does not suggest that there is no support for the maternal mortality racial disparity in deaths. These findings are not particularly surprising given the lack of effect of the race salience manipulation.

There are definite limitations regarding the study design, specifically regarding the health campaign designs. The two campaign images differed in ways beyond potentially the message/race manipulations. Specifically, these health campaigns were created using stock images and images from the CDC depicting either a white woman or a woman of color; however, a potentially alternative study design would be with computer simulated women that look more similarly related, and no other facial characteristics that might inform participants perceptions of race. These slight variations between the two images could have been some

unintended effects or they could have been responsible for some of the effects that were discovered. However, this study design would be most impactful if there were discoveries on the significant effects of race manipulations.

More generally, there are limitations relating to the collection of the participants. Because of the use of Cloud Research's Connect platform, there could have been a lack of representativeness with the general population because it utilized a convenience sample (Goodman et al. 2012). Additionally, online recruitment platforms, like Cloud Research could lack a control of its participants. For example, participants could be distracted, preoccupied by other tasks, and not fully engaged with the survey. This might affect the results and how participants responded to questions (Goodman et al. 2012). Another potential limitation of data collection through this manner, is participants might be incentivized by the payment system to work as quickly as possible. Participants, even though they are getting paid per survey, might be motivated to complete as many surveys as possible within a given hour, potentially leading to quicker completion times than if they were getting paid better. While CloudResearch is committed to providing reliable participants, there are still some general limitations to consider when using a participant data collection source such as this one.

Conclusion

With the current rise of maternal mortality rates in the United States, particularly among Black women, the aim of this project was to understand more about how the content of maternal health campaigns affects participants' desire to create action and change. The findings indicate that anecdotal evidence has a larger impact than statistical evidence on participants' demanding change from their leaders and willingness to donate money towards this issue. The results of this

study offer important insight for the development and structure of maternal health campaigns. Our present research supports the pre-existing literature that works to further understand what form of persuasive evidence is most effective and successful in public health campaigns supporting maternal health. Leaders and organizations can strive to incorporate these findings into their campaigns around maternal health and education. Moving forward, future research in the domain of maternal mortality should test the role of anecdotal stories in engaging individuals in heuristic thinking while also establishing a connection between the audience and the individuals and communities highlighted in the anecdotes. While our results found no effect of race manipulation, there need to continue to be efforts to reduce maternal mortality rates, especially efforts toward reducing the disparities between racial and ethnic groups. We must prioritize education and bringing awareness to maternal health causes in order for there to be active efforts toward reduction in maternal mortality rates.

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Appendix

Consent Form

Research
This project is intended for practical research, and for that reason is restricted to adults aged 18 years and over.

Project Description
The purpose of this research is to study beliefs and feelings about maternal mortality and messaging. Specifically, you may be asked to read a brief campaign message and you will be asked to answer a series of questions related to maternal mortality and messaging. The session should last no more than 10 minutes.

Benefits and Risks of Research
The direct benefits of this study include monetary compensation and cognitive stimulation resulting from completion of the study, as well as a sense of worth for contributing to science through participation. There is no more than minimal risk involved in participating in this study.

Principal Investigator
The principal investigator is Shelby Mokricky. Should you have any questions or concerns, you can contact Shelby Mokricky at shelby.mokricky@richmond.edu.

Voluntary Participation
Your participation in this project is voluntary and you are free to skip questions or withdraw your consent and discontinue participation in the project at any time without penalty.

Confidentiality of Records and Use of Information and Data Collected
Your individual results will remain confidential. In order to ensure the confidentiality of records, we are not recording any identifying information. Information collected in this study will be used in aggregate form only. This data will be widely disseminated through a variety of methods including publications, presentations, and data sharing.

Payment Information
You will be compensated for your participation in this study with a payment of $1.

Participant's Rights Information
If you have any questions concerning your rights as a research participant, please contact the Chair of the University of Richmond's Institutional Review Board (URIRB) for the Protection of Human Subjects of Research at irb@richmond.edu or (804) 484-1565.

Participant's Consent

The study has been described to me and I understand that my participation is voluntary and that I am free to withdraw my consent and discontinue my participation in the project at any time without penalty. By clicking below to take the study, I attest that I am 18 years of age or older, that I have read and understand the above information and that I consent to participate in this study.

Complete Survey Flow

1. Instructions: If the following numbers were organized in order of increasing value, what would be the middle number?

    Four, 1, Six

    You should write out your answer in a word. Please type your word with all CAPITALIZED, UPPERCASE LETTERS.

2. Consent Form

3. Definitions
    The research is about Maternal Health and Maternal Mortality. Before you begin, we would like to share with you more information about Maternal Health and Maternal Mortality.
    > Maternal mortality is defined as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes" (CDC).
    > Maternal health refers to the health of women before, during, and after childbirth (during pregnancy, childbirth, and the postnatal period).

4. Directions
    > On the next screen you will see a health campaign message about maternal mortality, please read it carefully.

5. Health Campaign Image (Shown 1 of 4 randomized health campaign images with texts)

6. Reading Comprehension
    > If a friend asked you the main message of the health campaign message, what would you tell them? Please write one sentence.

7. Support for Maternal Mortality: Please indicate your agreement to the statements below, on the scale from strongly disagree to strongly agree.
    a. The severity of maternal mortality in the United States has been largely exaggerated.
    b. I am very disturbed by the amount of maternal mortality in the United States today.
    c. Maternal mortality is not a serious problem.

    d.   We need to do everything possible to reduce maternal mortality in the United States today.

8. Emotion Toward Mother: Using the 0-4 scale below, indicate how much you experience each of the following feelings towards the mother and her family whenever you hear about someone's struggles with significant maternal health concerns:
   When I hear about women experiencing serious maternal health issues, I feel _____ toward the mother and her family:

   Sadness
   Pity
   Empathy

9. Emotion Toward US Healthcare: Using the 0-4 scale below, indicate how much you experience each of the following feelings towards the U.S. healthcare system whenever you hear about someone's struggles with significant maternal health concerns:
   When I hear about women experiencing serious maternal health issues, I feel _____ toward the larger health care system:

   Anger
   Sadness
   Disgust

10. Action/Activism: Please indicate how likely it is that you will engage in the following activities in the future. Choose from: "Extremely Unlikely," to "Extremely Likely."
    a. Attend a political meeting on the issue of maternal mortality.
    b. Support community centered care focused on maternal health.
    c. Support research and training on maternal health.
    d. Work with fellow citizens to decrease rates of maternal mortality in your current community.
    e. Work or volunteer with a community-based organization that works to lower rates of maternal mortality.
    f. Please select 'extremely likely' for this question.
    g. Work or volunteer with a community-based organization that works to promote maternal health.
    h. Donate money to an organization that supports maternal health.
    i. Educate myself more on the problem of maternal mortality.
    j. Become an advocate of maternal health.
    k. Advocate to a political leader about maternal mortality (by word of mouth, writing, emailing, etc.)

l. Support a political leader who cares about promoting maternal health.
m. Support a political leader who works to reduce maternal mortality.

11. Please indicate your agreement to the statements below (from "Strongly Disagree to Strongly Agree").
   a. Political leaders (e.g., city council members, mayors, state representatives, etc.) should work to lower rates of maternal mortality.
   b. Reducing rates of maternal mortality should be on the agenda for many political leaders (e.g., mayors, city councils, state representatives, etc.).
   c. Political leaders (e.g., mayors, city councils, state representatives, etc.) should promote maternal health.
   d. Health care leaders (e.g., doctors/nurses, hospital administrators, medical associations, etc.) should work to lower the rates of maternal mortality.
   e. Health care leaders (e.g., doctors/nurses, hospital administrators, medical associations, etc.) should care about reducing the rates of maternal mortality.
   f. Health care leaders (e.g., doctors, nurses, hospitals, health networks, etc.) should promote maternal health.
   g. Media leaders (e.g., journalists, news outlets, social media, etc.) should work to make the issue of maternal mortality better known.
   h. Media leaders (e.g., news outlets, journalists, social media, etc.) should be responsible for helping people understand more about maternal mortality.
   i. Media leaders (e.g., news outlets, journalists, social media, etc.) should promote a better understanding of maternal health.

12. Donation: Thank you for taking this survey. As you know, you will be given $1.00 for participating in this research. We are now giving you the option to donate some or all of your payment to the organization Birth in Color.

   Birth in Color is focused on reforming systems that contribute to maternal mortality. The organization focuses on empowering women through policy advocacy, community centered care, research and training, and other opportunities to support women of color through the pregnancy, birth, and the postpartum processes. For more information, here is the link for their website, https://birthincolor.org/.

   What portion of the $1.00 payment would you like to donate to the Birth in Color?
   a. Donate none, keep all.
   b. Donate $0.25, keep $0.75.
   c. Donate $0.50, keep $0.50.

      d. Donate $0.75, keep $0.25.

      e. Donate all, keep none.

Regardless of whether you chose to donate some or all of your payment, you will receive the full payment of $1. And, if you did indicate that you wanted to donate some of your payment, a donation will be made to Birth in Color by the research team.

13. Demographics

14. Survey Debrief:

Thank you for participating!

The health campaign message you read was developed by the research team and was not a message from the CDC; however, the message was created utilizing information and resources from the CDC. In this research, we tested different types of messaging in an effort to understand how messaging might influence attitudes towards maternal mortality. Maternal Mortality is an important issue in the United States, please see this website for more information regarding the Maternal Health Disparity:

https://www.cdc.gov/reproductivehealth/maternal-mortality/index.html